United States Department of Agriculture **Forest Service** **South Park Ranger District**

320 Highway 285
Fairplay, CO 80440
719-836-2031
Fax: 719-836-3875

File Code: 2810
Date: June 22, 2018

CERTIFIED MAIL – RETURN RECEIPT REQUESTED
NUMBER: 7017 1070 0000 6138 2324

Joseph Dorris
Claimant / Operator
2920 Cedar Heights Drive
Colorado Springs, CO 80904

Dear Mr. Dorris,

I am writing in regards to the Topaz Mountain Gem Plan of Operations (MPO) (***#2810-021210-MPO-2018-003***) for placer exploration and mining related activities on the South Park Ranger District of the Pike National Forest. In my June 1, 2018 letter to you, I informed you that I had signed the Topaz Mountain Gem Decision Memorandum (DM) on May 31st and also instructed you on the final two steps necessary for MPO approval.

On June 12, 2018, I received your signed Design Criteria that incorporated into Section IV-A the changes and additions that were identified in the DM. As per the Memorandum of Understanding (MOU) between the Forest Service and the State of Colorado, Division of Reclamation, Mining, and Safety (DRMS), the DRMS is the lead bond authority and will be responsible for calculating your reclamation bond. This bond will need to be submitted to and approved by DRMS and the Forest Service in accordance with 36 CFR 228.13, prior to the authorization of your MPO. This bond will be used as a guarantee of faithful performance with the terms and conditions listed in the MPO. As a reminder, the bond can be adjusted during the term of the MPO in response to changes in the operations or to changes in the economy. Also, you may request a partial bond release following completion of the ground disturbing activities (i.e. all but monitoring).

These last two steps conclude the stipulations listed in the DM. Therefore, I have conditionally approved your Topaz Mountain Gem MPO with my signature in Section IX (attached). Operations are authorized to begin on ***June 15, 2018***, and are authorized for 5 years, with completion of all activities including reclamation by **December 31, 2023**.

Please be aware, this approval does not constitute permission to conduct activities that require other agency permits. You are responsible for obtaining all other necessary permits prior to operation. Furthermore, approval of this operating plan in no way authorizes, or in any way permits, a release or threat of a release of hazardous substances or pollutants into the environment that will require a response action or result in the incurrence of response costs.

All designs, monitoring plans, and analyses required by the MPO are subject to the requirement of 36 CFR 228.8 that mining operations be conducted so as, where feasible, to minimize adverse environmental impacts on National Forest surface resources. The operator's compliance with this requirement in no way insulates or releases them from any liability or obligations that may arise with respect to its operations under any applicable environmental law, including but not limited to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA),

42 U.S.C. 9601 et seq. The United States reserves its rights and claims under CERCLA to seek performance of response actions and/or reimbursement of response costs that may be incurred as a result of any release or threat of a release of a hazardous substance from the project, or any ancillary operation for the mining activity.

Prior to ground breaking activities, please contact Geologist Amy Titterington to arrange a field meeting to review the final MPO on site. If you have any questions and/or need clarification regarding the above information, please contact Geologist Amy Titterington at the South Park Ranger District office, by phone at 719-836-2031, and/or by email at amyjtitterington@fs.fed.us.

Sincerely,

JOSHUA S. VOORHIS
District Ranger

Enclosures:

1) Approved Topaz Gem Mine MPO, signed June 15, 2018
2) DM for Topaz Gem Mine, signed May 31, 2018
3) Design Criteria for Topaz Gem Mine, signed June 12, 2018

cc: elliott.russell@state.co.us; williamsd@co.teller.co.us

USDA United States Department of Agriculture
Forest Service
South Park Ranger District
320 Highway 285
Fairplay, CO 80440
719-836-2031
Fax: 719-836-3875

File Code: 1950; 2810
Date: May 31, 2018

To: 2810 Dorris Topaz Mountain File 2018-003

DECISION:

