

**United States Department of the Interior
Bureau of Land Management
Royal Gorge Field Office
3028 E. Main Street
Cañon City, CO 81212**

Environmental Assessment

El Rancho Bondo Placer Mining Plan of Operations Modification

DOI-BLM-CO-F02-2014-0001 EA

March 2015



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CHAPTER 1 - INTRODUCTION

1.1 IDENTIFYING INFORMATION

CASEFILE/PROJECT NUMBER (optional): COC075265 / DOI-BLM-CO-F02-2014-001 EA

PROJECT TITLE: El Rancho Bondo Placer Mining Plan of Operations Modification

PLANNING UNIT: Arkansas River Subregion #1

LEGAL DESCRIPTION: Fremont County, T.18S, R.71 W, Sec. 18 W½SW¼NE¼ and W½NW¼SE¼

APPLICANT: Thomas Zimmerman
45871 W. US Highway 50
Canon City, CO 81212

1.2 INTRODUCTION AND BACKGROUND

BACKGROUND: This EA has been prepared by the BLM to analyze a modification to the existing Plan of Operations on a claim (CMC278502) in Parkdale, CO. A similar plan of operations submission by the current claimant was analyzed under DNA (CO-200-2012-050 DN), as the original plan of operations submission by a previous claimant was analyzed under CO-200-2001-054 EA. The current claimant, who is also the operator, has submitted a modification to the existing plan of operations, in order to develop additional resources to the west, utilize motorized equipment and resolve some aspects of the operation that were not adequately addressed within the existing authorized Plan of Operations. The Mining Plan of Operations modification document is subject to review and public comment, per 43 CFR 3809.

1.3 PURPOSE AND NEED

The operator has submitted a modification to our office and requested authorization and concurrence to proceed under the Mining Law and pertinent regulations 43 CFR 3809 & 3715.

1.4 DECISION TO BE MADE

This EA will analyze the proposed El Rancho Bondo Placer Mining Plan of Operations modification to determine the following:

1. Will the proposed action result in significant impacts that would warrant preparation of an Environmental Impact Statement?
2. If the proposed action will cause unnecessary or undue degradation, what actions will be required of the operator to mitigate this?
3. In addition, BLM needs to analyze the proposed occupancy, in order to understand if requirements under 43 CFR 3715 will be met.

The BLM will require mitigation of probable impacts to a level that prevents unnecessary or undue degradation of the public lands and is consistent with performance standards outlined in 43 CFR 3809.420.

Decisions regarding the approval or non-approval of the Plan of Operations modification submittal and concurrence or non-concurrence of the occupancy proposal will be documented separately from this Environmental Assessment.

1.5 PLAN CONFORMANCE REVIEW

PLAN CONFORMANCE REVIEW: The Proposed Action is subject to and has been reviewed for conformance with the following plan (43 CFR 1610.5, BLM 1617.3):

Name of Plan: Royal Gorge Resource Management Plan

Date Approved: 05/13/1996

Decision Number/Page: 1-40 &1-41/2-1-8

Decision Language: 1-40: Areas will be open to mineral entry and available for mineral materials development.

1-41: Areas will be open to mineral entry and available for mineral materials development under standard mineral operating practices.

In January 1997, the Colorado State Office of the BLM approved the Standards for Public Land Health and amended all RMPs in the State. Standards describe the conditions needed to sustain public land health and apply to all uses of public lands.

Standard 1: Upland soils exhibit infiltration and permeability rates that are appropriate to soil type, climate, land form, and geologic processes.

Standard 2: Riparian systems associated with both running and standing water function properly and have the ability to recover from major disturbance such as fire, severe grazing, or 100-year floods.

Standard 3: Healthy, productive plant and animal communities of native and other desirable species are maintained at viable population levels commensurate with the species and habitat's potential.

Standard 4: Special status, threatened and endangered species (federal and state), and other plants and animals officially designated by the BLM, and their habitats are maintained or enhanced by sustaining healthy, native plant and animal communities.

Standard 5: The water quality of all water bodies, including ground water where applicable, located on or influenced by BLM lands will achieve or exceed the Water Quality Standards established by the State of Colorado.

Because standards exist for each of these five categories, a finding must be made for each of them in an environmental analysis. These findings are located in Chapter 3 of this document.

1.6 SCOPING, PUBLIC INVOLVEMENT AND ISSUES

1.5.1 Scoping: NEPA regulations (40 CFR §1500-1508) require that the BLM use a scoping process to identify potential significant issues in preparation for impact analysis. The principal goals of scoping are to allow public participation to identify issues, concerns, and potential impacts that require detailed analysis.

Persons/Public/Agencies Consulted: The Royal Gorge FO posted the Draft EA on the FO's NEPA website to initiate the public scoping process. This effort launched the public scoping process in an attempt to identify potential issues associated with the proposed action. The issues identified are summarized below.

Issues Identified: Colorado Parks and Wildlife has expressed concerns with potential negative impacts of placer mining on the Arkansas River, both direct and cumulative.

CHAPTER 2 - PROPOSED ACTION AND ALTERNATIVES

2.1 INTRODUCTION

The purpose of this chapter is to provide information on the Proposed Action and Alternatives. Alternatives considered but not analyzed in detail are also discussed.

2.2 ALTERNATIVES ANALYZED IN DETAIL

2.2.1 Proposed Action

The Proposed Action is to modify the types of operations currently authorized under the Plan of Operations. The current Plan of Operations (Appendix A) permits 4-wheeler access to the claim along an old road and high banking operations on the west side of the Arkansas River, 0.3 miles south of Parkdale. Operations occur within 50 feet of the river's edge and involve a pump (3 ½ hp motor) and a 1.5 inch hose that pumps water up to a sluice box. Material is hand shoveled into the sluice box for processing. The Plan states that this type of operation will be conducted between April 1st and September 30th each year. Reclamation includes conservation of topsoil, refilling holes and revegetating the surface using hand tools. Additional details are available in the approved Plan of Operations, included as Appendix B.

Proposed Modifications to Mining Plan

The proposed modifications include:

1. Change the timing of operations-

The operator has proposed to work year round using both motorized and non-motorized equipment. More specifically the operator would work anywhere from two days to several days a week, as weather permits.

2. Change the type of equipment-

The operator's original modification included suction dredging. On February 26, 2014, the operator removed this proposal from the modification. High banking operations will continue using a pump no more than 8 horsepower and an intake no larger than 3 inches in diameter. Settling ponds will continue to be utilized to prevent direct runoff into the river.

Additional digging (small amounts along the working face) and moving of larger materials may also occur. A small tractor (excavator) will be used to maintain (not modify) the existing road, aid in site development and reclamation.

3. Extension of the work area to the west-

The operator would like to extend the current work area from a 20-foot width by 100-foot length to a 100-125-foot width by 175-200-foot length, or maximum of about 0.60 acres. This would place the high banking work area at a distance of 100-feet from the river's edge, with the overall work area edge at a minimum of 20-feet from the river's edge. The work areas will occur on a bench that was created by stream deposits containing a matrix of sandy soil mixed with cobbles and boulders. The working face would be laterally worked in a north-south direction, with mining advancing to the west and the worked area being filled in, or reclaimed, as the operation advanced. Therefore, the 0.60 acres would not all be disturbed at the same time.

This deposit pinches out in every direction and is replaced by naturally piled cobbles, bedrock and the river to the east. Working faces under the current Plan of Operations are located near the top of this terrace about 10-12 feet vertically above the river's edge (during low flow) and are expected to be outside the reach of a major flood event, as well as the strip of riparian area along the river's edge. As mining continues under this modification the work areas will be further removed from potentially flood prone areas, due to the advancement moving away from the river. As mining progresses, material will be removed along the west scarp, processed and placed behind the working face to the east. Working faces are estimated to range in dimensions of 100'Lx20'Wx1'D to 150'Lx36'Wx20'D. It will likely take 1-2 years for the scarp to move back (to the west) a few feet.

Additional Information Regarding the Reclamation Plan

As mining progresses and processed material to the east is no longer being disturbed, reclamation of those areas will be conducted within 1-2 years. A small excavator, limited by the size of the current road (approximately 60-inches), is proposed for periodic use to remove the topsoil from work areas on the terrace in preparation for hand-digging operations. This topsoil, which is very sandy, will continue to be stockpiled on the southwest side of the site and used for reclamation, when removed by the small equipment (when hand digging is occurring, all material is worked through the sluice together and stockpiling does not occur).

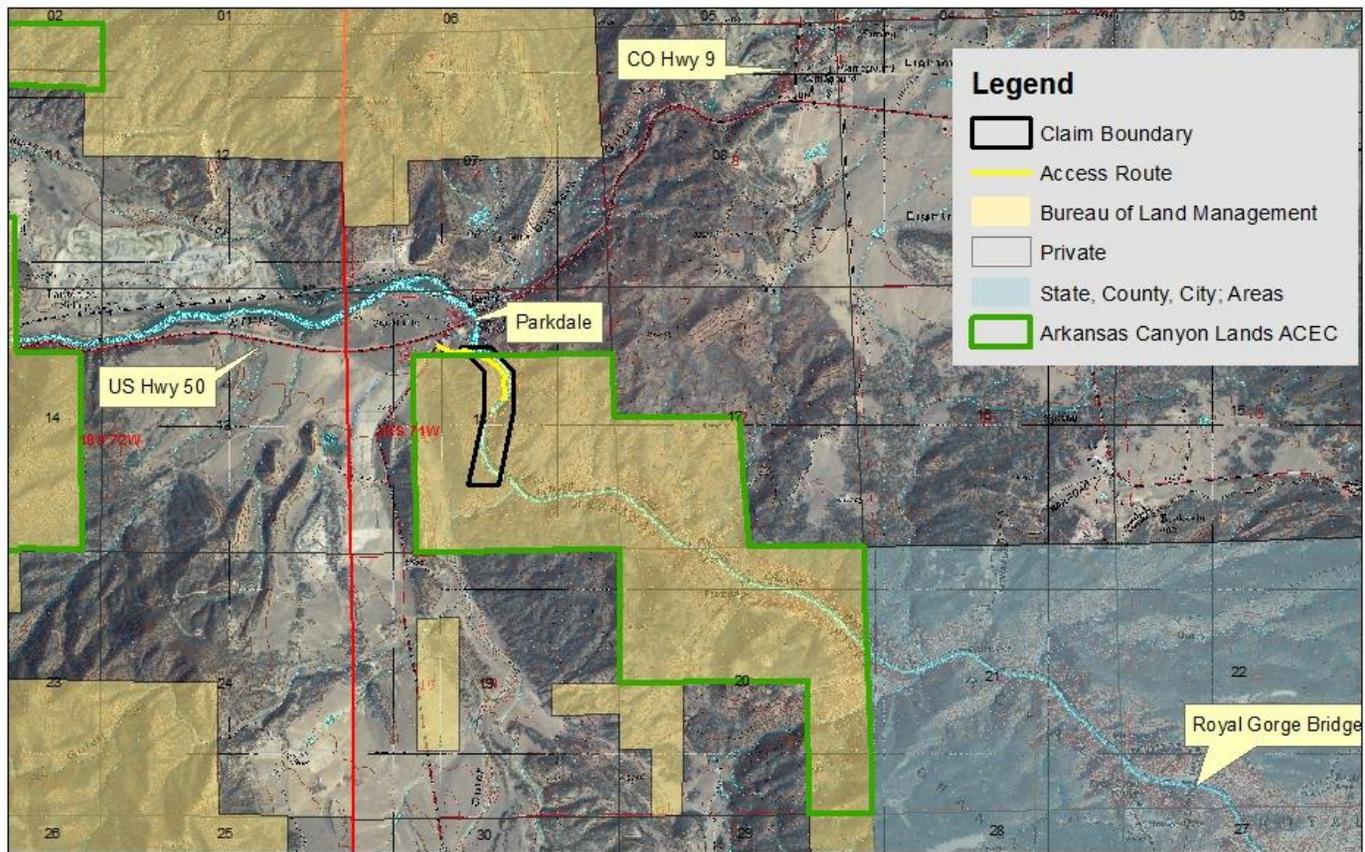
Present vegetation is dominated by Russian thistle and cacti, as shown in Figure 3. Little to no riparian vegetation is present in the proposed work area, as shown in Figure 4. The small tractor

equipment may be used during reclamation to fill holes and apply topsoil. Hand tools will continue to be used for filling and shaping reclamation as well.

Proposed occupancy

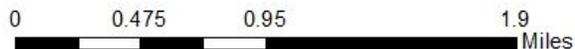
The operator would also like to stage a temporary, weather resistant, steel locker (tool chest) that will not be larger than 4' x 4' x 8' to store equipment securely on site. It is proposed that the locker would be located on the western edge of the proposed work area at the base of the hill in a place behind big boulders, in order to reduce its visibility. It is proposed that gasoline and other petroleum products used in motorized operations may be stored in this unit as well as equipment that will be used daily. The locker will be located a minimum of 100-feet from the edge of the river and will stay onsite for the remaining life of the mine and will be removed during final reclamation. It will be secured with a heavy duty lock.

In addition, the small tractor may be left on site overnight while in use, but will be removed from the site during times of non-use.



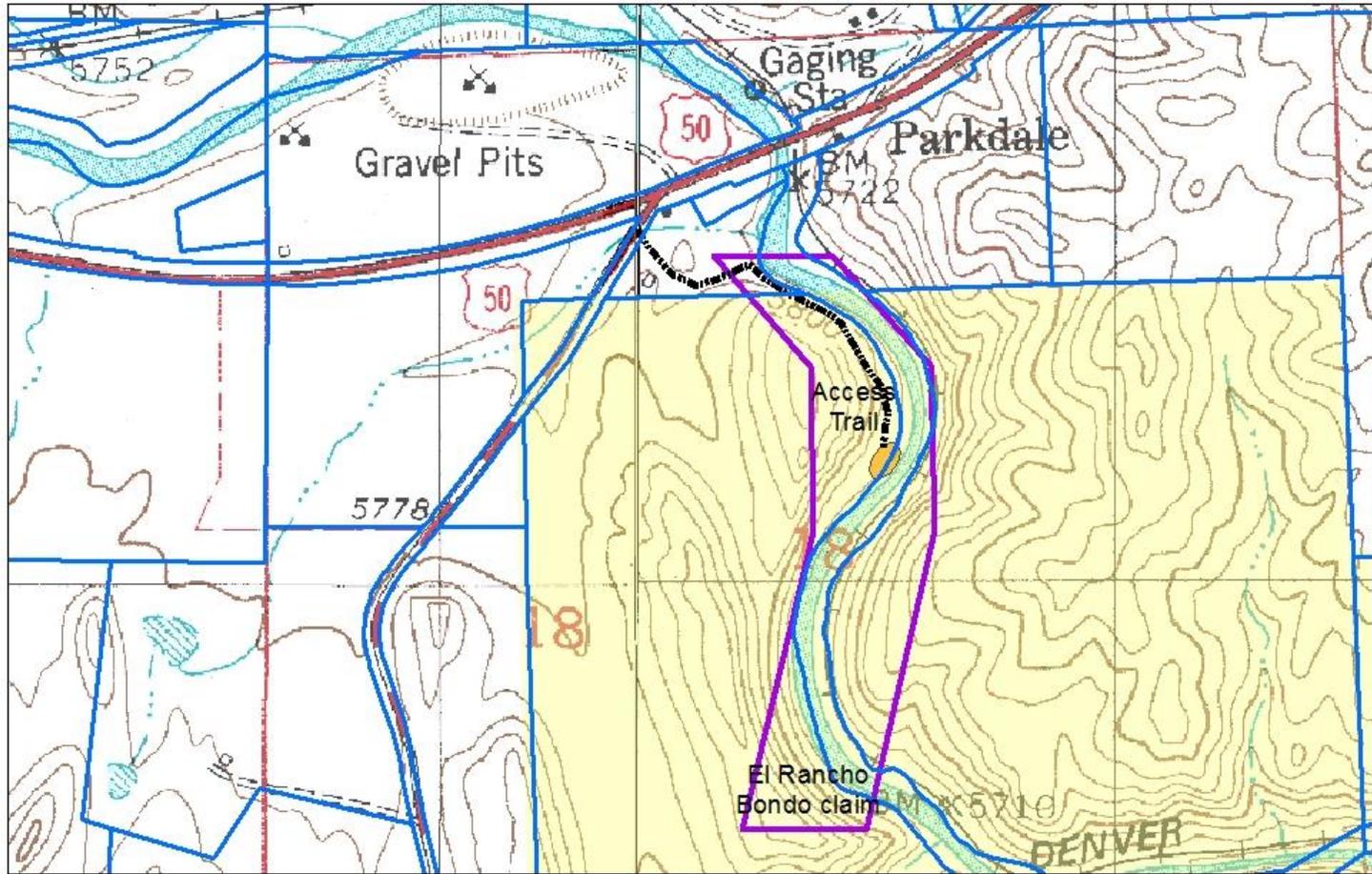
El Rancho Bondo Placer Mining Location Map

DOI-BLM-CO-F02-2014-001 EA
 6thPM, T18S R71W Sec. 18



NOTE TO MAP USERS
 No warrantee is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of the data layers shown on this map. The official land records of the data providers should be checked or current status on any specific tract of land.

Figure 1. Location Map



Map 1

Plan of Operations, El Rancho Bondo

6th PM, T18S, R71W, Section 18



0 0.05 0.1 0.2 Miles

Legend

- FREMONT_PARCELS
- Zimmeman_Access
- El_Rancho_Bondo_claim
- 2014_Work_Area_El_Rancho_Bondo
- Bureau of Land Management Private

NOTE TO MAP USERS
 No warrantee is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of the data layers shown on this map. The official land records of the data providers should be checked or current status on any specific tract of land.

Figure 2. General Plan of Operations Footprint



Figure 3. Looking northeast at general site vegetation



Figure 4. Looking southwest at existing work area vegetation

2.2.2 No Action Alternative

Under the General Mining Law of 1872, and within the framework of 43 CFR 3809, the BLM is limited to denying the Plan of Operations only if it has been determined that the proposed action will result in Undue or Unnecessary Degradation (UUD), as defined under 43 CFR 3809.5. In the case of the El Rancho Bondo Plan of Operations modification and at the onset of the NEPA process, it does not appear that operations proposed would result in UUD. Therefore the possibility of denying this Plan of Operations modification can't be determined until after the NEPA evaluation process is complete and it can be concluded that UUD could not be prevented through mitigation or otherwise. In addition, current mining taking place under the approved Plan of Operations will continue, irrespective of the proposed modification approval.

2.2.3 Alternatives

None.

2.3 ALTERNATIVES CONSIDERED BUT NOT ANALYZED IN DETAIL

None.