Mr. Dorris' original mine Plan of Operations (MPO) was authorized on February 23, 2013, with the option to renew for an additional 5 years, if no changes to his MPO occurred. Based upon the best available scientific information, my review of the proposed Topaz Mountain Gem Mine Plan of Operations (MPO), and comments from the following internal agency district specialists: wildlife biologist, range and botany specialist, recreation specialist, silviculturalist, archaeologist, geologist, realty specialist, hydrologist, and fire management officer, I have decided to re-authorize the Topaz Gem MPO for exploration and mining activities as described below:

1. Allow the operation of a dozer or similar excavator for prospecting and/or mining; this would include overburden removal and vein exploration.
2. Allow the use of a grizzly, gravel plant, trommel, and conveyor stacks for processing material.
3. Allow the installation of hazard fencing and signing around the perimeter of the active mining area.
4. The use and storage of a backhoe and dozer for reclamation of mining related disturbances including backfilling and caving dig sites, re-contouring, obliteration of non-system roads and distribution of topsoil. The equipment will be removed at the end of the mining season.
5. Allow the use of two cattle troughs and a catch basin to capture water.
6. Allow the use of a portable restroom during the mining season. The restroom will be removed at the end of the mining season.
7. Allow removal of trees only as necessary to access vein exploration.
8. Use of an existing, adjacent non-system road (two-track) for access and parking vehicles and equipment. The access route is temporary and will be fully reclaimed at the end of the project.
9. Annual reclamation activities will be completed by November 30 of each season and all final reclamation activities will be completed by November 30, five years from the date of this authorization.

The operator will be required to (1) incorporate the design features (criteria) into the final MPO, and (2) post an appropriate reclamation bond as approved by the FS.

Operations approved by this decision will be in compliance with the rules and regulations for operations on NFS lands (36 CFR 228 Subpart A). All operations will be conducted in

accordance with the design features to minimize and/ or eliminate environmental impacts on NFS surface resources (36 CFR 228.8). Approval of this MPO is consistent with 36 CFR 228.5.

Implementation will commence once the Plan of Operations is authorized. The Plan of Operations will be authorized for a five (5) year period, which will end on December 31st five (5) years after the Plan of Operations is signed. Once the Plan of Operations period of authorization has expired, and if there have been no changes to the MPO, the existing analysis will be reviewed for sufficiency to determine if it is adequate to re-authorize the *Topaz Gem Mine* Plan of Operations for a further five years.

BACKGROUND:

Joe Dorris, claimant and operator, has submitted a complete proposal on March 12, 2018, to renew his Plan of Operations to mine Topaz near Pilot Peak on the Rubeck Placer No. 1 and Rubeck Placer No. 2 unpatented mining claims. The unpatented mining claims are found in portions of Section 12, T11S, R72W, 6th Principal Meridian, approximately 10.0 miles north-northwest of Lake George, Colorado, in Park County.

The mining operation may be accessed on existing routes, Park County Road 77 to NFSR 211 to an un-named access road. The cross-country, non-system road is approximately 175 feet long x 12 feet wide. Total disturbance for access is approximately 0.05 acres. The access road has already been bonded in the operator's previous Plan of Operations. The access route is temporary and will be fully reclaimed at the end of the project.

The total disturbance for the project will be approximately 4.5 acres. To date, 2.5 of the 4.5 acres have been disturbed under his previous Plan of Operations. Of the 2.5 acres disturbed, 1.0 acre is open for mining and the other 1.5 acres are used for operations and storage of equipment. This plan of operation will develop the remaining 2.0 acres at the Topaz Mountain Gem Mine.