CHAPTER 3 - AFFECTED ENVIRONMENT AND EFFECTS

3.1 INTRODUCTION

This section provides a description of the human and natural environmental resources that could be affected by the Proposed Action and presents comparative analyses of the direct, indirect and cumulative effects on the affected environment stemming from the implementation of the actions under the Proposed Action and other alternatives analyzed.

3.1.1 Interdisciplinary Team Review

The following table is provided as a mechanism for resource staff review, to identify those resource values with issues or potential impacts from the proposed action and/or alternatives. Those resources identified in the table as impacted or potentially impacted will be brought forward for analysis.

<u>Resource</u>	<u>Initial and date</u>	<u>Comment or Reason for Dismissal from Analysis</u>
<u>Air Quality</u> <i>Ty Webb, Chad Meister, Melissa Hovey</i>	TW, 2/7/14	No impacts are foreseen to air quality within the area.
<u>Geology/Minerals</u> <i>Stephanie Carter, Melissa Smeins</i>	SSC, 8/27/14	No significant impact to geology/minerals is anticipated. See Section 3.2.1 (Geology/Minerals) for a brief description of geology and analysis of possible occupancy under the Mining Law.
<u>Soils</u> <i>John Smeins</i>	JS, 12/3/14	See Affected Environment, Soils Section 3.2.3.

<u>Resource</u>	<u>Initial and date</u>	<u>Comment or Reason for Dismissal from Analysis</u>
<u>Water Quality</u> <u>Surface and Ground</u> <i>John Smeins</i>	JS, 12/3/14	See Affected Environment, Water Section 3.2.4.
<u>Invasive Plants</u> <i>John Lamman</i>	JL, 07/14/2014	See Affected Environment.
<u>T&E and Sensitive Species</u> <i>Matt Rustand</i>	MR, 11/18/2014	No direct impacts to T&E species and/or their habitat anticipated. See Affected Environment for resource background.
<u>Vegetation</u> <i>Jeff Williams, Chris Cloninger, John Lamman</i>	JL, 07/14/2014	See Affected Environment.
<u>Wetlands and Riparian</u> <i>Dave Gilbert</i>	DG 11/24/14	See Affected Environment.
<u>Wildlife Aquatic</u> <i>Dave Gilbert</i>	DG 11/24/14	See Affected Environment.
<u>Wildlife Terrestrial</u> <i>Matt Rustand</i>	MR, 11/18/2014	See Affected Environment.
<u>Migratory Birds</u> <i>Matt Rustand</i>	MR, 11/18/2014	See Affected Environment.
<u>Cultural Resources</u> <i>Monica Weimer, Michael Troyer</i>	7/9/14	Two cultural resources inventories in the area of potential effect located no historic properties (see Reports CR-RG-01-39 P and CR-RG-14-124 N). Therefore, no additional work is required.
<u>Native American Religious Concerns</u> <i>Monica Weimer, Michael Troyer</i>	7/9/14	No possible traditional cultural properties were located during the cultural resources inventory (see above). There is no other known evidence that suggests the project area holds special significance for Native Americans.
<u>Economics</u> <i>Dave Epstein, Martin Weimer</i>	mw, 3/2/15	This action will not result in significant impacts to the socio economics of individuals or the region.
<u>Paleontology</u> <i>Melissa Smeins, Stephanie Carter</i>	SSC, 8/27/14	The geology in this area is not likely to contain recognizable paleontological resources and therefore this project will not have an adverse impact.
<u>Visual Resources</u> <i>John Nahomenuk</i>	MW 3/5/15	No additional impacts to visual resources from the proposed action.
<u>Environmental Justice</u> <i>Martin Weimer</i>	mw, 3/2/15	The proposed action affects an area that is rural in nature. The adjacent land is open rangeland, as a result, there are no minority or low-income populations in or near the project area. As such, the proposal will not have a disproportionately high or adverse environmental effect on minority or low-income populations.
<u>Wastes Hazardous or Solid</u> <i>Stephanie Carter</i>	SSC, 10/20/14	Based on information provided, no significant impact resulting from wastes is anticipated.
<u>Recreation</u> <i>John Nahomenuk</i>	JN 12/10/14	Recreation can continue to occur on the mining claim. The occasional angler may fish from the claim location. Whitewater rafters pass by the claim but typically do not stop at the mining location since they just

<u>Resource</u>	<u>Initial and date</u>	<u>Comment or Reason for Dismissal from Analysis</u>
		launched 5 minutes prior to reaching the mining location.
<u>Farmlands Prime and Unique</u> <i>Jeff Williams, Chris Cloninger, John Lamman</i>	JL, 07/14/2014	Not unique and prime farmlands present.
<u>Lands and Realty</u> <i>Rich Rotte</i>	RAR, 11/12/14	No approved or pending rights of way in the project area other than the Master Title Plat has a recorded railroad (C093736) across the river from the project area. This case was authorized under the Act of June 8, 1872. The BLM has no jurisdiction over the surface within the right of way.
<u>Wilderness, WSAs, ACECs, Wild & Scenic Rivers</u> <i>John Nahomenuk</i>	JN 12/10/14	There is no Wilderness, WSAs, or Wild and Scenic values present. No direct impacts to the designated ACEC is anticipated. See Affected Environment for resource background.
<u>Wilderness Characteristics</u> <i>John Nahomenuk</i>	JN 07/29/14	The small amount of public lands associated with the location of the mining area precludes the presence of Wilderness characteristics.
<u>Range Management</u> <i>Jeff Williams, Chris Cloninger, John Lamman</i>	JL, 07/14/2014	No livestock grazing present.
<u>Forest Management</u> <i>Ken Reed</i>	KR 3/4/2014	No impacts to forest management or forest health.
<u>Cadastral Survey</u> <i>Jeff Covington</i>	JC 7/15/2014	Section 18 was dependently resurveyed in 1983. The GCDB point reliability around the project is +/- 10 ft. The C-N 1/16 section corner of section 18 falls within the project area and will need to be located and protected.
<u>Noise</u> <i>Martin Weimer</i>	mw, 3/2/15	This action will not result in any increased noise levels above what is produced by the current operation.
<u>Fire</u> <i>Ty Webb</i>	TW 6/01/2014	No increased potential for fires due to the proposed action.
<u>Law Enforcement</u> <i>Steve Cunningham</i>	mw for SC	There are no law enforcement issues associated with this action.

The affected resources brought forward for analysis include:

- Geology/Minerals
- Soils
- Water Quality
- Invasive Plants
- Vegetation

- Wetlands and Riparian
- Wildlife Aquatic
- Wildlife Terrestrial
- Migratory Birds
- Visual Resources

3.2 PHYSICAL RESOURCES

3.2.2 GEOLOGIC AND MINERAL RESOURCES

Affected Environment:

The proposed action is located within the same small-scale bench placer deposits as the existing operation. This deposit consists of sand, gravel and cobbles that have been deposited by the river over time.

The operator is proposing to stage a temporary, weather resistant, steel locker (tool chest) that will not be larger than 4' x 4' x 8' to store equipment securely on site. It is proposed that the locker would be located on the western edge of the proposed work area at the base of the hill. The locker will stay onsite for the remaining life of the mine and will be removed during final reclamation. It will also be secured with a heavy duty lock.

In addition, the tractor or backhoe may be left on site overnight while in use, but will be removed from the site during times of nonuse.

Environmental Effects

Proposed Action

Direct and Indirect Impacts: The proposed action includes the staging of a locker and mine equipment, which may constitute occupancy under the Mining Law of 1872, as defined under 43 CFR 3715.0-5.

Per 43 CFR 3715.0-5, Occupancy means full or part-time residence on the public lands. It also means activities that involve residence; the construction, presence, or maintenance of temporary or permanent structures that may be used for such purposes; or the use of a watchman or caretaker for the purpose of monitoring activities. Residence or structures include, but are not limited to, barriers to access, fences, tents, motor homes, trailers, cabins, houses, buildings, and storage of equipment or supplies.

Per 43 CFR 3715.2, activities that are the reason for an operator's occupancy must:

1. Be reasonably incident;
2. Constitute substantially regular work;
3. Be reasonably calculated to lead to the extraction and beneficiation of minerals;
4. Involve observable on-the-ground activity that BLM may verify under § 3715.7; and
5. Use appropriate equipment that is presently operable, subject to the need for reasonable assembly, maintenance, repair or fabrication of replacement parts.

Per 43 CFR 3715.2-1, in addition to the requirements specified in part 3715.2, the occupancy must involve one or more of the following:

1. Protecting exposed, concentrated or otherwise accessible valuable minerals from theft or loss;
2. Protecting from theft or loss appropriate, operable equipment which is regularly used, is not readily portable, and cannot be protected by means other than occupancy;
3. Protecting the public from appropriate, operable equipment which is regularly used, is not readily portable, and if left unattended, creates a hazard to public safety;
4. Protecting the public from surface uses, workings, or improvements which, if left unattended, create a hazard to public safety; or
5. Being located in an area so isolated or lacking in physical access as to require the mining claimant, operator, or workers to remain on site in order to work a full shift of a usual and customary length. A full shift is ordinarily 8 hours and does not include travel time to the site from a community or area in which housing may be obtained.

Protective/Mitigation Measures: The proposal appears to meet all requirements of 43 CFR 3715.2 and meets items #2 and #3 of 43 CFR 3715.2-1. Therefore, no additional measures are needed.

Cumulative Impacts: Not applicable.

No Action Alternative

Direct and Indirect Impacts: None

Protective/Mitigation Measures: None

3.2.3 SOILS (includes a finding on standard 1)

Affected Environment:

The proposed project area lies on a largely upland bench adjacent to the Arkansas River. Due to the small nature of the bench, the exact soil type has not been mapped. Based on the current digging at the site, the soil appears to be relatively well developed with a well-defined A horizon that is approximately 4 inches deep and consists of a fine sandy loam. This is followed by a B horizon that is a well-developed sandy silt that is approximately 8 inches deep. These two layers are likely to be alluvium and/or eolian deposits. Below these upper soil layers is a deep alluvial deposit of poorly sorted cobbles, gravels and sands that is the target of the existing operation, as well as the proposed modification. The Proposed Action calls for separating and stockpiling topsoil until it is used for reclamation. Ultimately, the proponent is responsible for successful reclamation of the site showing that soil productivity is comparable to the pre-mining condition. A successful reclaimed site will be comparable to the pre-disturbed site as long as ecological processes are functioning within a normal range of variability and the native plant community meets the expected functional/structural groups and composition.

These soils are well drained and generally dry with the water table being approximately at river level. Due to the sandy nature of the soil, it is highly susceptible to both wind and water erosion.

Environmental Effects

Proposed Action

Direct and Indirect Impacts: The Proposed Action would essentially remove the topsoil (approximately 12 inches) from 0.6 acres and process the material underneath by hydraulically sorting the gold out of the alluvium. This process totally destroys the soil structure and disrupts the soil organisms and processes. Due to the nature of the action it is imperative that both interim reclamation and final reclamation be done properly in order to return the site to its pre-disturbed condition.

In order to preserve the functionality of the soils, the topsoil needs to be separated and stockpiled until it is used for reclamation. Then at the time of reclamation the soil would need to be placed back in the order it was removed, thereby keeping the original A, B, and C horizons. In order to do this, more than one soil stockpile would be needed, i.e. one for the A and one for the B horizons. Due to the sorting process that the C horizon would undergo, replicating the same manner of sorting in this horizon would be extremely difficult. In the C horizon, the fine material would likely be difficult to recover in the same manner as the larger material. This could leave voids and a different density of material under the topsoil resulting in changed water holding capacity and root growth medium.

Overall, the Proposed Action would impact up to 0.6 acres of soils until reclamation is considered complete. In the long term, after reclamation is considered complete, the soils would be essentially similar to their current condition.

Protective/Mitigation Measures:

- Performance expectations for the established vegetation will be based on an optimum ground cover of 40% for the native seed mixture suggested in section 3.3.3 Vegetation (not including annuals), understanding that this is an ideal situation given that current vegetation conditions are not meeting these specifications. In addition, successful reclamation will include stable soil conditions at natural background erosional rates.
- On any slopes that are greater than 3:1, excelsior matting is suggested to be installed following the manufacturer's installation instructions to reduce erosion rates on disturbed soils.
- In order to maintain as much topsoil as possible and in addition to the upgradient Stormwater controls to be installed as described in the Plan of Operations modification, it is suggested that downhill portions of the soil stockpiles have controls installed also, such as straw wattles or silt fencing to prevent soil from leaving the disturbed area.

Cumulative Impacts: At the larger watershed scale along the Arkansas River, the Proposed Action would add an additional 0.6 acres of disturbance spread out over several years. Along the river there are many other existing soil disturbances such as highways, recreation sites, and home sites. The addition of this disturbance with mitigation would not appreciably add to the overall area.

No Action Alternative

Direct and Indirect Impacts:

Current mining taking place under the approved Plan of Operations with associated impacts, will continue, irrespective of the proposed modification approval.

Protective/Mitigation Measures: None

Finding on the Public Land Health Standard for Upland Soils:

A site specific evaluation of the area has not been conducted; however the nature of the Proposed Action would essentially make the soils not meet standards during operations. Upon successful reclamation, soils would be anticipated to meet standards.

3.2.4 WATER (SURFACE AND GROUNDWATER, FLOODPLAINS) (includes a finding on standard 5)

Affected Environment:

The Proposed Action takes place on a bench directly adjacent to the Arkansas River. The lower toe of the project area is likely near the flood stage level of the river; however, floodplain mapping of the site is at a coarse scale and the exact flood level is difficult to determine. It is possible that the 100 year flood level is within the proposed area; however, due to the topography of the site it doesn't exhibit floodplain characteristics. Historic and present mining has cast material down on a frequently inundated lower bench and high flow has transported material from the site.

Water quality in the Arkansas River at this location is good and is not identified as being impaired by the State of Colorado. Historically, the water quality in the river has been heavily impacted by heavy metals due to historic mining in the headwaters areas, mainly around Leadville. Over the last 30 years tremendous improvements have been made to improve the water quality throughout the watershed. Groundwater with the proposal is associated with the alluvial aquifer along the river. At this site, this aquifer is very narrow and is very closely hydrologically connected to the river. Essentially, near groundwater and surface water are identical in this location.

Environmental Effects

Proposed Action

Direct and Indirect Impacts: Water usage and impacts from the proposal would be two fold. First, the proposal would pump water out of the Arkansas River using a pump that would be capable of using approximately 150 gallons per minute. The water would then flow through a sluice draining into a settling basin before reentering the river. The material being worked is alluvial in nature and not expected to introduce any new or elevated levels of constituents into the river. The settling pond would keep most sediment from entering the river. The second impact would be the physical disturbance of the site. The removal of vegetation and soil disturbance leads to increased runoff and sediment transport. If the site is not reclaimed properly, this impact could persist for a long period of time. This is mainly a concern during high intensity rain events as runoff could transport sediment into the river, however any precipitation could transport sediments into the river. The implementation of proper stormwater controls, interim reclamation and final reclamation are essential to mitigating this impact.

Overall, with mitigation, the Proposed Action would have little impact on water quality in either the short term or long term. In addition, this operation modification may require further

permitting from the State of Colorado under the Clean Water Act in the form of a 401 certification, NPDES, or other permit. The operator is required to obtain any other permits necessary before beginning work. These permits would further ensure water quality is protected.

Protective/Mitigation Measures:

- The site must be maintained in such a way that soil stays within the work area and does not leave the perimeter of the disturbance or enter the river. Mitigation outlined in the Soils section (3.2.3) should be sufficient to accomplish this. In the case it is not, the proponent will take corrective action to ensure this criteria is being met.
- The site and all associated mitigations shall be monitored by the proponent at least monthly. Corrective actions shall be completed immediately to remedy any occurrence of soil leaving the disturbed perimeter or excessive erosion.

Cumulative Impacts: At the larger watershed scale along the Arkansas River, the Proposed Action would add an additional .6 acres of disturbance spread out over several years that could result in increased sedimentation. Along the river there are many other potential water quality impacts such as mining, highways, recreation sites, and home sites. The addition of this disturbance with mitigation would not appreciably add to any water quality concerns in the overall area.

No Action Alternative

Direct and Indirect Impacts: Current mining taking place under the approved Plan of Operations with associated impacts, will continue, irrespective of the proposed modification approval.

Protective/Mitigation Measures: None

Finding on the Public Land Health Standard for Water Quality: The Arkansas River at this location is currently meeting Public Land Health Standards for Water Quality. The Proposed Action would not be expected to result in the river to no longer meet standards.

3.3 BIOLOGICAL RESOURCES

3.3.1 INVASIVE PLANTS*

Affected Environment:

Invasive plants are common in the area due to historical grazing and mining practices and the native plant community has been altered. The ecological sites that make up the project site are prone to a variety of weed infestations if soil surface disturbance occurs. Invasive plants within 10 miles of the project area include but are not limited to: dalmation toadflax, yellow toadflax, diffuse knapweed, Russian knapweed, myrtle spurge, perennial pepperweed, tamarisk, leafy spurge, white top, musk thistle, Russian thistle, cholla cactus, Scotch thistle, Kochia, and Canada thistle. As stated in the Plan of Operations modification, monitoring will be conducted for the life of the project and until successful reclamation is complete as described in the Plan of Operations modification and mitigation included in the Soils section 3.2.3.

Environmental Effects

Proposed Action

Direct and Indirect Impacts: Due to the total removal of the A and B soil horizons and slope of the project area, maintaining soil stability and productivity for revegetation will be a challenge.

Protective/Mitigation Measures:

- The monitoring and mitigation of weeds as described in the Plan of Operations modification should focus on the presence of weeds on the Colorado State Noxious Weed list and other invasives, as listed above.
- All mulch brought on site shall be certified weed free straw mulch. Straw must not be either rye or barley and cannot contain cheat grass seed (*Bromus Tectorum* seed).
- All seed used shall be certified weed free.

Cumulative Impacts: Due to the many dry washes and other drainages that empty into the Arkansas River in the area, impacts for the project will be a minor part of total cumulative impacts.

***Invasive plants are plants that are not part of (if exotic), or are a minor component of (if native), the original plant community or communities that have the potential to become a dominant or co-dominant species on the site if their future establishment and growth are not actively controlled by management interventions, or are classified as exotic or noxious plants under state or federal law. Species that become dominant for only one to several years (e.g., short-term response to drought or wildfire) are not invasive plants.**

3.3.2 THREATENED, ENDANGERED AND SENSITIVE SPECIES

Affected Environment:

The habitat type is primarily pinyon pine and juniper. Open areas of mountain grassland are interspersed throughout the area and mountain shrubs such as currant and mountain mahogany are abundant. Three sensitive species could occur in the area: peregrine falcon, golden eagle and bald eagle. The Arkansas River corridor contains numerous cliffs that are suitable for nesting peregrines and golden eagles.