JOSHUA S. VOORHIS
District Ranger

Enclosures:
1) Topaz Gem Mine Plan of Operations (renewal), submitted January 2, 2018
2) Design Criteria for Topaz Gem Mine
3) Original DM for Topaz Gem Mine, dated February 23, 2013

cc: michaela.cunningham@state.co.us; scross@parkco.us; Joseph Dorris

USDA, Forest Service

PLAN OF OPERATIONS FOR MINING ACTIVITIES ON NATIONAL FOREST SYSTEM LANDS

FS-2800-5 (Rev. 12/11)
OMB NO. 0596-0022

USE OF THIS FORM IS OPTIONAL! 1st TIME USERS SHOULD DIRECT QUESTIONS REGARDING THIS FORM OR REGULATIONS (36 CFR 228A) TO THE FOREST SERVICE DISTRICT OFFICE NEAREST YOUR AREA OF INTEREST.

Submitted by:	Joseph L. Dorris (Signature)	Owner/Operator (Title)	12/26/17 (Date mm/dd/yy)
	(Signature)	(Title)	(Date mm/dd/yy)
Plan Received by:	Amy Tidd (Signature)	Geologist (Title)	Revised 3/12/18 1/2/18 (Date mm/dd/yy)

I. GENERAL INFORMATION

A. **Name of Mine/Project:** Topaz Mountain Gem Mine

B. **Type of Operation:** placer and production
(lode, placer, mill, exploration, development, production, other)

C. **Is this a (☐new/☒continuing) operation?** *(check one).*
If continuing a previous operation, this plan (☐replaces/☒modifies/☐supplements) a previous plan of operations. *(check one)*

D. **Proposed start-up date *(mm/dd/yy)* of operation:** 1 April 2018

E. **Expected total duration of this operation:** 31 Oct 2028

F. **If seasonal, expected date *(mm/dd/yy)* of annual reclamation/stabilization close out:** 30 November

G **Expected date *(mm/dd/yy)* for completion of all required reclamation:** 30 November 2028

II. PRINCIPALS

A. **Name, address and phone number of operator:**
Joseph L. Dorris 2920 Cedar Heights Drive; Colorado Springs, CO 80904 Tel 719 685 4479 cell 719 650 6177
e-mail pinnacle5@pinnacle5minerals.com

B. **Name, address, and phone number of authorized field representative (if other than the operator).**
Attach authorization to act on behalf of operator.
Timothy L. Dorris 5092 Laredo Ridge Drive, Colorado Springs, CO 80922 Tel 719 659 2038

C. **Name, address and phone number of owners of the claims (if different than the operator):**

RECEIVED
MAR 12 2018
South Park
Ranger District

RECEIVED
JAN 02 2018
South Park
Ranger District

(If more space is needed to fill out a block of information, use additional sheets and attach form)

D. **Name, address and phone number of any other lessees, assigns, agents, etc., and briefly describe their involvement with the operation, if applicable:**

III. PROPERTY OR AREA

(Name of claim, if applicable, and the legal land description where the operation will be located.)

MC#	Name	Section	Township	Range
171832	Rubeck Placer	12	11 South	72 West
173015	Rubeck Placer No. 2	12	11 South	72 West

IV. DESCRIPTION OF THE OPERATION

A. **Access.** *Show on a map (USGS quadrangle map or a National Forest map, for example) the claim boundaries, if applicable, and all access needs such as roads and trails, on and off the claim. Specify which Forest Service roads will be used, where maintenance or reconstruction is proposed, and where new construction is necessary. For new construction, include construction specifications such as widths, grades, etc., location and size of culverts, describe maintenance plans, and the type and size of vehicles and equipment that will use the access routes.*