Bald eagles could be expected to occur along the Arkansas River during the winter months. Delisting of the bald eagle became effective August 8, 2007, however it is still protected by the Bald and Golden Eagle Protection Act and Migratory Bird Treaty Act. The Bald and Golden Eagle Protection Act prohibits the take, possession, sale, purchase, barter, offer to sell, purchase, or barter, transport, export or import, of any bald or golden eagle, alive or dead, including any part, nest, or egg, unless allowed by permit (16U.S.C 668(a); 50 CFR 22). "Take" is defined as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb" a bald or golden eagle. The term "disturb" under the Bald and Golden Eagle Protection Act was recently defined via a final rule published in the Federal Register on June 5, 2007 (72 Fed. Reg.31332). "Disturb" means 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.

Peregrine falcons could also be expected to forage along the river corridor during the breeding season. There are several breeding cliffs in the upper Arkansas River valley; however, there are no nesting sites in the vicinity of the project area.

Environmental Effects

Proposed Action

Direct and Indirect Impacts: Peregrine and Golden Eagles nest within the Royal Gorge and Bighorn Sheep Canyon and Bald Eagles use the river corridor in the winter; however, no known nest sites are located within two miles of the project area; therefore, impacts to these species is expected to be minimal.

Protective/Mitigation Measures: None.

Cumulative Impacts: Recent interest in both recreational mineral specimen collection and mining activity under the Mining Law has increased on the Arkansas River creating additional disturbances to obligate riparian wildlife species and stream-banks. Activities proposed here are cumulative to those other disturbances and activities, such as fishing, park development and rafting activities, along the Arkansas River corridor.

No Action Alternative

Direct and Indirect Impacts: None

Protective/Mitigation Measures: None

Finding on the Public Land Health Standard for Threatened & Endangered species: The proposed action will have no effect on the public land health standards for T&E species.

3.3.3 VEGETATION (includes a finding on standard 3)

Affected Environment:

Potential vegetation in the project area includes blue grama, Indian ricegrass, needlegrasses, sand dropseed, mountain mahogany, and Gambel oak in the dry uplands and willow species along the river. While some of these species are present in the project area, due to historic livestock grazing and mining, the dry uplands are in a poor vegetative condition and contain a large amount of Russian thistle and cheat grass. In the absence of further disturbance the site would be expected to transition to the natural background conditions overtime. The area mined relatively recently is a mix of river cobble and sand that has no top soil and supports very little vegetation.

Environmental Effects

Proposed Action

Direct and Indirect Impacts: The Proposed Action would temporarily remove the soil and associated vegetation from the area. Due to the steep slopes in the area of planned work it will be difficult to keep excavated material from tumbling down onto streamside riparian margins and entering the Arkansas river during extreme flows. Establishment of preferred native vegetation will require detailed planning and monitoring.

- Protective/Mitigation Measures: The recommended seed mixture and rate is as follows:

Western Wheatgrass	Pascopyrum smithii	8 lbs/ac
Blue Grama	Bouteloua gracilis	2 lbs/ac
Sideoats Grama	Bouteloua curtipendula	6 lbs/ac
Indian Ricegrass	Achnatherum hymenoides	8 lbs/ac
Sand Dropseed	Sporobolus cryptandrus	2 lbs/ac
Bottlebrush Squirreltail	Elymus elymoides	4 lbs/ac
Columbia Needlegrass	Achnatherum nelsonii spp.	4 lbs/ac
Mountain Mahogany	Cercocarpus montanus	1 lb/ac
Wax Current	Ribes cereum	.5 lb/ac
	Total	35.5 lbs/ac

- All seed must be noxious weed free and meet certified seed quality. Seed must have a valid seed test within one year of being applied.

Cumulative Impacts: Due to the many dry washes and other drainages that empty into the Arkansas River in the area, impacts for the project will be a minor part of total cumulative impacts.

Finding on the Public Land Health Standard for Plant and Animal Communities: A formal health assessment in this area included an assessment of the “health” of public land in relation to Standards for Public Land Health. The interdisciplinary land health evaluations indicated that on a landscape scale the area is meeting applicable standards for public land health. A site specific evaluation of the project area indicates that it is not at or moving towards desired condition.

3.3.4 WETLANDS & RIPARIAN ZONES (includes a finding on standard 2)

Affected Environment:

By proximity, this action involves an area directly adjacent to a segment of the west bank of the Arkansas River leading into the Royal Gorge, downstream of the Parkdale, Highway 50 bridge crossing. Swift flows, rock stream banks and rocky hill-slopes has limited soil deposition along the banks of the Arkansas River in this location so that riparian vegetation in the vicinity is either non-existent, or only along a narrow margin in areas with slight soil development. Soils deposited in some spots however have allowed for a rooted plant community of willow, occasional trees, and some herbaceous riparian plant species. Most trees near the project area are actually evergreen, not riparian species, but cottonwood and alder occur in the vicinity. As proposed in the modified Pan of Operations (PoO) the new action avoids riparian areas, however historic and present mining has cast material down on flood-prone riparian areas and high flow has transported material from the site. Due to this activity being directly adjacent to the Arkansas River corridor riparian obligate wildlife species could be affected.

Environmental Effects

Proposed Action

Direct and Indirect Impacts: Work under the modified PoO is not planned within the riparian area, however due to the steep slopes in the area of planned work it will be difficult to keep excavated material from tumbling down onto the streamside riparian margin and entering the Arkansas River. During extreme flows, materials entering the riparian area are prone to erosion. In addition, as shown in this document's photographs and related to existing operations at this location at some point in time, cast material has entered flood prone areas and some material has washed. Modern activity generated spoils still remain as shown in photos. Historic activity, slightly upstream created similar dumping, however that activity is abandoned and unrelated to this action but would be cumulative to this disturbance. Due to the length of time since the upstream disturbance, wetland species have grown through dumped materials. Similar activity is not planned for the downstream mining. Under the new PoO, native material excavated upslope of the riparian zone will leave more volume than geologic sorting did. Given the larger exposed volumes of material, planed altered slope angles, and reduced site vegetation, increased erosion during primarily high precipitation events in the May through September rain seasons is possible. Isolated thunderstorms produce heavy rains in short periods of time and naturally create overland flow. Very short duration overland flow carrying silts which would enter the riparian vegetation and the Arkansas River as turbidity will be difficult to control. If eroded materials reach the stream banks or river unnecessary impact would occur.

Protective/Mitigation Measures:

- The PoO states plans to plant vegetation in the riparian area as mitigation to offset recently cast material from previous activity. However, if cast material is planned for removal from flood prone areas, the proponent is responsible to coordinate these activities with the ACOE, as applicable.
- If the planned constructed settling basins do not contain all pumped waters allowing it to soak in, then the mine proponent would need to consult with the State of Colorado as to the possible need for a NPDES discharge permit.

Cumulative Impacts: Recent rise in gold prices and interest in both recreational mineral specimen collection and mining activity under the Mining Law has increased on the Arkansas River creating additional disturbances to obligate riparian wildlife species and stream-banks. Activities proposed here are cumulative to those other disturbances and activities, such as fishing, park development and rafting activities, and the other activities along the Arkansas River corridor.

No Action Alternative

Direct and Indirect Impacts: Current mining taking place under the approved Plan of Operations with associated impacts, will continue, irrespective of the proposed modification approval.

Protective/Mitigation Measures: None

Finding on the Public Land Health Standard for Riparian Systems: Following the Modified PoO with the protective mitigations measures documented in this analysis will insure that this Public Land Standard is achieved during the life of the mine, but with all functions returning after

acceptance of final reclamation relative to all riparian functions such as also providing wildlife habitat.

3.3.5 WILDLIFE AQUATIC (includes a finding on standard 3)

Affected Environment:

See also Wetland and Riparian section 3.3.4. The Arkansas River is a popular brown trout fishery with extremely high visitation by anglers from Colorado's Front Range cities and other locations. Both shore and float fishing occur on this river. Near river side channel aquatic habitat is virtually non-existent by way of backwaters, sloughs, wetland areas, etc. in this location as the Arkansas River is very incised in rock with only limited riparian margins. The area does not support habitat for amphibians local to the area in the close proximity to the proposed action but there are breeding sites close by both up and downstream.

Environmental Effects

Proposed Action

Direct and Indirect Impacts: As planned and discussed, material to be excavated will be kept out of the riparian areas and out of the river. In practice, some material has entered the water and has added upslope material to the stream environment beyond natural levels. If all future material is kept from entering the Arkansas River including stormwater induced erosion, then there is no measurable impact to the aquatic habitat of the Arkansas River, only the interaction to angling along the banks of the public land given the ongoing operations. However, if settling ponds are still going to be used for pumped water used in the operations and that water does not entirely re-enter the Arkansas River sub-surface, then a slight stream of possibly turbid water may appear. Pumped water containing macroinvertebrates or young of the year fish could occur, but the scale of impact to the larger river would be extremely small and can be mitigated by screening the suction intake. Return flows from pumping if they do not completely settle in the constructed settling basins may require an NPDES permit as regulated by the State of Colorado and would be the responsibility of site operators. Under the new PoO native material excavated upslope of the riparian zone will leave more volume than geologic sorting did. Given the larger exposed volumes of material, planned altered slope angles, and reduced site vegetation, increased erosion during primarily high precipitation events in the May through September rain seasons is possible. Isolated thunderstorms produce heavy rains in short periods of time and naturally create overland flow. Very short duration overland flow carrying silts which would enter the riparian vegetation and the Arkansas River as turbidity will be difficult to control. If eroded materials reach the stream banks or river unnecessary impact would occur (see precautions in riparian section 3.3.4)

Protective/Mitigation Measures:

- The Modified PoO has more recent cast material being removed from flood prone areas which is necessary to sustain watershed functions, but is also necessary under Section 404 laws as administered by the Army Corps of Engineers (ACOE). The proponent is responsible to coordinate these activities with the ACOE, as applicable. The PoO plans to plant vegetation in the riparian as mitigation to offset recently cast material
- If the planned constructed settling basins do not contain all pumped waters allowing it to soak in, then the mine proponent would need to consult with the

State of Colorado as to the possible need for a NPDES discharge permit. All equipment used in this proposed operation should be clean on initial arrival, and if it leaves the site cleaned before reuse to minimize the spread of aquatic nuisance species.

Cumulative Impacts: Recent rise in gold prices and interest in both recreational mineral specimen collection and mining activity under the Mining Law has increased on the Arkansas River creating additional disturbances to obligate riparian wildlife species and stream-banks. Activities proposed here are cumulative to those other disturbances and activities, such as fishing, park development and rafting activities, and the other activities along the Arkansas River corridor.

No Action Alternative

Direct and Indirect Impacts: Current mining taking place under the approved Plan of Operations with associated impacts, will continue, irrespective of the proposed modification approval.

Protective/Mitigation Measures: None

Finding on the Public Land Health Standard for Plant and Animal Communities: This is a small and localized action, but the life of the project is proposed through the year 2025. There would be no impact at a reasonable scale evaluation from this action, but reclamation as discussed in the PoO would be important to sustain the overall health of the Arkansas River fisheries because over the life of this proposed operation modification many other perturbations to the river will occur.

3.3.6 WILDLIFE TERRESTRIAL (includes a finding on standard 3)

Affected Environment:

The habitat present consists of piñon-juniper/shrub mix. This habitat type is the most prevalent in the resource area. While the number of terrestrial species that occupy this habitat is great, the analysis focuses on mega-fauna that have the potential to be impacted the greatest by the proposed action.

Mule deer populations for this area are currently below Colorado Parks and Wildlife objectives. Being a successional species, deer rely on pre-climax habitat conditions. As the trend since the early 1900s has been towards more stability and approaching climax vegetative conditions, the ability of the habitat to support deer has declined. The primary causes of this trend in habitat conditions are thought to result from the elimination of wildfire from the forests, the encroachment of forest cover in formerly open grassland and shrubland habitats, and the improved soil and range management that has resulted in more stable grasslands. All these factors are to the detriment of the forb and shrub components, which are important parts of the deer diet.

The Merriam's turkey is a fairly common resident in foothills and mesas of southern Colorado. The Merriam's turkey is common in the assessment area in suitable habitat. Merriam's are found primarily in ponderosa pine forests with an understory of Gambel's oak. Tall pines are used during all seasons for roosting. In the assessment area it is often found in foothill shrublands (mountain mahogany) and piñon-juniper woodlands.

Black bear, mountain lion, bobcat and other meso-carnivores among others likely inhabit the project area sporadically. Home ranges of these species can be very large resulting in a small probability of occupancy at any one time.

Environmental Effects

Proposed Action

Direct and Indirect Impacts: Species mentioned above may be seen or their sign identified within the project boundary. The project action will be the 0.6 acres of ground disturbed by the proposed mining operation modification and an additional buffer area that will be impacted by noise and human presence. The proposed action will cause a temporary loss of existing habitat, including mule deer winter range, due to excavation.

Indirectly habitat will be lost during operation hours due to noise, vehicle traffic and human presence near the boundary of the project area. Indirect losses may be substantially larger than the direct loss (Sawyer et al. 2006). However, the additional acreage is difficult to quantify because species react and adapt differently to anthropogenic features and activity. The action area is currently being impacted by noise due to existing operations and it is likely wildlife present has become habituated to this impact.

Protective/Mitigation Measures: None.

Cumulative Impacts: Recent rise in gold prices and interest in both recreational mineral specimen collection and mining activity under the Mining Law has increased on the Arkansas River creating additional disturbances to obligate riparian wildlife species and stream-banks. Activities proposed here are cumulative to those other disturbances and activities, such as fishing, park development and rafting activities, and the other activities along the Arkansas River corridor.

No Action Alternative

Direct and Indirect Impacts: None

Protective/Mitigation Measures: None

Finding on the Public Land Health Standard for Plant and Animal Communities: The proposed action will have no effect on the public land health standards for plant and animal communities.

3.3.7 MIGRATORY BIRDS

Affected Environment:

The action area occurs within a riparian corridor that is not dissimilar to many others in the area. The yellow warbler is the species most commonly found in deciduous foothills riparian systems followed by American robin, northern flicker, house wren, warbling vireo, song sparrow, western wood-pewee, and broad-tailed hummingbird.

The habitat type is primarily pinyon pine and juniper. Open areas of mountain grassland are interspersed throughout the area and mountain shrubs such as gambel oak, currant and mountain mahogany are abundant, especially on south slopes. Pinyon-juniper habitat supports the largest nesting bird species list of any upland vegetation type in the West. The richness of the pinyon-juniper vegetation type, however, is important due to its middle elevation. Survey

tallies in pinyon-juniper are similar in species diversity to the best riparian. Several species are found in the pinyon-juniper habitat and include: black-chinned hummingbird, gray flycatcher, Cassin's kingbird, gray vireo, pinyon jay, juniper titmouse, black-throated gray warbler, Scott's oriole, ash-throated flycatcher, Bewick's wren, mountain chickadee, white-breasted nuthatch, and chipping sparrow.

A unique feature present to this area is the cliff complexes that are located along the Arkansas River that provide the proper substrate for cliff nesting species. There is a known golden eagle and peregrine falcon nest site located within one mile of the project area.

Environmental Effects

Proposed Action

Direct and Indirect Impacts: Species mentioned above may be seen or their sign identified within the project boundary during any season of the year. The project action will affect lands within the proposed designated area due to habitat removal while additional acreage outside the designated area will likely be vacated due to human presence and noise (Gilbert and Chalfoun 2011). Species richness of newly impacted habitat will decrease as bird species not tolerant to noise avoid the area (Francis et al. 2009). However, the additional acreage affected due to noise and human presences is difficult to quantify because species react and adapt differently to anthropogenic features and activity. The action area is already being impacted by noise due to existing operations.

Protective/Mitigation Measures: To be in compliance with the Migratory Bird Treaty Act (MBTA) and the Memorandum of Understanding between BLM and USFWS required by Executive Order 13186, BLM must avoid actions, where possible, that result in a "take" of migratory birds. Pursuant to BLM Instruction Memorandum 2008-050, to reduce impacts to Birds of Conservation Concern (BCC), no habitat disturbance (removal of vegetation such as timber, brush, or grass) is allowed during the periods of May 15 - July 15, the breeding and brood rearing season for most Colorado migratory birds. The provision will not apply to completion activities in disturbed areas that were initiated prior to May 15 and continue into the 60-day period.

An exception to this timing limitation will be granted if nesting surveys conducted no more than one week prior to vegetation-disturbing activities indicate no nesting within 30 meters (100 feet) of the area to be disturbed. Surveys shall be conducted by a qualified breeding bird surveyor between sunrise and 10:00 a.m. under favorable conditions.

Cumulative Impacts: Recent rise in gold prices and interest in both recreational mineral specimen collection and mining activity under the Mining Law has increased on the Arkansas River creating additional disturbances to obligate riparian wildlife species and stream-banks. Activities proposed here are cumulative to those other disturbances and activities, such as fishing, park development and rafting activities, and the other activities along the Arkansas River corridor.

No Action Alternative

Direct and Indirect Impacts: Current mining taking place under the approved Plan of Operations with associated impacts, will continue, irrespective of the proposed modification approval.

Protective/Mitigation Measures: None

3.5 LAND RESOURCES

3.5.3 AREAS OF CRITICAL ENVIRONMENTAL CONCERN,

Affected Environment: The Arkansas Canyonlands Area of Critical Environmental Concern (23,200 acres) was found to meet the relevance and importance criteria. The scenic, historic and cultural values, endangered peregrine falcons, key raptor habitat area, bighorn sheep and fisheries were important factors considered in making this area an ACEC.

Environmental Effects

Proposed Action

Direct and Indirect Impacts: There would be no direct or indirect impacts associated with the mining associated with the proposed modification at this location. Those special values identified for the Arkansas Canyon Lands ACEC would not be discernably impacted.

Protective/Mitigation Measures: No protective or mitigation measures are required.

Cumulative Impacts: Cumulative impacts may result if additional mining operations are approved within the ACEC. Although, these impacts would be mitigated once reclamation is complete.

No Action Alternative

Direct and Indirect Impacts: None

Protective/Mitigation Measures: None

3.6 CUMULATIVE IMPACTS SUMMARY

Recent rise in gold prices and interest in both recreational mineral specimen collection and mining activity under the Mining Law has increased on the Arkansas River creating additional disturbances to obligate riparian wildlife species and stream-banks. Activities proposed here are cumulative to those other disturbances and activities, such as fishing, park development and rafting activities, and the other activities along the Arkansas River corridor.

Soils

At the larger watershed scale along the Arkansas River, the Proposed Action would add an additional .6 acres of disturbance spread out over several years that could result in increased sedimentation. Along the river there are many other potential water quality impacts such as mining, highways, recreation sites, and home sites. The addition of this disturbance with mitigation would not appreciably add to any water quality concerns in the overall area.

CHAPTER 4 - CONSULTATION AND COORDINATION

4.1 LIST OF PREPARERS AND PARTICIPANTS

Please see Interdisciplinary Team Review list for BLM Participants

4.2 TRIBES, INDIVIDUALS, ORGANIZATIONS, OR AGENCIES CONSULTED

Colorado Parks and Wildlife, Greg Policky, Salida Area Office Fisheries Biologist

DRAFT

CHAPTER 5 - REFERENCES

Bureau of Land Management (BLM). 1996. Royal Gorge Resource Area Resource Management Plan and Record of Decision. Front Range District. Canon City, Colorado.

BLM. 2008 H-1790-1 National Environmental Policy Handbook. Washington, D.C.

DRAFT

APPENDIX A

Voluntary – 43 CFR 3809 Plan of Operations Form



United States Department of the Interior
BUREAU OF LAND MANAGEMENT
Royal Gorge Field Office
3028 East Main Street
Cañon City, Colorado 81212



Section 1: General Information

Pursuant to 43 CFR 3809.401(b)(1).

This form is designed to streamline the required information for a Plan of Operations with the BLM (43 CFR 3809.400) and to parallel the Colorado Division of Reclamation and Mine Safety (CDRMS) mining permit applications in hopes of streamlining the paperwork. Plans of Operation will most likely be subject to the CRDMS 110 or 112 permits. The 112 application encompasses more details of the operation and was chosen as a model for this BLM voluntary form. The applicant should be able to copy and paste similar information into each application, as well as each Exhibit in its entirety. CDRMS requirements and regulations can be found at

<http://mining.state.co.us/Programs/MineralMines/Rules/Pages/RulesRegs.aspx>.

1. General Information

Applicant/Operator or company name:
Operation name (pit, mine, or site name):
Permitted acreage (new or existing site): acres
Change in acreage (+): acres
Total Acreage in Permit Area: acres

2. **Type of mining operation:** Surface Underground In-situ

3. **General Description:** (local roads, nearest towns, landmarks, etc.)

Just southeast of the intersection of Hwy 50 and Copper Gulch Road. This area is known as "Parkdale".

Will this operation use designated chemicals, result in, or presently have acid mine drainage? Yes No

4. Operator Information

Operator Name:
Mailing Address:
City: State: Zip Code:
Phone #: Alternate Phone #:
Operator Tax Payer Identification Number:

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5. Claimant/Claim Information, if applicable; if open minerals check here

Primary Claimant:

Mailing Address:

City: State: Zip Code:

Phone #: Alternate Phone #:

Additional claimant name(s)

Claims Information: Please list the CMC numbers, claim names, and claim type (i.e. placer, lode, mill site, tunnel site) for all claims involved in the proposed operations.

CMC	Claim Name	Claim Type
278502	El Rancho Bondo	40-acre placer

6. Inspection Contact: Check here if same as applicant/operator above:

Contact's Name: Title:

Company Name:

Street/P.O. Box:

City: State: Zip Code:

Telephone Number Fax Number

Section 2: Cultural and Paleontological Resources, & Fish, Wildlife, and Plant Habitats

Pursuant to 43 CFR 3809.420.

Cultural and Paleontological Resources:

- Operators shall not knowingly disturb, alter, injure, or destroy any scientifically important paleontological remains or any historical or archaeological site, structure, building or object on Federal lands.
- Operators shall immediately bring to the attention of the authorized officer any cultural and/or paleontological resources that might be altered or destroyed on Federal lands by his/her operations, and shall leave such discovery intact until told to proceed by the authorized officer. The authorized officer shall evaluate the discoveries brought to his/her attention, take action to protect or remove the resource, and allow operations to proceed within 10 working days after notification to the authorized officer of such discovery.
- The Federal Government shall have the responsibility and bear the cost of investigations and salvage of cultural and paleontology values discovered after a plan of operations has been approved, or where a plan is not involved.

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Fish, Wildlife, and Plant Habitat:

1. The operator shall take such action as may be needed to prevent adverse impacts to threatened or endangered species, and their habitat which may be affected by operations.

Section 3: Operational and Baseline Environmental Information

Pursuant to 43 CFR 3809.401(c).

The BLM may require information to use in analyzing potential environmental impacts as required by the National Environmental Policy Act (NEPA) and to determine if your plan of operations will prevent unnecessary or undue degradation. Types of information required may include, but is not limited to, geology, paleontology, hydrology, soils, vegetation, wildlife, air quality, cultural resources, socioeconomic conditions, etc. If you have background information that may be pertinent to review this proposal please provide that data below.

One very old trommel assembly exists on site. It is shown on Figure 8 and has existed since sometime around the 1930s. There is also a small concrete astra located onsite. This equipment is non-functional and will not be used in any operations. Numerous small coyote holes exist, prior to El Rancho Bondo operations beginning.

Section 4: Financial Warranty

Pursuant to 43 CFR 3809.500-599.

A financial warranty must be provided for the cost of reclamation of the disturbance described in this Plan of Operations. The financial warranty must be submitted and accepted by the BLM prior to entry upon lands for the purpose of prospecting/mining in a manner greater than casual use. Information on the types of financial warranties permitted can be found in the regulations. (www.ecfr.gov; title 43, subpart 3809)

Section 5: Terms and Conditions for Plan Level Operations

Approval and Starting Work under a Plan of Operations:

1. BLM will review your plan of operations within 30 calendar days and will notify you that—
 - a. Your plan of operations is complete, that is, it meets the content requirements of § 3809.401(b);
 - b. Your plan does not contain a complete description of the proposed operations under § 3809.401(b). BLM will identify deficiencies that you must address before BLM can continue processing your plan of operations. If necessary, BLM may repeat this process until your plan of operations is complete; or
 - c. The description of the proposed operations is complete, but BLM cannot approve the plan until certain additional steps are completed, including one or more of the following:
 - i. You collect adequate baseline data;
 - ii. BLM completes the environmental review required under the National Environmental Policy Act;
 - iii. BLM completes any consultation required under the National Historic Preservation Act, the Endangered Species Act, or the Magnuson-Stevens Fishery Conservation and Management Act;
 - iv. BLM or the Department of the Interior completes other Federal responsibilities, such as Native American consultation;

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- v. BLM conducts an on-site visit;
 - vi. BLM completes review of public comments on the plan of operations;
 - vii. For public lands where BLM does not have responsibility for managing the surface, BLM consults with the surface-managing agency;
 - viii. In cases where the surface is owned by a non-Federal entity, BLM consults with the surface owner; and
 - ix. BLM completes consultation with the State to ensure your operations will be consistent with State water quality requirements.
2. Pending final approval of your plan of operations, BLM may approve any operations that may be necessary for timely compliance with requirements of Federal and State laws, subject to any terms and conditions that may be needed to prevent unnecessary or undue degradation.
3. Following receipt of your complete plan of operations and before BLM acts on it, we will publish a notice of the availability of the plan in either a local newspaper of general circulation or a NEPA document and will accept public comment for at least 30 calendar days on your plan of operations.
4. Upon completion of the review of your plan of operations, including analysis under NEPA and public comment, BLM will notify you that—
- a. BLM approves your plan of operations as submitted (See part 3810, subpart 3814 of this title for specific plan-related requirements applicable to operations on Stock Raising Homestead Act lands.);
 - b. BLM approves your plan of operations subject to changes or conditions that are necessary to meet the performance standards of § 3809.420 and to prevent unnecessary or undue degradation. BLM may require you to incorporate into your plan of operations other agency permits, final approved engineering designs and plans, or other conditions of approval from the review of the plan of operations filed under § 3809.401(b); or
 - c. BLM disapproves, or is withholding approval of your plan of operations because the plan:
 - i. Does not meet the applicable content requirements of § 3809.401;
 - ii. Proposes operations that are in an area segregated or withdrawn from the operation of the mining laws, unless the requirements of § 3809.100 are met; or
 - iii. Proposes operations that would result in unnecessary or undue degradation of public lands.

Per 43 CFR 3809.411 you must not begin operations until BLM approves your plan of operations and you provide the financial guarantee required under § 3809.551.

Section 6: Departmental Use Only

Case File # COC-075265 Reviewed By: S. S. Carter

Received on: 07/29/11, 09/24/13 Response Due by: _____

Remarks:

Original PoO filed in 2011, with modification in 2013. This form is being used in this case as an administrative tool to put all of the information from the multiple submittals and communications between the operator and BLM into one comprehensive document. It is anticipated that this effort will facilitate an easier internal BLM review during the NEPA EA process. This form was prepared with the operator on July 30, 2014.

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Section 7: Maps & Exhibits

Submit complete unbound copies of the following application exhibits:

EXHIBIT I – Legal Description and Location Map

EXHIBIT II – Site Description

EXHIBIT III – Pre-Mining and Mining Plan Map(s) of Affected Lands

EXHIBIT IV – Mining Plan

EXHIBIT V – Reclamation Plan

EXHIBIT VI – Reclamation Plan Map

EXHIBIT VII – Water Information

EXHIBIT VIII – Wildlife Information

EXHIBIT IX – Soils Information

EXHIBIT X – Vegetation Information

EXHIBIT XI – Climate Information

EXHIBIT XII – Reclamation Costs

EXHIBIT XIII – List of other permits and licenses required

EXHIBIT XIV – Geotechnical Stability

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EXHIBIT I

Legal Description and Location Map

This Exhibit may be applied to CDRMS Hardrock 110/112 Exhibit A, additional information may be required.

Legal Description

Principal Meridian	Township (North or South)	Range (East or West)	Section	Quarter Section (NE, SE, SW, NW)	Quarter Quarter Section (NE, SE, SW, NW)
06	18 South	71 West	18	NW	SE
				SW	NE

County: Fremont

Land Status:

- a. Surface Ownership: Private BLM USFS State Other _____
- b. Mineral Ownership: Private Federal State Other _____

General Description: Include any additional information (nearby towns, etc.) that will help identify the project location.

On south and west side of the Arkansas River.

Access: Please identify the intended access to work sites. Describe in writing and on the location map.

Access will be on the existing path that comes through the private property owned by American Adventure Expeditions located at the intersection of Hwy 50 and Copper Gulch Road. The access route then continues onto BLM and will be utilized via foot or ATV. See Figure 8. Maintenance of the trail is necessary for cleaning up routine rock fall and debris. This will be done by hand or with a small tractor.

Primary Mine Entrance Location:

Northwest side of claim.

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Maps & Drawings of Operations: A map showing information sufficient to determine the location of the affected land on the ground and existing and proposed roads or access routes to be used in connection with the mining operation. Names of all immediately adjacent surface owners of record shall also be shown. The operation location map shall be a standard 1:24,000 scale U.S. Geological Survey map. The location of the proposed operation shall be shown and labeled with the mine site name.

Refer to Attachment A, Map 1

Index map (*This Exhibit can be substituted for CDMS Hardrock112 Exhibit B*): Provide a general location map that demonstrates relationships to major roads, cities, etc.

Refer to Attachment A, Map 2

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EXHIBIT II

Site Description

*This Exhibit may be applied to CDRMS Hardrock 110 Exhibit B, additional information may be required.
Additional information and/or mitigation may be included in the corresponding NEPA analysis for the proposed project.*

Items (a)-(c) below must be addressed to the extent necessary to demonstrate compliance with the applicable performance standard requirements of Rule 3. At a minimum, the Operator/Applicant shall include the following information:

- (a) a description of the vegetation and soil characteristics in the area of the proposed operation. The local office of the Natural Resources Conservation Service (NRCS) may provide you with this information as well as recommendations for Exhibit D - Reclamation Plan;

The soil is sandy silt. Topsoil is on average 12" thick in areas of the designated work area. Vegetation is sparse and includes cacti and weeds.

- (b) identify any permanent man-made structures within two hundred (200) feet of the affected area and the owner of each structure. Each structure should be located on Exhibit E - Map;

Structures include historic trommel, rafting company and railroad (as shown on Map 1).

- (c) a description of the water resources in the area of the proposed operation. Identify any streams, springs, lakes, stock water ponds, ditches, reservoirs, and aquifers that would receive drainage directly from the affected area.

Water resources are mainly just the Arkansas River. There are no obvious other sources.

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EXHIBIT III

Pre-Mining and Mining Plan Map(s) of Affected Lands

This Exhibit may be applied to CDRMS Hardrock 112 Exhibit C or a portion of Hardrock 110 Exhibit E, additional information may be required.

Please include an accurate topographic base map showing the location of the proposed project with this form. The prospector may submit a U.S.G.S 7.5 minute quadrangle or similar map of adequate scale.

One or more maps may be necessary to legibly portray the following information:

1. all immediately adjoining surface owners of record 112(4)(c);
2. the name and location of all creeks, roads, buildings, oil and gas wells and lines, and power and communication lines on the area of affected land and within two hundred (200) feet of all boundaries of such area 112(4)(e);
3. the existing topography of the area with contour lines of sufficient detail to portray the direction and rate of slope of the affected land 112(4)(g);
4. the total area to be involved in the operation, including the area to be mined and the area of affected lands (see definition of "Affected Land") 112(4)(f) ;
5. the type of present vegetation covering the affected lands 112(4)(i); and in conjunction with Exhibit G - Water Information, Subsection 6.4.7, if required by the Office, further water resources information will be presented on a map in this section. 112(3)(c) and 115(409e)
6. Show the owner's name, type of structures, and location of all significant, valuable, and permanent man-made structures contained on the area of affected land and within two hundred (200) feet of the affected land.
7. In conjunction with Exhibit I - Soils Information, Subsection 6.4.9, soils information may be presented on a map in this section;
 - a. Aerial photos, if available, may be included in this section.

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1. Pre-mining map

See Page 10a for Map 4 and pages 10b-10c for Google Earth aerial imagery Figures 2-6.

2. Mining Plan Map

- a. Identifies the proposed prospecting site(s) or activity areas involving surface disturbance. Activity areas include, but are not limited to, all drill holes, mud pits, excavations, trenches, adits, shafts, tunnels, rock dumps, stockpiles, impoundments, prospecting roads, etc.; and
- b. Includes sufficient detail to identify and locate known prospecting features and facilities that may be affected and those that are not anticipated to be affected. This includes, but is not limited to, the location of all drill holes, mud pits, excavations, trenches, adits, shafts, tunnels, rock dumps, stockpiles, impoundments, prospecting roads, etc. Color photographs, adequately labeled (including date, orientation and location) may be included to document existing conditions.

See Page 10d, Figures 7 and 8 for Mining Plan map and additional operational process depiction.

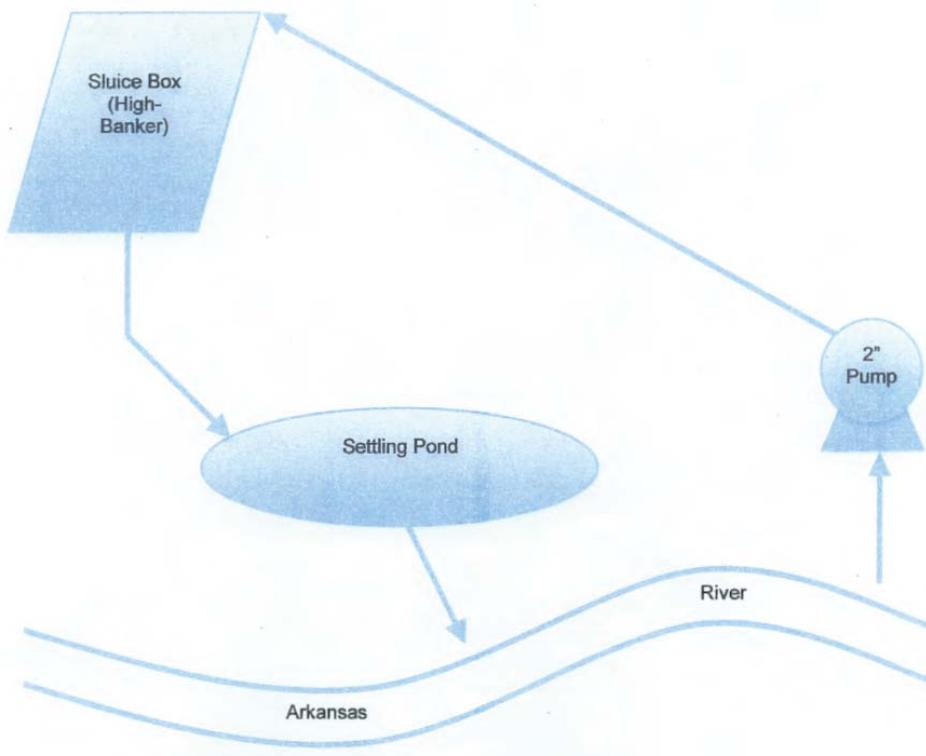
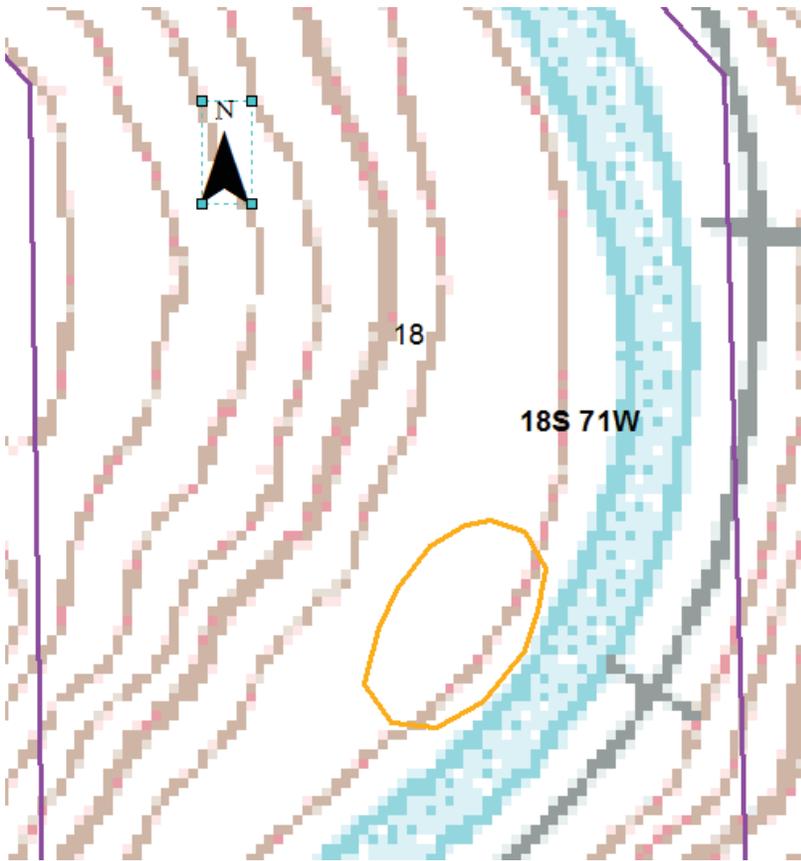