Refer to accompanying maps which indicate claim boundaries and access roads. The main access road is F.S. Rd 211 (Matakat) which crosses through the middle of the Rubeck No. 1. Access to F.S. Rd 211 is from Park County Road 77 via State Highway 24. Heavy equipment will be roaded in to the Forest Service public access pull out across from the access gate and walked in to the active dig areas about 100 yards. An existing logging road is currently bonded through the permit site for operations and is used for equipment movement and mining operations. No additional roads will be constructed outside the permit boundaries. Normal 4WD vehicles will be on the mine site but on the approved 4.5 acre disturbance area. In addition an excavator and a garden tractor or backhoe will be on site and moving about within the permit area for mining operations. The logging road is indicated on attached maps. Per the Google Earth satellite photo, the logging road is visible beyond the permit site and extends to the north end of the claim. This road was established pre-mining and will not be used for current operations. The road in current use for mining operations averages 12 feet wide which is the standard road width and is suitable for bringing in heavy equipment. A berm has been established for MSHA safety requirements along the north edge above a previous excavation with approximate 3 foot bank. All roads, berms, etc. exist in the previously approved disturbance area. The exception created by moving the disturbance area to cover the logging road on the west edge (it was not previously) results in approximately 175 feet of access which is entirely contained on Rubeck Placer No. 1. The volume of disturbance for the road is within the 4.5 acre and not separately identified. The additional volume outside the 4.5 acres is 12 feet by 175, or 2,100 square feet. (The actual disturbance site without the road is 4.37 acre which allows the additional .05 acre and keeps the disturbance within the approved State Permit M 2002-003 which allows 4.5 acres)

B. **Map, Sketch or Drawing.** *Show location and layout of the area of operation. Identify any streams, creeks or springs if known. Show the size and kind of all surface disturbances such as trenches, pits, settling ponds, stream channels and run-off diversions, waste dumps, drill pads, timber disposal or clearance, etc. Include sizes, capacities, acreage, amounts, locations, materials involved, etc.*

(If more space is needed to fill out a block of information, use additional sheets and attach form)

See attached addendum.

(If more space is needed to fill out a block of information, use additional sheets and attach form)

C. Project Description. *Describe all aspects of the operation including mining, milling, and exploration methods, materials, equipment, workforce, construction and operation schedule, power requirements, how clearing will be accomplished, topsoil stockpile, waste rock placement, tailings disposal, proposed number of drillholes and depth, depth of proposed suction dredging, and how gravels will be replaced, etc. Calculate production rates of ore. Include justification and calculations for settling pond capacities, and the size of runoff diversion channels.*

See attached adendum.

D. Equipment and Vehicles. *Describe that which is proposed for use in your operation (Examples: drill, dozer, wash plant, mill, etc.). Include: sizes, capacity, frequency of use, etc.*

See attached adendum

E. Structures. *Include information about fixed or portable structures or facilities planned for the operation. Show locations on the map. Include such things as living quarters, storage sheds, mill buildings, thickener tanks, fuel storage, powder magazines, pipelines, water diversions, trailers, sanitation facilities including sewage disposal, etc. Include engineering design and geotechnical information for project facilities, justification and calculations for sizing of tanks, pipelines and water diversions, etc.*

We have a grizzly which is left on site but is mobile if necessary, albeit costly to remove since we must use an excavator and get a haul truck to move it. We request this be left on site. We will also have two cattle troughs on site. Additonally, we have a portable restroom. Otherwise equipement is present only when we are operating during the mining season between end of April and end of October and then intermittently. Occasionally we might camp on site but this is for less than 10 days and generally for security reasons. Our camping site is near the vehicle location on the permit site indicated by the red box. All equipment is placed or stored on the permit site.

V. ENVIRONMENTAL PROTECTION MEASURES (SEE 36 CFR 228.8)

A. Air Quality. *Describe measures proposed to minimize impacts on air quality such as obtaining a burning permit for slash disposal or dust abatement on roads.*

(If more space is needed to fill out a block of information, use additional sheets and attach form)

We have no slash burning. The timber was removed by previous claimant. The site is generally damp and no appreciable dust is generated. This is true even when we are running the shaker system, which is a "dry" operation. The F.S. Road 211 cuts through the mining claim and this is the only road where there is appreciable dust generated. The access road on the mine is only about 200 yards in length and not heavily traveled.

B. Water Quality. *State how applicable state and federal water quality standards will be met. Describe measures or management practices to be used to minimize water quality impacts and meet applicable standards.*

1. *State whether water is to be used in the operation, and describe the quantity, source, methods and design of diversions, storage, use, disposal, and treatment facilities. Include assumptions for sizing water conveyance or storage facilities.*
2. *Describe methods to control erosion and surface water runoff from all disturbed areas, including waste and tailings dumps.*
3. *Describe proposed surface water and groundwater quality monitoring, if required, to demonstrate compliance with federal or state water quality standards.*
4. *Describe the measures to be used to minimize potential water quality impacts during seasonal closures, or for a temporary cessation of operations.*
5. *If land application is proposed for waste water disposal, the location and operation of the land application system must be described. Also describe how vegetation, soil, and surface and groundwater quality will be protected if land application is used.*

A. The primary catch basin is indicated by the blue tear drop on the map. It is about 20 feet in length by 10 feet wide by 4 feet in depth, pyramidal shape, and calculated to contain 2,000 gallons plus.

1.We will use about 500 gallons of water (250 each tank) to be taken from seepage that collects in our catch basin or we will bring water onto the site. We have water rights on "Topaz Mountain Spring, which is this seepage. Generally, this is intermittent and only runs after a heavy rain or during spring melt. Water from runoff from the surrounding mountains eventually emerges downstream in an unnamed tributary of Tarryall Creek. This will be a self-contained system and will be used to wash silicates only. It will be returned to the catch basin where it is absorbed into the ground.

2. Erosion is controlled by limiting the size of the excavated area. Runoff, generally from road surfaces, is channeled into a catch basin and is minimal. Other runoff seeps into the gravel terrace and the "ore" piles. If discharge occurs from the catch basin, it is released onto a meadow and seeps into the turf. If the flow is larger, it could enter a nearby intermittent stream channel. (This channel was filled with sediment shortly after the 2002 Hayman fire).

3. The nature of this deposit is silicate minerals. There is no reactive mineralization (no metals nor sulfides) nor breakdown of minerals into toxic or acidic materials from this operation. All material can settle out and is similar to any material washed into the streams from surrounding forest lands. The rate is generally identical, except for road surfaces where sheet erosion is possible, but this is collected and run into the catch basin.

4. Berms and the catch basin are in place year round in the event of any unexpected erosional event.

C. **Solid Wastes.** *Describe the quantity and the physical and chemical characteristics of solid waste produced by the operation. Describe how the wastes will be disposed of including location and design of facilities, or treated so as to minimize adverse impacts.*

There is no solid waste produced by this operation. All "waste rock", topsoil, and boulders are replaced in the excavation site. We wish to remove some of the larger boulders to be used for landscaping; otherwise, all material, except topaz and a nominal amount of gravel, is used in backfill and reclamation. Once an area has been excavated to bedrock, the screened material and boulders (topaz has been removed) are replaced. Excavated material consists of clay, sand, gravel, cobbles, and boulders. There are no adverse chemical characteristics. Once this has been replaced, the topsoil will be spread. Some boulders and cobbles will be on top of or protrude the topsoils in order to give a natural appearance and provide habitat for wildlife. Similarly, if any remaining logs (from Hayman fire) exist after reclamation is complete, they will be laid cross slope.

What is brought onto the site is removed from the site. There is no need for dumpsters. Lunch wrappers, grease tubes, broken equipment, and normal day-to-day refuse is removed to the Teller County landfill. The restroom is serviced by Teller County waste weekly and by request.

D. **Scenic Values.** *Describe protection of scenic values such as screening, slash disposal, or timely reclamation.*

We are opening up a limited area of 4.5 acres including area for the shaker system and storage piles. A grove of aspens and some ponderosa pine have been left south of the excavation in order to block the view of the disturbance from the road. Additonally, a reclaimed temporary soil pile blocks view of the operation. Other trees on previously reclaimed ground are growing taller. Once operations cease on the upper area of the terrace, it will be reclaimed, recontoured and blended with the area as much as possible. Trees will then be planted. The final area of the terrace will be opened up only upon completion of this reclamation in order to protect some of the scenic value.