Figure 1 Operational process



Map 3 Pre-Mining Map - Topography



Figure 2 Pre-Mining Map - Aerial

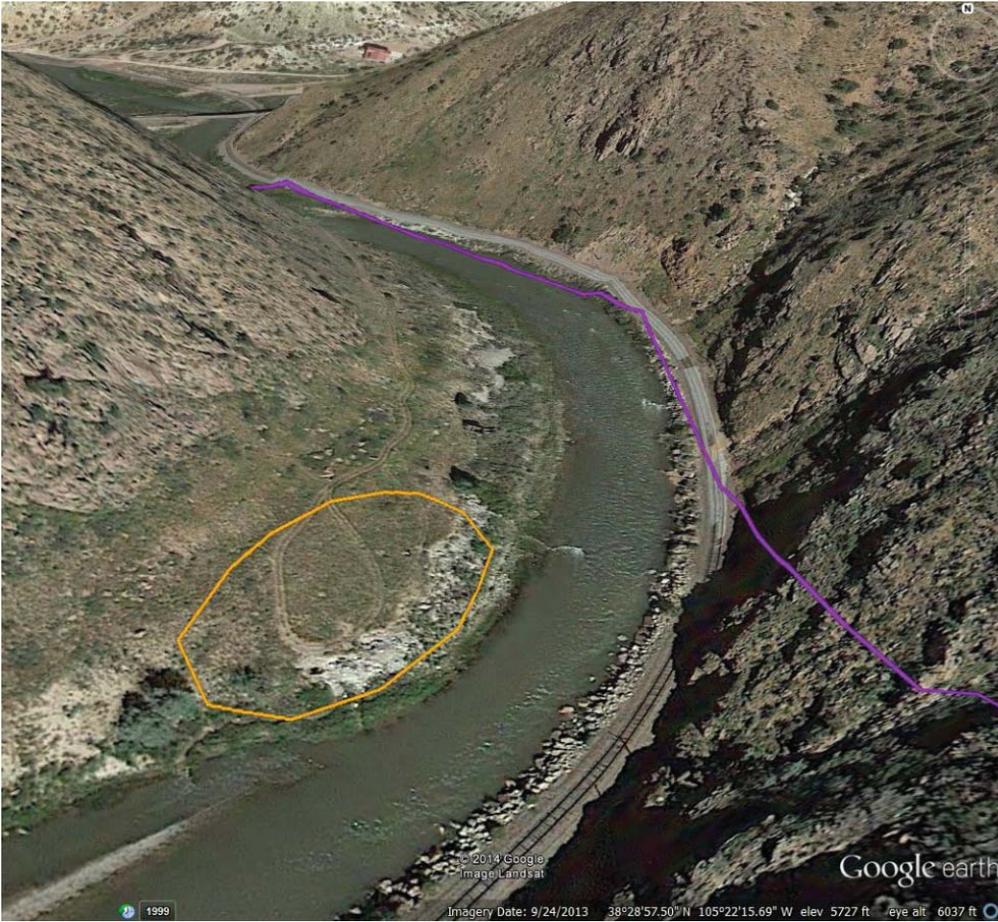


Figure 3 Looking north (2014 proposed work area=yellow outline, Claim boundary=purple line)

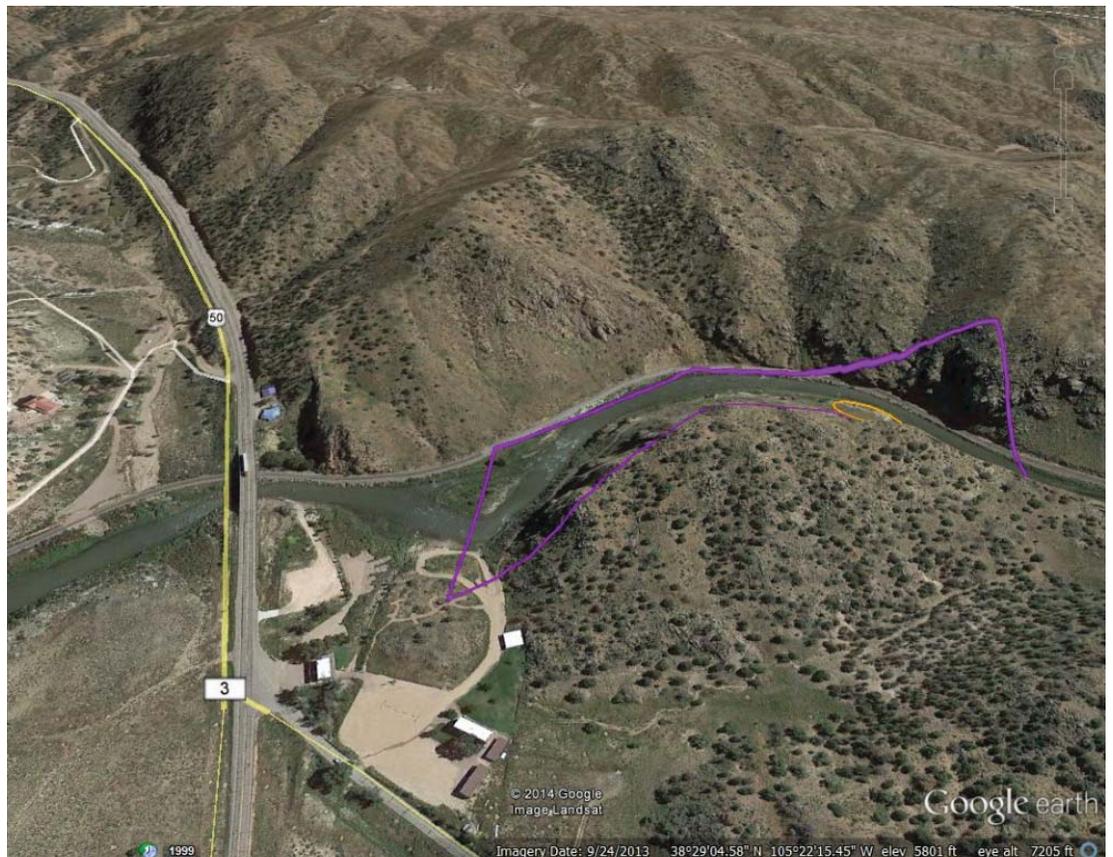


Figure 4 Looking east (2014 proposed work area=yellow outline, Claim boundary=purple line)

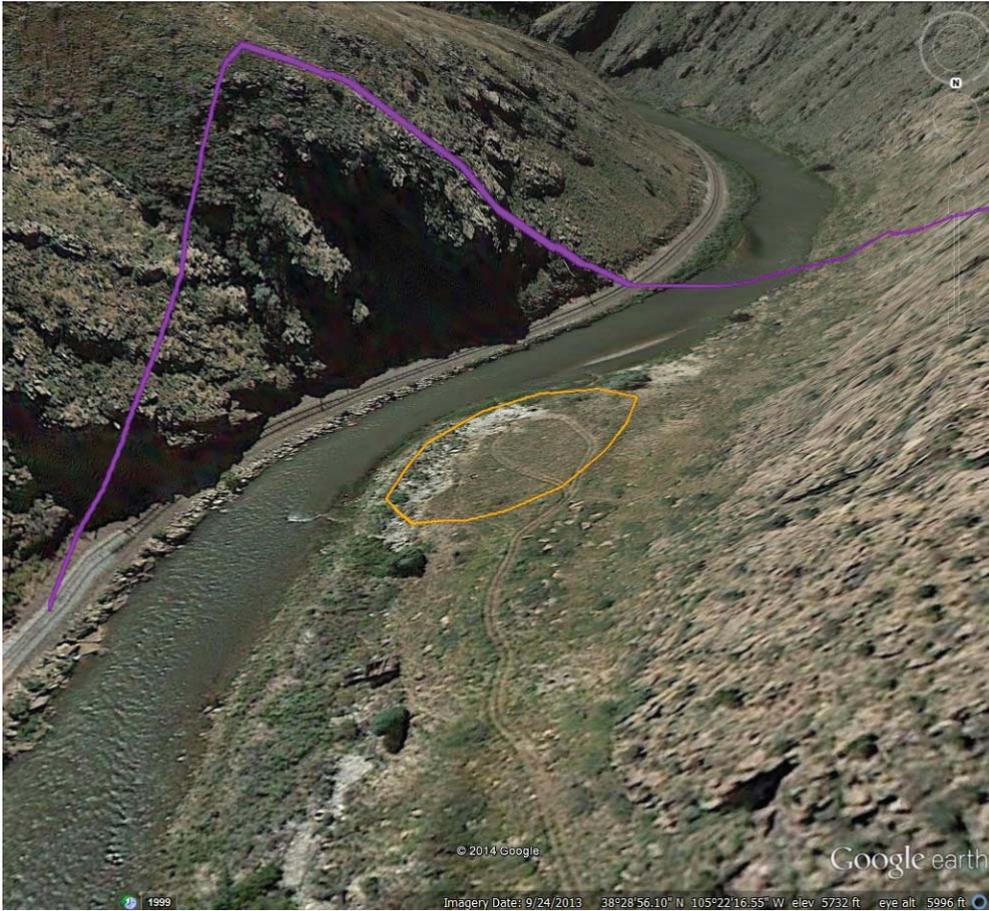


Figure 5 Looking south (2014 proposed work area=yellow outline, Claim boundary=purple line)

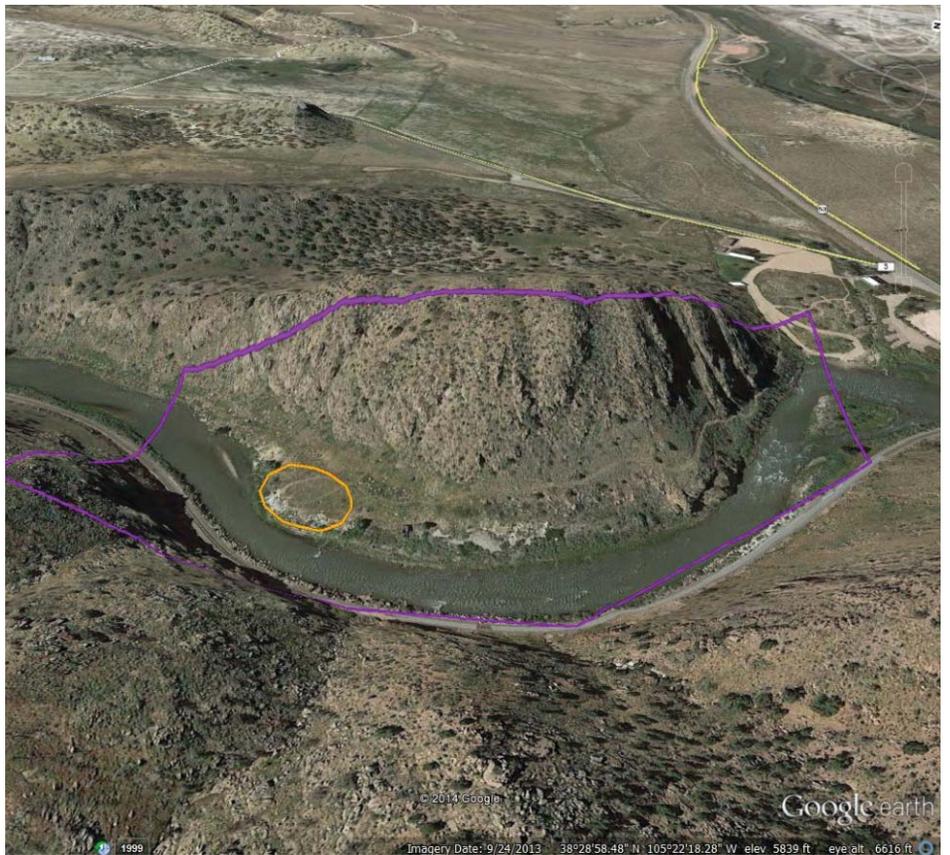


Figure 6 Looking west (2014 proposed work area=yellow outline, Claim boundary=purple line)



Figure 7 Looking south, work area progressing westward

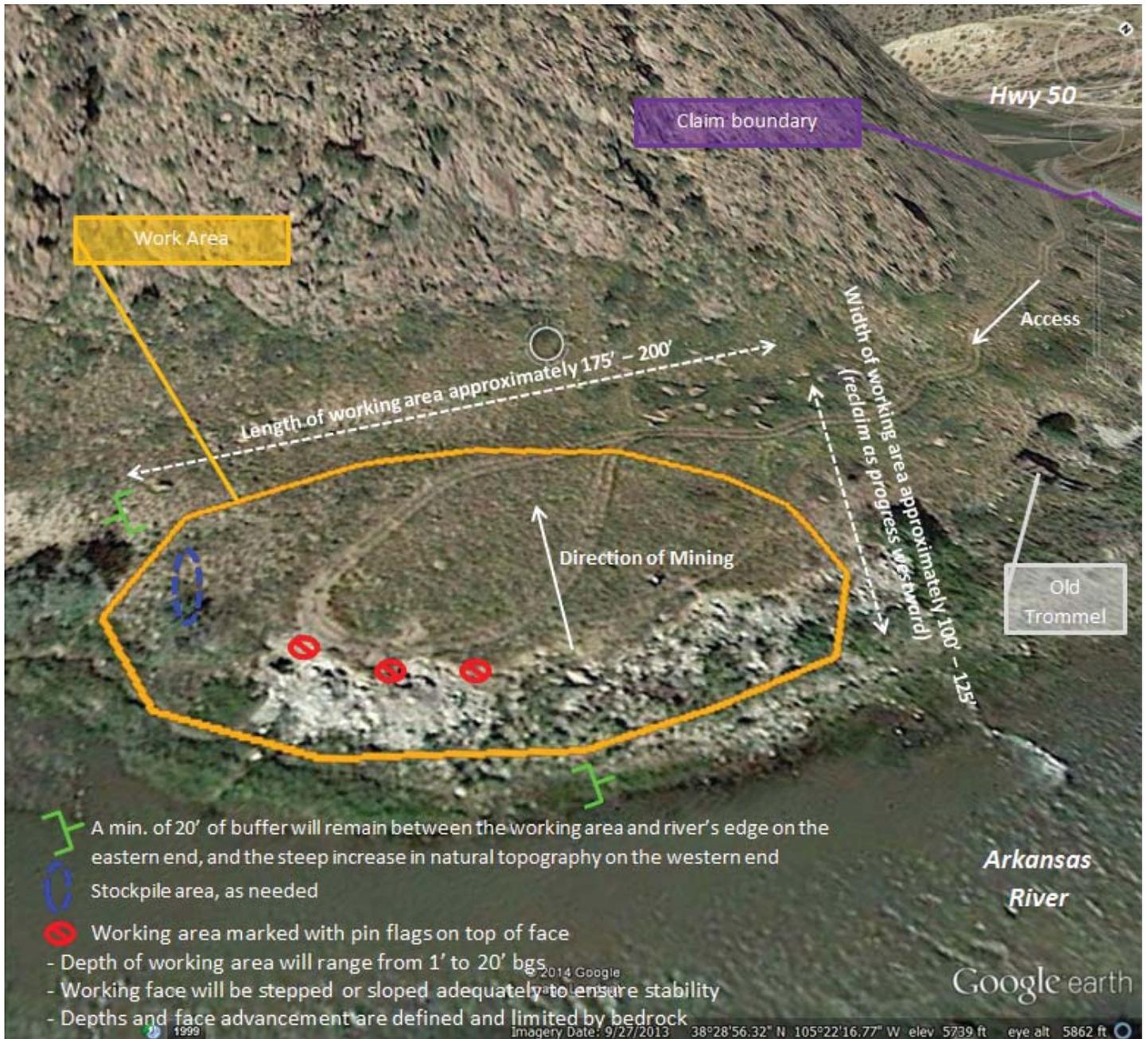


Figure 8 Mining Plan Map

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EXHIBIT IV

Mining Plan [Pursuant to 43 CFR 3809.401(b)(2)]

This Exhibit may be applied to CDRMS Hardrock 110 Exhibit C or Hardrock 112 Exhibit D, additional information may be required. Additional information and/or mitigation may be included in the corresponding NEPA analysis for the proposed project.

1. **Commodity:**

Primary Placer gold Secondary _____ Others _____

2. **Period of Operation:**

Beginning: 06/28/2012 Ending: 01/01/2025

3. Will operations take place more than 180 days of the year? Yes No

4. **General Schedule of Operations:** Please describe the different parts of operation (Site Development, Operational Phases, Reclamation Phases). Describe each phase of the mining operation including design, operations, timeframe for completion, and reclamation.

Mining will start approximately 20' from west side of river and progress westward. Mining technique will utilize a working face that extends from north to south. The slope of the working face will be suitable to ensure stability. Interim reclamation will occur concurrently with mining and consist of filling behind the progressing face. Year round work will occur during daylight hours. Final reclamation will be initiated during the last year of operation and will entail grading slope to mimic pre-mining topography and spreading the stockpile of topsoil/processed material over the top and seeding. After completion, the site will be monitored for one year to ensure final reclamation adequacy with regards to vegetation.

5. **Access and other roads:** include information such as, but not limited to, the type (haul, light vehicle, access), location(s), maintenance, upgrades, uses, temporary, permanent, etc. Indicate any part of the access that is in current existence and the current condition. Indicate these items on the location map(s) in Exhibits III.

The only road is the existing dirt path on west side of river. Refer to Exhibit 1, Map 1 and Figure 8.

6. **Equipment:** Please list all vehicles, equipment and devices that will be used during the life of the mine and reclamation.

Site Development	General Type	Size	Quantity	Model Year
Shovel	Manual	Standard	5	N/A
Small tractor	excavator	mini	1	Rental - Modern
ATV	Polaris	400	1	~2000
Site Operations	General Type	Size	Quantity	Model Year
Shovel	Manual	Standard	5	N/A
Classify/Concentrate	Highbanker (Sluice box - concentrator, w/Classifier on top)	2" Pump	2	>1990
Pans	Manual	Standard	4	N/A
Pry bar	Manual	Standard	3	N/A
Cumalong & Chains	Manual	Standard	3	N/A

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Processing Operations	General Type	Size	Quantity	Model Year
- See above as applicable -				
Reclamation	General Type	Size	Quantity	Model Year
Shovel	Manual	Standard	5	N/A
Small tractor	excavator	mini	1	Rental - Modern
ATV	Polaris	400	1	~2000
Other	General Type	Size	Quantity	Model Year
ATV	Polaris	400	1	~2000

7. Soil, Waste, & Mineable Materials: Please indicate location of stockpiles on Exhibit III.

	Thickness (feet)	Quantity (tons)	Details on Use, Stockpiling, or Method of Disposal
Soil	1	<1,500	Will be part of processing or stockpiled on southwest side of work area.
Overburden or Waste Rock	0-15'	1,500-5,000	Interim and final reclamation
Minable Material	0-15'	5,000 - 28,704	Will process and remove desired commodity. Tailings will be used in interim and final reclamation.

8. Exploration operations: include all proposed activities such as, but not limited to, seismic surveys, trenching, drill pads, sumps, roads, material storage site, water source, pipelines, generator/pump, storage containers, number of drill holes that will be left open at any one time, number of drill rigs that will be on site at any one time, etc. Indicate these items on the location map(s) in Exhibit III.

Exploration is being conducted with similar processes identified above, in so far as to delineate the deposit extent.

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9. Operating Practices:

- a. Mining Methods: Identify the type or method of mining proposed and the quantity to be extracted including, but not limited to, dredging, high banking, cuts, pits, trenches, shafts, tunnels, adits, declines, air drilling, fluid drilling, blasting, etc. If drilling is involved provide details for mud pits, drill pads, and drill holes including, but not limited to, quantity, average width, average depth, average length, and diameter and method for plugging (Refer to Colorado Division of Reclamation and Mining Safety (CDRMS) Rule 5.4 and State of Colorado regulations for required abandonment procedures).

Type or Method of Mining	Quantity of Material Removed (tons)	Estimated Area of Surface Disturbance (acres)
Highbanking	1,004-28,704	<1-acre
TOTAL	1,004-28,704	<1 acre

N/A

- b. Underground Operations: Describe the proposed underground work including reopening of old workings, advancement of adits or shafts, trenches, pits, cuts, rock dumps, or other similar types of disturbance. Further describe dimensions if necessary:

N/A

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Scope of Operation: Describe in detail the type and extent of the operation to be performed. Provide detailed information for any surface excavation or other land disturbance including roads, pits, trenches, waste piles, drill pads and collar areas of underground workings, ponds, etc. For placer type mining include the amount of material to be processed and dimension from each work location, and the dimension of test sites. Indicate the different types and locations of disturbance on the location map(s) in Exhibit III.

- Refer to Figures 7 and 8.
- The maximum extent of the work area will consist approximately of 175' - 200' in length, 100' - 125' in width and range in depth from 1' - 20' below ground surface.
- Direction of mining is to the northwest.
- Based on maximum extent of disturbance and length of proposed Plan of Operations, approximately 500,000 cubic feet will be processed during life of mine. This equates to approximately 2,296 tons of material annually, given the density range for bank dry sand and gravel material.
- For reference, utilizing the minimum extent of disturbance, approximately 17,500 cubic feet will be processed during life of mine, consisting of approximately 80 tons of material annually.
- Stockpiles of tailings (possibly mixed with topsoil) generated from physical separation and concentration methods will be generated and stored on the southwest side of the working area.

10. Use and Occupancy, *if applicable:*

The following information must be included in the proposed Plan of Operations in order to comply with the 43 CFR 3715, Use and Occupancy Under the Mining Laws, when use or occupancy exceeds 14-days in a 30-day period. The definitions of terms are found in 43 CFR 3715.0-5. These regulations apply to public lands administered by the BLM. Please provide a written description of the proposed occupancy that describes in detail: (see 43 CFR 3715.3-2):

- a. How the proposed occupancy is reasonably incident;
- b. How the proposed occupancy meets the conditions specified in 43 CFR 3715.2 and 43 CFR 3715.2-1
- c. Where you will place temporary or permanent structures for occupancy;
- d. The location of and reason you need enclosures, fences, gates, and signs intended to exclude the general public;
- e. The location of reasonable public passage or access routes through or around the area to adjacent public lands; and
- f. The estimated period of use of the structures, enclosures, fences, gates and signs, as well as, the schedule for removal and reclamation when operations end.
- g. Indicate these items on the location map(s) in Exhibit III.

Proposed occupancy consists of the installation of a locker (tool chest). This locker would be constructed of steel and will not exceed dimensions of 4' X 4' X 8'. It will not be a permanent structure on the site, but will be large enough to provide a secure place to keep tools. The intention is to make the locker weather resistant and safe, so that gasoline and/or other petroleum products used for highbanking can also be stored there. The locker will be located a minimum of 100' from the edge of the river and will remain onsite during the year. It will be secured with a heavy duty lock. The location may move with respect to the work area.

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11. Hazmat: include information such as, but not limited to, type of generator, chemicals, fuels, quantities, disposal, storage, etc. If chemical processing plants are proposed in site operations, be sure to include tank capacities and operating solution volumes. Indicate locations of use and storage of hazardous materials on location map(s) in Exhibit III.

Gasoline is planned for use with the highbanker. It will be stored according to standard practices. Maximum volume of fuel onsite averages 1/2 gallon at any one time. In the event of a fuels spill, the affected soil will be dug, contained, and removed from the claim site for proper disposal by a qualified party. Fuel will be stored no closer than 100' from the river's edge.

12. Rock Characterization and Handling Plans: Please include the following information and note N/A if something doesn't apply to the proposed operation. Depending on the proposal, these details may be minimal or very detailed.

II. Materials Characterization Plan must encompass:

1. Waste rock
2. Ore
3. Tailings
4. Pit wall and floor rock
5. Pit backfill rock (dry/wet scenarios)
6. Cap/cover materials (identified site specific sources)

III. Approach/Procedures for Characterization

1. Statistical Approach to Characterization (define statistical adequacy) to include:
 - a. Sample selection
 - b. Number of samples
 - c. Quantity of material
 - d. Review by BLM/CDRMS
2. Characterization Procedures
 - a. Sample selection
 - b. Identify by rock type/final disposition (ore, waste, pit wall, pit floor, backfill, etc)
 - c. Record locations (both surface and at depth)
 - d. Mineralogical analyses such as XRD, XRF, Petrology, Petrography, etc.
 - e. Static testing – (required for ore, waste rock and tailings) such as Acid-Base Accounting, Net Acid/Alkaline Production, net carbonate value, etc.
 - f. Kinetic testing (required for ore, waste rock and tailings but not for metallurgical ore recovery) such as Humidity cell/column leach

IV. Cap/Cover Geotechnical Protocols (may include waste rock, spent leach, etc) to include:

1. Grain Size
2. Atterburg limits
3. Initial moisture content
4. Dry bulk density

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5. Calculated porosity
6. Constant head analyses for saturated hydraulic conductivity test
7. Hanging column
8. Pressure plate
9. Unsaturated hydraulic conductivity
10. Proctor compaction
 - V. Infiltration Modeling needed, such as Heap Leach Draindown Estimation, Tailings Impoundment Draindown Estimation, cap/cover materials, etc.
- VI. Waste Rock Management Plan
 1. Work plan history with geochemical and geotechnical summaries.
 2. Operating/post reclamation management of the waste rock dumps (WRDs)
 3. Describe mining sequence of rock types/volumes/final disposition (see section III.2 above).
 4. Describe how potentially acid generating (PAG) rock will be selectively mined, segregated and managed to preclude exposure to air and water. Need to address metals mobility/accumulation for both PAG and non-PAG materials (see section III.5.c).
 5. For each benign and PAG WRD facility, include a text description for: toe elevation, crest elevation, ultimate height, reclaimed slope, plan dimensions, tonnage capacity and acres. Provide a summary table for volumes by facility for life-of-mine (LOM).
 6. Supplement the text with plan and cross sectional drawings showing: plan views and related alluvial/cover stockpile locations, cross sectional views showing operational and post reclamation slopes, grades, toe and crest elevations, existing ground slope and cap thicknesses for LOM.
 7. For pit backfill scenarios, include the same text and supporting drawings previously described, describe any amendment requirements. Provide information on the total volume to be backfilled with rock type and its origin, final backfill elevation and rebound ground water elevation.
 8. Tailings impoundments, heaps, ore stockpiles, topsoil stockpiles should include the same text and supporting drawings previously described.

N/A. Storage of tailings and/or topsoil stockpiles was addressed previously. As this is a placer deposit that involves a physical means of separation and concentrations, the stockpiling management was handled in Section

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13. Quality Assurance Plan: Please provide a systematic monitoring and evaluation of the various aspects of the project including, but not limited to, what is being monitored, parameters for monitoring, frequency of monitoring, who will conduct the monitoring, monitoring equipment, etc.

Monthly monitoring will be conducted for erosion assessment, site security and weed growth.

14. Spill Contingency Plan: Please provide the plan for handling and remediating potential spills of hazardous materials and petroleum products. (Note – The operator is responsible for notifying the BLM authorized officer in the event of a spill and complying with state and federal regulations on spill handling, cleanup, and reporting.)

See above.

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15. Monitoring Plan [*Pursuant to 43 CFR 3809.401(b)(4)*]

Monitoring plans may incorporate existing State or other Federal monitoring requirements to avoid duplication. The scope of monitoring depends on the location and complexity of the operation. Generally, exploration activity may require some monitoring, while mining activities may require various levels of comprehensive monitoring plans.

The monitoring plan must be designed to meet the following objectives:

- a. To demonstrate compliance with the approved plan of operations and other Federal and State environmental laws and regulations;
- b. To provide early detection of potential problems; and
- c. To supply information that will assist in directing corrective actions should they become necessary.

Where applicable, the monitoring plan must include: details on type and location of monitoring devices; sampling parameters and frequency; analytical methods; reporting procedures; and procedures to respond to adverse monitoring results. Examples of monitoring programs which may be necessary include surface- and ground-water quality and quantity, air quality, revegetation, stability, and noise levels.

- Erosion will be monitored by visual inspection of the diggings, trail and stockpile, the areas most susceptible to surface erosion.
- Security monitoring will involve assessing the work area for excavations not conducted under this Plan by a third party and the status of the lock box.
- Weed establishment will be monitored throughout work area and mitigated appropriately.

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16. Interim Management Plan [*Pursuant to 43 CFR 3809.401(b)(5)*]

Include a plan describing the management of the project area during period of temporary closure, including periods of seasonal closure, to prevent unnecessary or undue degradation.

The interim management plan must include, where applicable, the following:

- a. Measures to stabilize excavations and workings;
- b. Measures to isolate or control toxic or deleterious materials (see also the requirements in 43 CFR 3809.420(c)(12)(vii));
- c. Provisions for the storage or removal of equipment, supplies, and structures;
- d. Measures to maintain the project area in a safe and clean condition;
- e. Plans for monitoring site conditions during periods of non-operation;
- f. A schedule of anticipated periods of temporary closure during which you would implement the interim management plan, including provisions for notifying BLM and other involved agencies of unplanned or extended temporary closures; and
- g. In cases of temporary or seasonal closure, you must provide adequate maintenance, monitoring, security, and financial guarantee, and BLM may require you to detoxification of process solutions.

The interim management plan originally proposed will continue to be utilized. This consists of the following:

- Excavation stabilization will be a continuous effort.
- Overhangs, loose rock and loose soil will be removed and/or taken to a state of lower potential energy so they do not present a hazard.
- Equipment and supplies will be carried in and out daily or stored in the locker onsite.
- The area will be maintained as a clean and safe environment by removing any trash or debris encountered during each visit.
- Highwalls will be clearly marked.
- During non-operations, site conditions will be monitored by visual inspections on a monthly basis.
- Operations are anticipated to continue year round. Periods of non-operation will most likely be intermittent and should not exceed more than 3 weeks at a time.

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17. Water Management Plan

- a. Specify how much water will be used in conjunction with the operation and the source of this water. Please include any necessary permits in Exhibit XIII.

Water will be pumped from the river, pass through a sluice box and into a small hand built settling pond before returning to the river (from approximately the same place where the pump is located). Operations will not intrude into river or groundwater.

- b. Describe any associated drainage and runoff conveyance structures to include sufficient information to evaluate structure sizing. Describe what measures will be taken to minimize disturbance to the hydrologic balance, prevent off-site damage, and provide for a stable configuration of the reclaimed area consistent with the proposed future land use. Describe the measures used to divert upland drainage away from the site both during and after operation. This must include design details demonstrating the capacity of ditches and impoundment structures to contain operating solutions and the volume of water generated by a one hundred (100) year 24-hour rainfall event.

- Water runoff associated with the active working face will be managed by slowing flows and dropping sediment due to the trough like structure at the bottom of face.
- For the stockpile, a berm or similar feature will be placed on the upgradient side to divert any stormwater flow from moving through the pile.

- c. Specify how you will comply with applicable Colorado water laws and regulations governing injury to existing water rights.

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Water from the Arkansas river will be used on a limited basis and returned to approximately the same area of the pump intake.

- d. Describe anticipated relationship to surface water and groundwater (proximity to streams, penetration of ground water aquifers, known water depth of lenses, major watershed, storm water plan per CDPHE regulations, etc.). Describe how mining will affect the quantity and quality of the surface or groundwater and the methods to be used to minimize disturbance to the surface and groundwater systems including, but not limited to, dewatering, sediment containment, chemical treatment systems, storm water run-off controls, and groundwater points of compliance.

See above for any related information, but not really applicable.

- e. Specify whether the deposit/ore will be processed on site. Processing includes crushing, screening, washing, concrete or asphalt mixing, leaching or milling. If the deposit/ore will be processed, then describe the nature of the process, facilities and chemicals utilized. The process area and any structures must be described in Exhibit III.

The only operations will consist of classifying and concentrating. The concentrates will be processed offsite at a privately owned location.

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EXHIBIT V

Reclamation Plan [Pursuant to 43 CFR 3809.401(b)(3)]

This Exhibit may be applied to CDRMS Hardrock 110 Exhibit D or Hardrock 112 Exhibit E, additional information may be required. Additional information and/or mitigation may be included in the corresponding NEPA analysis for the proposed project.

1. A plan for reclamation to meet the standards in 43 CFR 3809.420 is required with this application. If multiple state/federal agencies are involved in the proposed operation, one reclamation plan must be included in your submittal to the agencies that meets the requirements of both sets of regulations.

The reclamation plan should include, but is not limited to, a description of the equipment and devices, practices you propose to use, a timeline for completion, etc. Features and designs outlined below should be incorporated into Exhibit VI.

- a. It is suggested that a photographic record of the pre- mining, post-mining, and post-reclamation conditions be kept by the prospector. These photos should be taken from the same location and by the same method to clearly show the pre-site conditions of the land and the reclamation efforts. Upon completion of reclamation and request for bond or surety release, the photos may be considered as evidence of adequate reclamation, and thus, be able to act more quickly on the request for release.
- b. Per 43 CFR 3809.420 you are required to reclaim concurrent with mining as is feasible. Please describe the general methods, steps, and timing of both interim and final reclamation. Include slopes or gradients to be used during interim and final stages. Provide the technical criteria used to determine the gradient and stability of slopes created or affected by the mining operation.

- Reclamation will be completed utilizing hand tools and a mini excavator.
- Topsoil will be conserved by stockpiling it and seeding it to prevent erosion.
- Swell factor expected to be approximately 18%. This excess will be worked into pre-mining topography/slopes.
- Interim reclamation consists of filling in behind the progressing face.
- Interim and final reclamation will involve plantings in the riparian area to mitigate some damage from previous rocks entering the area.
- Final reclamation will entail grading slope to mimic pre-mining topography. Then, spreading the stockpile of topsoil/processed material over the top. Seeding will be done with a native seed mixture (recommended by BLM/USDA) followed by straw.
- No highwalls will remain after reclamation.

- c. Provide a description of the native vegetation of the area to be disturbed, including tree, shrub, and grass communities of the area. Color photographs, sufficient to adequately represent the ecology of the site and adequately labeled (including date, orientation and location), may be used to help support a written description.

The soil is sandy silt. Topsoil is on average 12" thick in areas of the designated work area. Vegetation is sparse and includes cacti and weeds because of the soil type. See Photos 1 - 4 in Appendix B.

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- d. Describe the estimated topsoil depth and how topsoil will be salvaged, stockpiled, managed during operations, and redistributed for the re-establishment of vegetation at final reclamation. Specify approximate redistribution depth.

- The soil is sandy silt.
- Topsoil is on average 12" thick in areas of the designated work area.
- If hand digging, the topsoil is included in the operations and gets run through the sluice. The combined tailings will be utilized in reclamation efforts.
- If utilizing the mini excavator, the topsoil can be scraped off and stockpiled on the the southwest side of the work area.

- e. Describe how portals, adits, shafts, ponds, excavations, or other disturbances will be reclaimed (refer to Colorado Division of Reclamation and Mining Safety (CDRMS) for specific reclamation performance standards that may apply). You may wish to contact other State and Federal Agencies for closure specifications. Indicate if there are any facilities, roads, ponds, etc. to be left after final reclamation. The location of these features should be noted in Exhibit VI. Describe how roads will be reclaimed or returned to their pre-prospecting/mining (or better) condition.

Excavations are backfilled continually as the working face progresses west.

- f. Describe any reclamation that is necessary because of in-stream mining.

N/A

- g. Toxic and Deleterious Materials, *as applicable*

- i. Provide the methods for reclaiming any waste rock, ore, and other stock piles (including original underlying topography, operational slope, and proposed reclaimed slope).

N/A

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If the soil is deficient in nutrients to be an adequate seedbed, please indicate and detail the use of fertilizer or other amendments. If mulch is to be used, please describe the type, rate, and method of application.

N/A

- j. Please provide a description of post closure management to include activities, monitoring, timelines, etc.

Post closure management will consist of visually monitoring soil stability (lack of erosion) and seed growth for a year.