(If more space is needed to fill out a block of information, use additional sheets and attach form)

E. Fish and Wildlife. *Describe measures to maintain and protect fisheries and wildlife, and their habitat (includes threatened, endangered, and sensitive species) affected by the operations.*

There is no known significant adverse impact on wildlife. There are no known endangered, threatened or sensitive species which are impacted by this operation, particularly due to its limited size. The water that leaves the catch basin has always seeped from the permit site in this and other areas. This is an alluvial fan and as such water seeps through it and occasionally emerges creating seepage as it does througout this region. There is no additional impact other than what is normal for this area. Some riparian plants are beginning to become established around the catch basin and

along the diversion ditches. It is reasonable to expect other aquatic animals and plants to migrate to these areas as well. Water quality is protected by preventing runoff to prevent potential impact on fisheries. Elk and deer frequently migrate through the area. Mature aspens have not been removed since these provide nesting for birds, in particular mountain bluebirds. However, these trees are continuing to naturally die since they are quite old. We've intentionally left nesting trees alone, although eventually, some have come down through wind storms, etc. This is open range and cattle frequently enter the mine site. The open excavation has limited high walls which are covered at close of season to ensure safety to wildlife, livestock, and humans. Once mining is complete, this will be returned to wildlife habitat standards.

F. Cultural Resources. *Describe measures for protecting known historic and archeological values, or new sites in the project area.* **No known historic or archeological values. The area is a historic topaz producing area and has scientific value to that extent. The Ute people traversed and hunted in this region; however, previous inspections have found no significant archeological values.**

G. Hazardous Substances.

1. *Identify the type and volume of all hazardous materials and toxic substances which will be used or generated in the operations including cyanide, solvents, petroleum products, mill, process and laboratory reagents.*

   None. We refuel our mechanized equipment on site on level ground with spill protection in place. No toxic or hazardous materials are stored on site nor generated by this operation. I am familiar with SPCC and we comply with the requirements. The phone number for South Park Ranger District is 719 836 2031, that of the Colorado Division of Mining and Reclamation is 303 866 3567 and that of the Park County sheriff is 719 836 2492. This information is contained on site with our emergency equipment.

2. *For each material or substance, describe the methods, volume, and frequency of transport (include type of containers and vehicles), procedures for use of materials or substances, methods, volume, and containers for disposal of materials and substances, security (fencing), identification (signing/labeling), or other special operations requirements necessary to conduct the proposed operations.*

   We use a portable 50-gallon deisel tank for refueling the excavator. The backhoe is refueled offsite. Other mechanized equipment when used will be refueled with the portable deisel tank. The garden tractor is refueled with gasoline from approved portable gasoline cans. Deisel is brought on site every third day for refueling during operations, approximately six times total during the season.

3. *Describe the measures to be taken for release of a reportable quantity of a hazardous material or the release of a toxic substance. This includes plans for spill prevention, containment, notification, and cleanup.*

   We operate below the reportable quantities of hazardous materials. Should there be an inadvertent diesel spill, we will follow the reporting rule for Division of Reclamation, Mining, and Safety, 2 August 2005. This includes notifying DRMS, the South Park Ranger District, and the Park County Sheriff. It includes treating the area with aeration and introducing oil-degrading bacteria.

(If more space is needed to fill out a block of information, use additional sheets and attach form)

H. Reclamation. *Describe the annual and final reclamation standards based on the anticipated schedule for construction, operations, and project closure. Include such items as the removal of structures and facilities including bridges and culverts, a revegetation plan, permanent containment of mine tailings, waste, or sludges which pose a threat of a release into the environment, closing ponds and eliminating standing water, a final surface shaping plan, and post operations monitoring and maintenance plans.*

See attached adendum.