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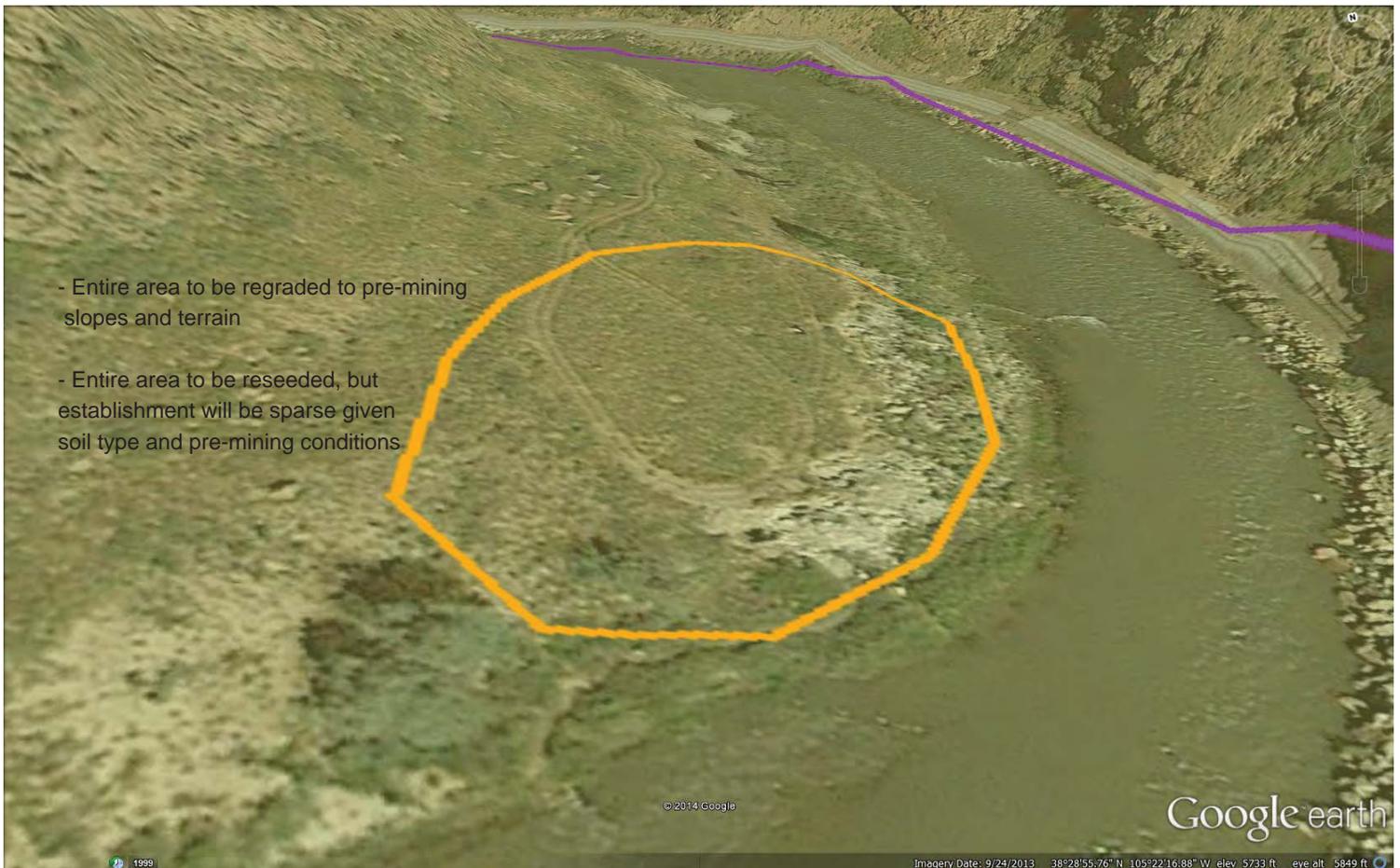
EXHIBIT VI

Reclamation Plan Map

This Exhibit may be applied to CDRMS Hardrock 112 Exhibit F or a portion of Hardrock 110 Exhibit E, additional information may be required.

Please provide a map depicting final reclamation of the affected area.

- i. Show the gradient of all reclaimed slopes (horizontal: vertical) sufficient to describe the post mine topography;
- ii. Indicate where vegetation will not be established and the general area(s) for shrub or tree planting;
- iii. If ponds are a part of the Reclamation Plan, outline the final shore configuration of the ponds and shallow areas if the future land use is for wildlife;
- iv. State the average thickness of replaced overburden by reclamation area or phase; and
- v. State the average thickness of replaced topsoil by reclamation area or phase.



Map 5 Reclamation Map

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EXHIBIT VII

Water Information

*This Exhibit may be applied to CDRMS Hardrock 112 Exhibit G, additional information may be required.
Additional information and/or mitigation may be included in the corresponding NEPA analysis for the proposed project.*

Describe anticipated relationship to surface water and groundwater (proximity to streams, penetration of ground water aquifers, known water depth of lenses, etc.).

As stated above, work area is approximately 20' from the river and no groundwater is anticipated to be intercepted.

Surface drainages throughout the claim typically only flow in response to high intensity storm events.

If the use of water is required, describe the location of source and quantity to be used. Please include any necessary permits in Exhibit XIII.

Water from the Arkansas river will be used on a limited basis and returned to approximately the same area of the pump intake.

Provide additional information including, but not limited to, major watershed, all known aquifers, floodplain proximity, storm water plan per CDPHE regulations, etc.

Work area is located on an alluvial bench deposit that may be within the 100-year floodplain.

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EXHIBIT VIII

Wildlife Information

*This Exhibit may be applied to CDRMS Hardrock 112 Exhibit H, additional information may be required.
Additional information and/or mitigation may be included in the corresponding NEPA analysis for the proposed project.*

1. The Operator/Applicant shall include in this Exhibit, a description of the game and non-game resources on and in the vicinity of the application area, including:
 - a. a description of the significant wildlife resources on the affected land;
 - b. seasonal use of the area;
 - c. a description of the general effect during and after the proposed operation on the existing wildlife of the area, including but not limited to temporary and permanent loss of food and habitat, interference with migratory routes, and the general effect on the wildlife from increased human activity, including noise.

It has been noted that geese, mountain lion, deer and bighorn sheep have been sited within the claim area since 2012.

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EXHIBIT IX

Soils Information

This Exhibit may be applied to CDRMS Hardrock 112 Exhibit I, additional information may be required.

Additional information and/or mitigation may be included in the corresponding NEPA analysis for the proposed project.

1. The Operator/Applicant shall indicate on a map (in Exhibit III) or by a statement, the general type, thickness and distribution of soil over the affected land. Such description will address suitability of topsoil (or other material) for establishment and maintenance of plant growth.

The soil is sandy silt. Topsoil is on average 12" thick in areas of the designated work area. Vegetation is sparse and includes cacti and weeds because of the soil type.

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EXHIBIT X

Vegetation Information

This Exhibit may be applied to CDRMS Hardrock 112 Exhibit J, additional information may be required.

Additional information and/or mitigation may be included in the corresponding NEPA analysis for the proposed project.

1. The Operator/Applicant shall include in this Exhibit a narrative of the following items:
 - a. descriptions of present vegetation types, which include quantitative estimates of cover and height for the principal species in each life-form represented (i.e., trees, tall shrubs, low shrubs, grasses, forbs);
 - b. the relationship of present vegetation types to soil types, or alternatively, the information may be presented on a map; and
 - c. estimates of average annual production for hay meadows and croplands, and carrying capacity for range lands on or in the vicinity of the affected land, if the choice of reclamation is for range or agriculture.
2. The Operator/Applicant shall show the relation of the types of vegetation to existing topography on a map in Exhibit C. In providing such information, the Operator/Applicant may want to contact the local Soil Conservation District.

The soil is sandy silt. Topsoil is on average 12" thick in areas of the designated work area. Vegetation is sparse and includes cacti and weeds because of the soil type.

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EXHIBIT XI

Climate Information

*This Exhibit may be applied to CDRMS Hardrock 112 Exhibit K, additional information may be required.
Additional information and/or mitigation may be included in the corresponding NEPA analysis for the proposed project.*

Provide a description of the significant climatological factors for the locality which could apply to the environmental analysis for this Plan of Operations. Additional information may be required for CDRMS permit as discussed in Paragraph 6.4.21(13) of the CDRMS Hardrock/Metal Mining Rules.

Similar to surrounding areas, which will have climatological information available through NOAA.

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EXHIBIT XII

Reclamation Costs [Pursuant to 43 CFR 3809.552]

*This Exhibit may be applied to CDRMS Hardrock 112 Exhibit L, additional information may be required.
Additional information and/or mitigation may be included in the corresponding NEPA analysis for the proposed project.*

The reclamation cost estimate must ensure:

1. the estimated costs as if BLM/CDRMS were to contract with a third party to reclaim the operations according to the reclamation plan, including construction and maintenance costs for any treatment facilities necessary to meet Federal and State environmental standards.
2. The Cost of Equipment Rental, Operation and Labor Appropriate for the Geographic Area, or;

Enter those values in the cost estimate that are appropriate to this project. Attach sources/information used in cost estimate (examples: Caterpillar Performance Handbook, contractor’s estimate, etc.).

A. Earthwork/Recontouring	Labor ⁽¹⁾	Equipment ⁽²⁾	Materials	Total
Exploration	\$	\$	\$	\$
Exploration Roads & Drill Pads				
Roads				
Drill Hole Abandonment				
Pits				
Underground Openings				
Process Ponds				
Heaps				
Waste Rock Dumps				
Tailings				
Foundation & Buildings Area				
Lay down/storage yards, Etc.				
Drainage & Sediment Control				
Other				
Mobilization/Demobilization				
Subtotal "A"				
B. Revegetation/Stabilization	Labor ⁽¹⁾	Equipment ⁽²⁾	Materials	Total
Exploration	\$	\$	\$	\$
Exploration Roads & Drill Pads				
Roads				
Drill Hole Abandonment				
Pits	■		■	■
Underground Openings				
Process Ponds				
Heaps				
Waste Rock Dumps				
Tailings				

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Foundation & Buildings Area				
Lay down/storage yards, Etc.				
Drainage & Sediment Control				
Other				
Subtotal "B"				
C. Detoxification/Water Treatment/Disposal of Wastes	Labor⁽¹⁾	Equipment⁽²⁾	Materials	Total
Interim Fluid Management	\$	\$	\$	\$
Process Ponds/Sludge				
Heaps				
Transport and Disposal of Waste				
Tailings				
Surplus Water Disposal				
Monitoring				
Other				
Subtotal "C"				
D. Structure, Equipment and Facility	Labor⁽¹⁾	Equipment⁽²⁾	Materials	Total
Foundation & Buildings Area	\$	\$	\$	\$
Other Demolition				
Equipment Removal				
Fence Removal				
Pipe & culvert Removal				
Powerline Removal				
Transformer Removal				
Rip-Rap, rock lining, gabions				
Other Misc. Costs				
Other				
Subtotal "D"				
E. Monitoring	Labor⁽¹⁾	Equipment⁽²⁾	Materials	Total
Reclamation Monitoring & Maintenance	\$	\$	\$	\$
Ground and Surface Water Monitoring				
Subtotal "E"				
F. Construction Management & Support	Labor⁽¹⁾	Equipment⁽²⁾	Materials	Total
Construction Management	\$	\$	\$	\$
Road Maintenance				
Other				
Subtotal "F"				
G. Operation & Maintenance Costs	Labor⁽¹⁾	Equipment⁽²⁾	Materials	Total
Subtotal A through F	\$	\$	\$	\$
H. Indirect Costs (see text below for further information)				

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1. Engineering, Design and Construction (ED&C) Plan (6.1)	
4. Bond (6.2)	
5. Contractor Profit (6.3)	
6. Contract Administration (6.4)	
Subtotal Add-on Costs	
GRAND TOTAL	\$1,460

RECLAMATION COST ESTIMATION SUMMARY SHEET FOOTNOTES

1. Federal construction contracts require Davis-Bacon wage rates for contracts over \$2,000. Wage rate estimates may include base pay, payroll loading, overhead and profit. (NOTE – Depending on type of operations, it may be issued as a service contract.)
2. The reclamation cost estimate must include the estimated plugging cost for holes utilizing the most reliable assumption of total depth.
3. Miscellaneous items should be itemized on accompanying worksheets.
4. Management plans for hazardous material to include petroleum products
5. Any mitigation measures required in the Plan of Operations must be included in the reclamation cost estimate. Mitigation may include measures to avoid, minimize, rectify and reduce or eliminate the impact, or compensate for the impact.
6. Fluid management should be calculated only when mineral processing activities are involved. Fluid management represents the costs of maintaining proper fluid management to prevent overflow of solution ponds through premature cessation or abandonment of operations. Calculate a minimum six month direct cost estimate which includes power, supplies, equipment, labor and maintenance.
7. Details in reference to section “H – Indirect Costs” of the table above.
 - (1) Engineering, design and construction (ED&C) plans are often necessary to provide details on the reclamation needed to contract for the required work. To estimate the cost to develop an ED&C plan use 4. 8% of the operations and maintenance cost. Inclusion of a line item for the development of an ED&C plan may not be necessary for small operations, such as notice-level exploration. With small, uncomplicated reclamation efforts contracting may be able to proceed without developing an ED&C plan.
 - (2) Federal construction contracts exceeding \$100,000 require both a performance and a payment bond (Miller Act, 40 USC 270et seq.). Each bond premium is figured at 1.5% of the O&M cost. Enter the sum of both premium costs on this line, as applicable.
 - (3) For Federal construction contracts, use 7% of estimated O&M cost for the contractor’s profit.
 - (4) To estimate the contract administration cost, use 6 to 10% of the operational and maintenance (O&M) cost.

Comments:

N/A

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EXHIBIT XIII

List of other permits and licenses required

This Exhibit may be applied to CDRMS Hardrock 112 Exhibit M or Hardrock 110 Exhibit F, additional information may be required.

Please list any and all permits associated with the proposed operations:

Issuing Agency	Permit Type	Permit #	Date of Expiration
None listed			

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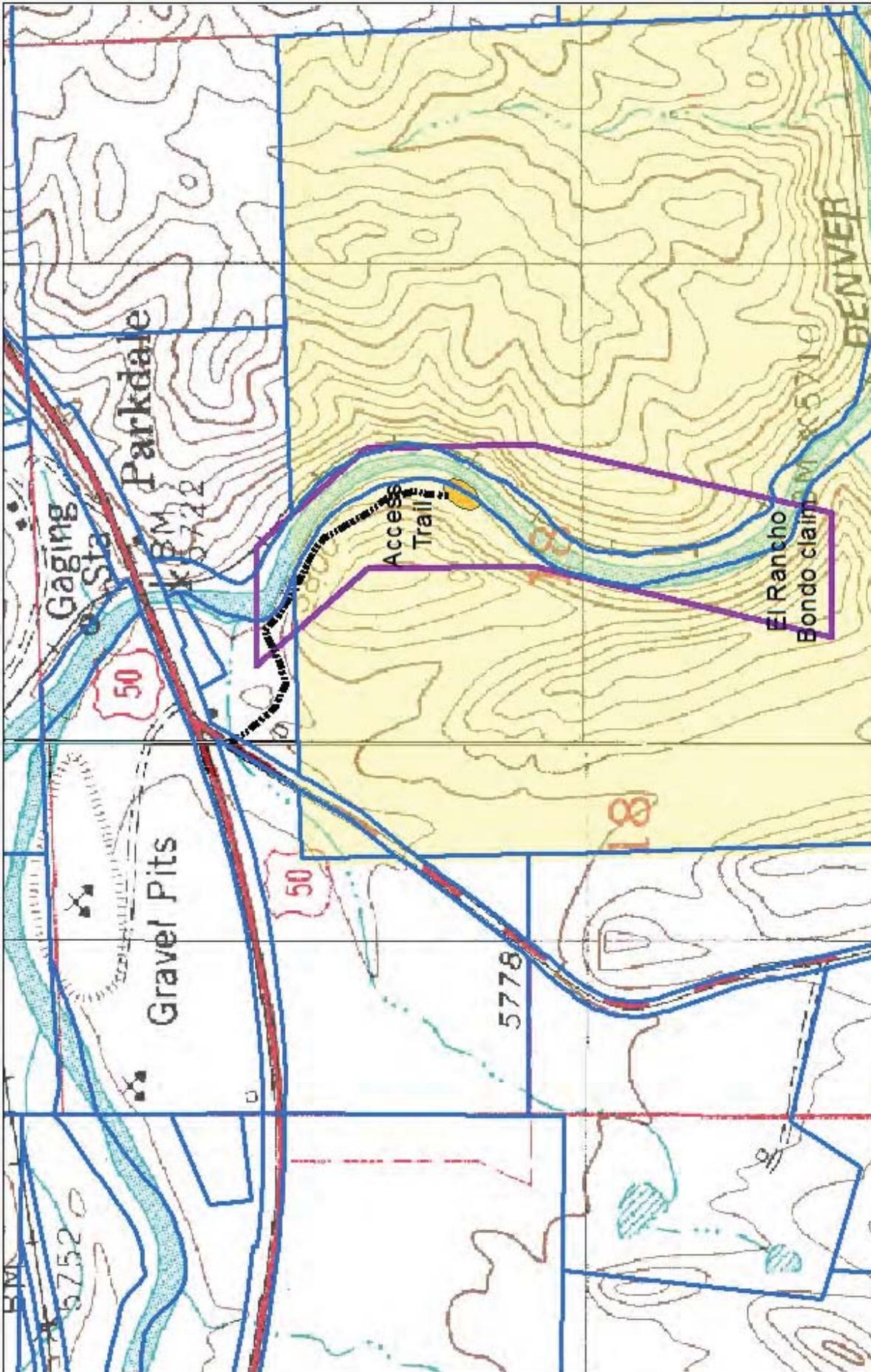
EXHIBIT XIV as applicable

Geotechnical Stability

*This Exhibit may be applied to CDRMS Hardrock 110/112 Geotechnical Stability Exhibit, additional information may be required.
Additional information and/or mitigation may be included in the corresponding NEPA analysis for the proposed project.*

1. On a site-specific basis, an Applicant shall be required to provide a geotechnical evaluation of all geologic hazards that have the potential to affect any proposed impoundment, slope, embankment, highwall, or waste pile within the affected area. The Applicant may also be required to provide a geotechnical evaluation of all geologic hazards, within or in the vicinity of the affected lands that may be de-stabilized or exacerbated by mining or reclamation activities.
2. On a site-specific basis, an Applicant shall be required to provide engineering stability analyses for proposed final reclaimed slopes, highwalls, waste piles, embankments, and ore leach facilities. An Applicant may also be required to provide engineering stability analyses for certain slope configurations as they will occur during operations, including, but not limited to, embankments and ore leach facilities. Information for slope stability analyses may include, but would not be limited to, slope angles and configurations, compaction and density, physical characteristics of earthen materials, pore pressure information, slope height, post-placement use of site, and information on structures or facilities that could be adversely affected by slope failure.
3. Where there is the potential for off-site impacts due to failure of any geologic structure or constructed earthen facility, which may be caused by mining or reclamation activities, the Applicant shall demonstrate through appropriate geotechnical and stability analyses that off-site areas will be protected with appropriate factors of safety incorporated into the analysis. The minimum acceptable safety factors will be subject to review by BLM, on a case-by-case basis, depending upon the degree of certainty of soil or rock strength determinations utilized in the stability analysis, depending upon the consequences associated with a potential failure, and depending upon the potential for seismic activity at each site.
4. At sites where blasting is part of the proposed mining or reclamation plan, the Applicant shall demonstrate through appropriate blasting, vibration, geotechnical, and structural engineering analyses, that off-site areas will not be adversely affected by blasting

- The working face slope will typically remain at 1-1/2 (H):1 (V) or more.
- Mining methods will be used that will maintain wall, bank and slope stability in places where people work or travel.
- Unconsolidated material will be sloped to the angle of repose at the top of the working face and the stockpile.
- Frequent visual inspections will be conducted to ensure that working face remains stable and intact.
- No highwalls should remain after reclamation.

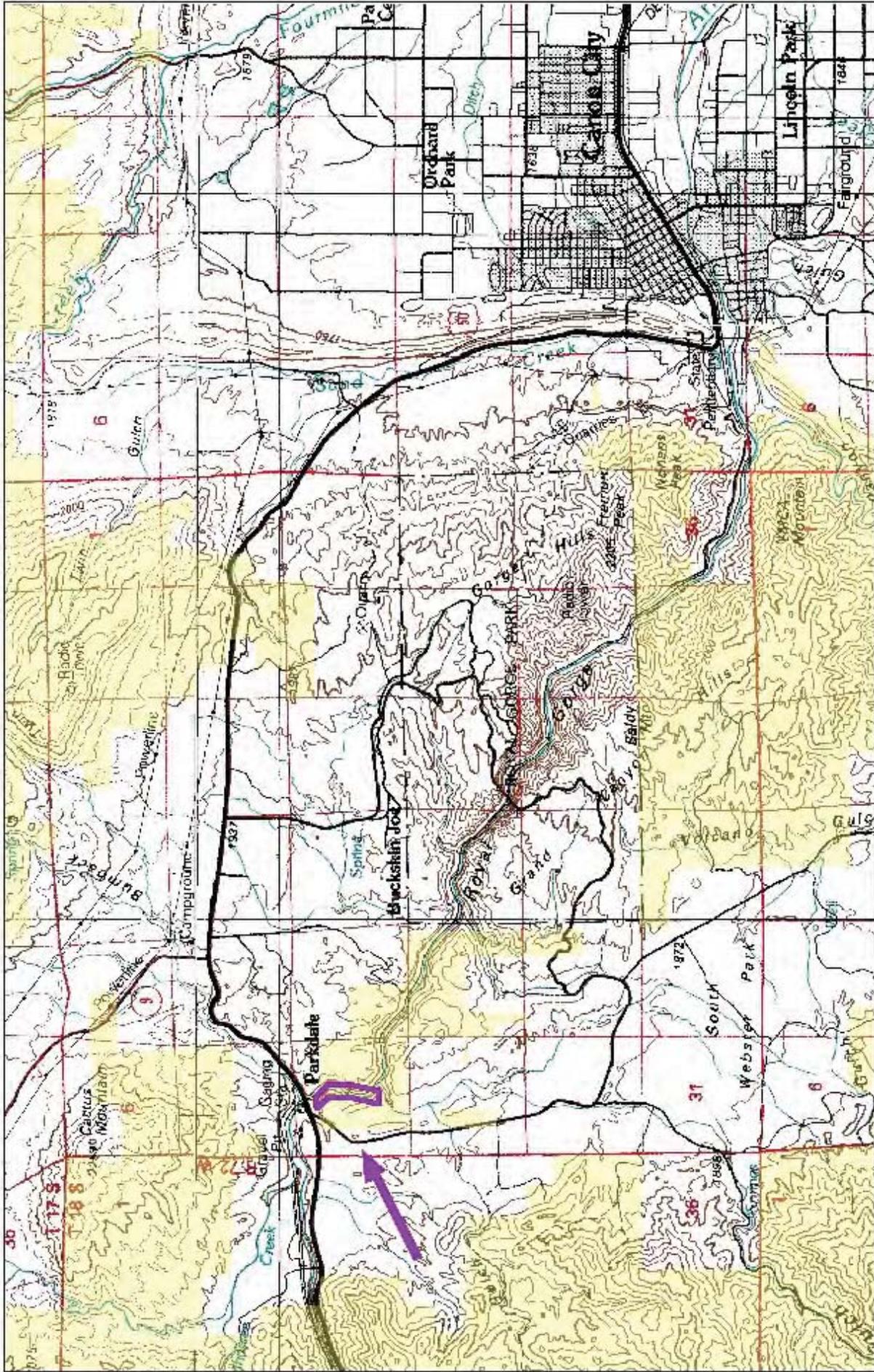


Map 1
Plan of Operations, El Rancho Bondo
 6th PM, T18S, R71W, Section 18



- Legend**
- FREMONT_PARCELS
 - Zimmernan_Access
 - El_Rancho_Bondo_claim
 - 2014_Work_Area_ElRancho_Bondo
 - Bureau of Land Management
 - Private

NOTE TO MAP USERS
 No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of the data layers shown on this map. The official land records of the data providers should be checked or current status on any specific tract of land.

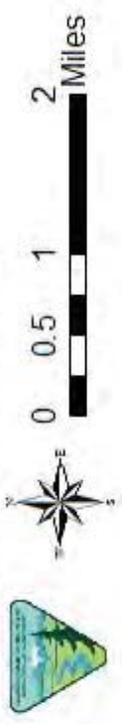


NOTE TO MAP USERS
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Legend

-  El Rancho Bondo claim
-  Bureau of Land Management
-  Private

Map 2
 Plan of Operations, El Rancho Bondo
 6th PM, T18S, R71W, Section 18



A north arrow is located at the top left of the legend area. Below it is a scale bar showing distances of 0, 0.5, 1, and 2 miles.



Photo 1 Looking north, northeast: Work area on the west side of the Arkansas River.



Photo 2 Looking south, southwest: Working face on the west side of Arkansas River.



Photo 3 Looking southwest: Upland vegetation



Photo 4 Looking south: Riparian area, located vertically below the working area.

APPENDIX B

Plan of Operations for

El Rancho Bondo

CMC 278502

Tom & Sonny Zimmerman

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Plan of Operations for El Rancho Bondo

3809.401(b)

- **Operator Information Requirements 3809.401(b)(1)**
 - Tom and Sonny Zimmerman
 - [REDACTED]
 - CMC# 278502
- **Description of Operations Elements 3809.401(b)(2)**
 - Equipment carried in and out daily will include pumps, hoses, gold pans, and some hand tools. Equipment left on-site will include one chair, two wash pans, two shovels, and two picks. Everything will be removed at the end of the season.
 - One very old trommel assembly exists on site. It is shown on the attached map and has existed since sometime in the 1930's. This equipment is non-functional and will not be used in any operations.



- For map showing all activity and facility locations see Appendix A.
- For preliminary designs and operating plans see Appendix B.
- Water will be pumped from the river, pass through a sluice box, and into a small hand built settling pond before returning to the river. Operations will not intrude into river or groundwater.
- Maximum volume of fuel onsite averages ½ gallon. In the event of a fuel spill, the affected soil will be dug, contained, and removed from the claim sight for proper disposal by a qualified party. Fuel will be stored beyond the legal minimum distance from the river to eliminate potential for a spill to the river.
- The schedule of operations will be somewhat indeterminate as this claim is managed purely for recreational casual use purposes. Between the dates of April 1st and September 30th operations may

Plan of Operations for El Rancho Bondo

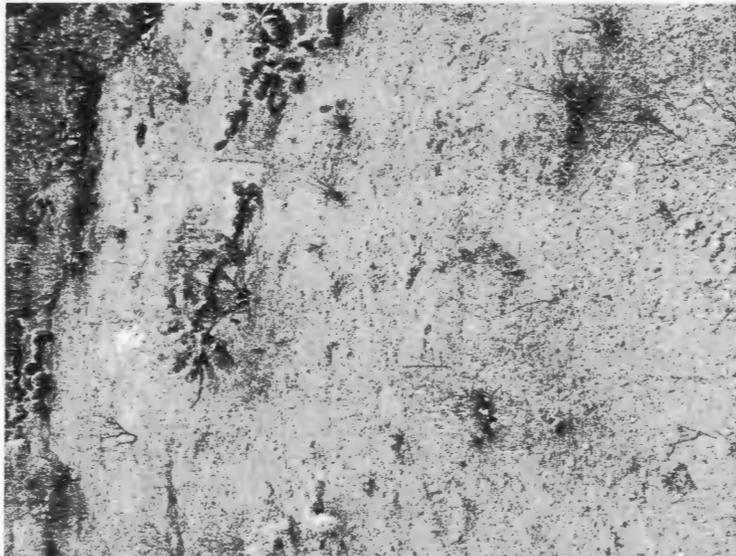
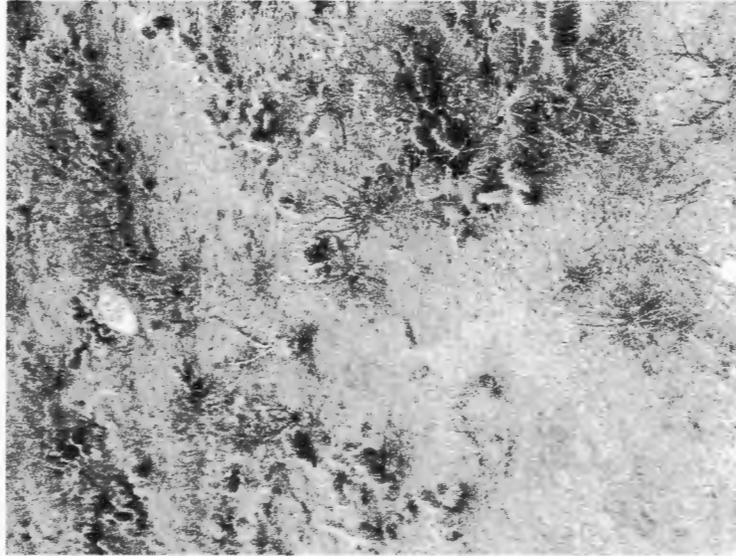
include high banking. Hand sluices and pans would be applicable year round.

- Currently access is restricted foot traffic on an existing path. Permission has been granted to pass through the property of American Adventure Expeditions located at the intersection of Hwy 50 and Copper Gulch Road. See attached letter. It is in the interests of the claim owners to access the claim by ATV to assist reclamation efforts. Cleaning rock fall and debris from the trail (by hand) is necessary; the trail is already wide enough for ATV access. No other modifications are needed and no additional reclamation effort will be required.
- **Reclamation Plan Requirements 3809.401(B)(3)**
 - Material being processed is in the bank 30-50 feet from the river.
 - Operations are purely by hand so very little disturbance to the land will occur. Reclamation will also be completed using hand tools.
 - Riparian mitigation is not anticipated to be an issue due to the very small areas affected by hand diggings.
 - Topsoil will be conserved by stockpiling it and seeding it to prevent erosion. This area is very protected from wind and other elements so erosion is not expected to be significant. In this way old diggings may be backfilled thereby not changing the landscape only moving material from place to place.
 - Topsoil is on average 12" thick in areas where workings would occur.



- Revegetation will include spreading a native seed mixture followed by straw to minimize erosion and promote seed growth.
- Vegetation is sparse in potential working areas.

Plan of Operations for El Rancho Bondo



- **Monitoring Plan Requirements 3809.401(B)(4)**
 - Erosion will be monitored by visual inspection of the diggings and trail, the two areas most susceptible to surface erosion. Susceptible areas are small enough that visual inspections conducted monthly at a minimum should be sufficient and effective.
- **Interim Management plan 3809.401(B)(5)**
 - Excavation stabilization will be a continuous effort. Overhangs, loose rock, and loose soil will be removed and/or taken to a state of lower potential energy so they do not present a hazard.
 - Equipment and supplies will be carried in and out daily as a general rule.

Plan of Operations for El Rancho Bondo

- The area will be maintained as a clean and safe environment by removing any trash or debris encountered during each visit. High-walls (not exceeding 6 feet) will be clearly marked.
- During non-operation site conditions will be monitored by visual inspections on a monthly basis.
- Operations, in one form or another, are anticipated to continue year round. Periods of non-operation will most likely be intermittent and should not exceed more than 3 weeks.
- **Reclamation Cost Estimate – 3809.401(D)**
 - Costs of reclamation are estimated at \$400.

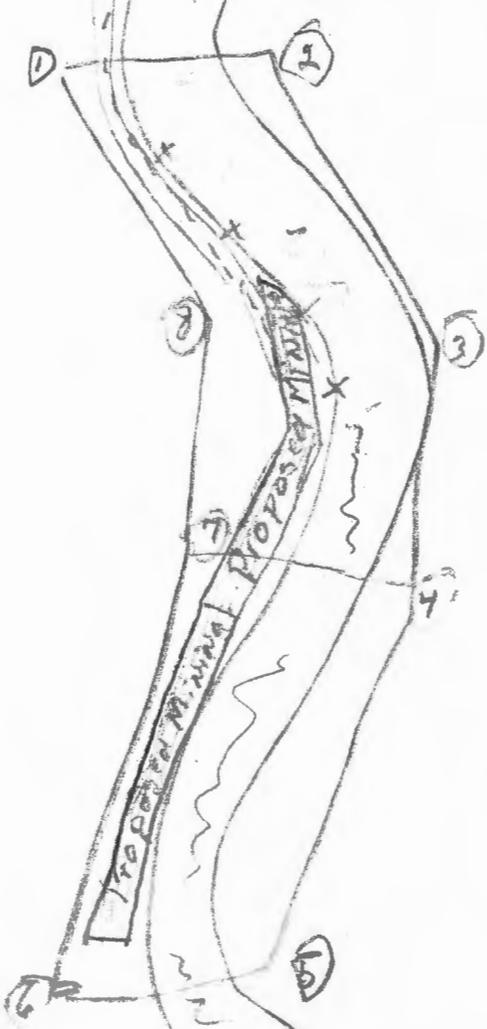
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NORTH

AMERICAN
ADVENTURES
ACCESS

Appendix A

ATV
TRAIL



TROMEL

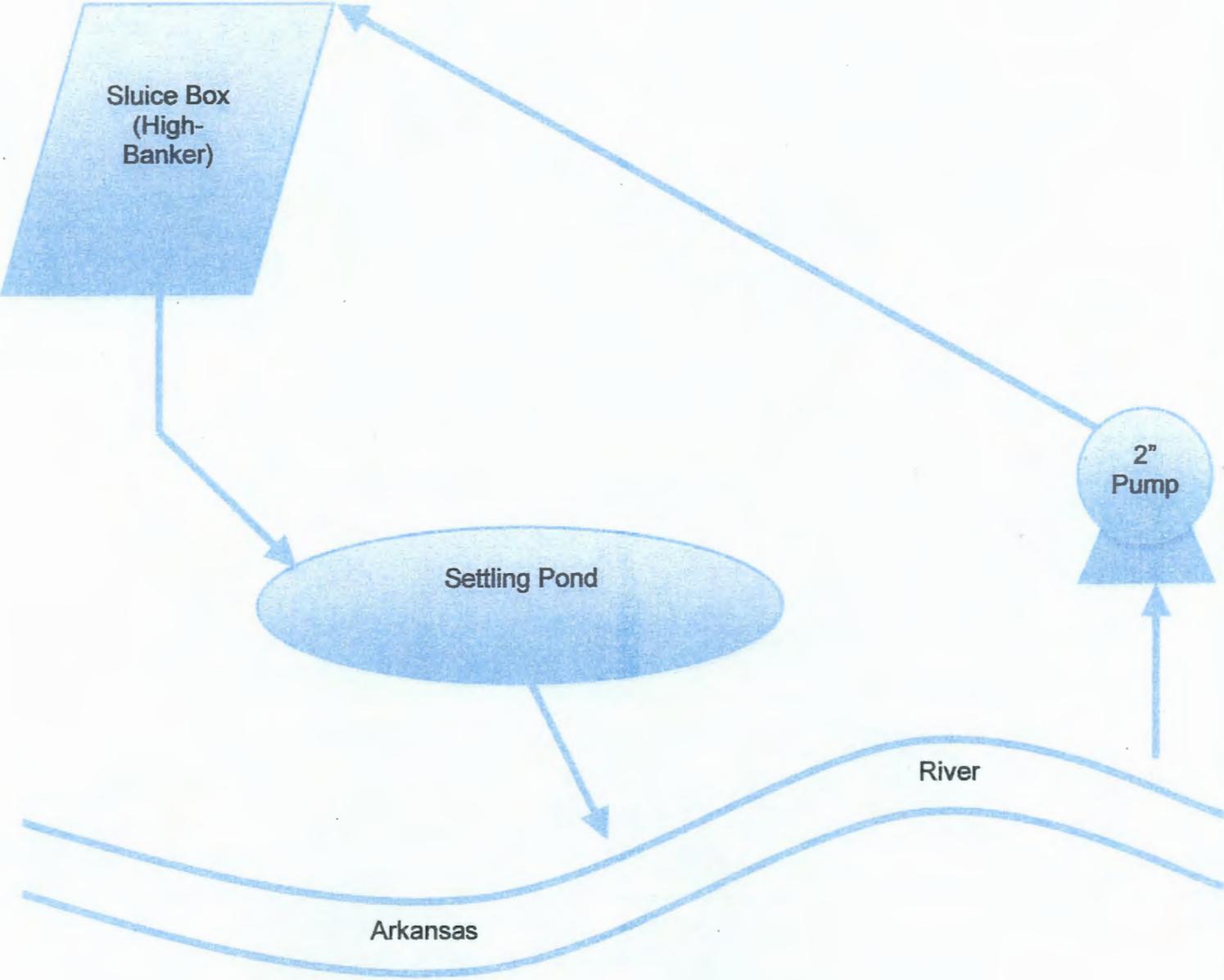
MATERIAL
RUNNING
30' TO 40'
FROM RIVER

Proposed
Mining

THIS TITF
AREA WE
PURPOSE TO
(~1.5ac)

SOUTH

Appendix B





August 17, 2011

To Whom It May Concern:

Tom Zimmerman has permission to access his mining claim on the Arkansas River by passing through our property located at:

41746 W US Highway 50
Cañon City, CO 81212

If anyone has any questions regarding this arrangement, please contact me at the phone number listed below.

Regards,

Mike Kissack
Owner/Operator
Amber Waves Adventures LLC, dba American Adventure Expeditions

Epic Whitewater. Inspired Hospitality.

12844 East Highway 24/285 • Buena Vista, CO 81211

719.395.2409 office • 719.395.2848 fax

www.AmericanAdventure.com

Pre-Existing Excavations/Tailings

- The following pictures show pre-existing excavations.