VI. FOREST SERVICE EVALUATION OF PLAN OF OPERATIONS

A. Required changes/modifications/special mitigation for plan of operations:

B. Bond. Reclamation of all disturbances connected with this plan of operations is covered by Reclamation Performance Bond No. M-2002-003, dated (mm/dd/yy) 06/15/06, signed by Joseph Dorris (Principal) and DRMS (Surety), for the penal sum of $8,447.00. This Reclamation Performance Bond is a guarantee of faithful performance with the terms and conditions listed below, and with the reclamation requirements agreed upon in the plan of operations. This Reclamation Performance Bond also extends to and includes any unauthorized activities conducted in connection with this operation.

The bond amount for this Reclamation Performance Bond was based on a bond calculation worksheet. The bond amount may be adjusted during the term of this proposed plan of operations in response to changes in the operations or to changes in the economy. Both the Reclamation Performance Bond and the bond calculation worksheet are attached to and made part of this plan of operations. Acceptable bond securities (subject to change) include:

1. *Negotiable Treasury bills and notes which are unconditionally guaranteed as to both principle and interest in an amount equal at their par value to the penal sum of the bond; or*
2. *Certified or cashier's check, bank draft, Post Office money order, cash, assigned certificate of deposit, assigned savings account, blanket bond, or an irrevocable letter of credit equal to the penal sum of the bond.*

(If more space is needed to fill out a block of information, use additional sheets and attach form)

B. Information provided with this plan marked confidential will be treated in accordance with the agency's laws, rules, and regulation.

C. Approval of this plan does not constitute certification of ownership to any person named herein and/or recognition of the validity of any mining claim named herein.

D. Approval of this plan does not relieve me of my responsibility to comply with other applicable state or federal laws, rules, or regulations.

E. If previously undiscovered cultural resources (historic or prehistoric objects, artifacts, or sites) are exposed as a result of operations, those operations will not proceed until notification is received from the Authorized Officer that provisions for mitigating unforeseen impacts as required by 36 CFR 228.4(e) and 36 CFR 800 have been complied with.

F. This plan of operations has been approved for a period of 5 years or until *(mm/dd/yy)* 12/31/2023 AT. A new or revised plan must be submitted in accordance with 36 CFR part 228, subpart A, if operations are to be continued after that time period.

VIII. OPERATING PLAN ACCEPTANCE

☒I/☐We have reviewed and agreed to comply with all conditions in this plan of operations including the required changes, modifications, special mitigation, and reclamation requirements.

☒I/☐We understand that the bond will not be released until the Authorized Officer in charge gives written approval.

Joseph L. Jones — Signature of ☒Operator (or ☐Authorized Representative)

06/04/18 — (Date) *(mm/dd/yy)*

IX. OPERATING PLAN APPROVAL

Josh Voorhis — (Name)

District Ranger — (Title)

John S Voorhis — Signature of (Authorized Officer)

6/15/2018 — (Date) *(mm/dd/yy)*

Burden and Non-Discrimination Statement

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0596-0022. The time required to complete this information collection is estimated to average 12 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, 1400 Independence Avenue, SW, Washington, DC 20250-9410 or call toll free (866) 632-9992 (voice). TDD users can contact USDA through local relay or the Federal relay at (800) 877-8339 (TDD) or (866) 377-8642 (relay voice). USDA is an equal opportunity provider and employer.

(If more space is needed to fill out a block of information, use additional sheets and attach form)

B. Map, Sketch or Drawing: *Show location and layout of area of operation. Identify any streams, creeks or springs if known. Show the size and kind of all surface disturbances such a trenches, pits, settling ponds, stream channels and run-off diversions, waste dumps, drill pads, timber disposal or clearance, etc. Include sizes, capacities, acreage, amounts, locations, materials involved, etc.*

Refer to accompanying maps. This is an ongoing operation and about 2.5 acres of the 4.5 acre permit is currently disturbed. About 1.5 acres is open and consists of soil piles, boulder piles, and unprocessed "ore." Other areas have been cleared for operations. The red-dotted line shows expected extent of excavation and allows for a buffer which topsoil can be stored and equipment can be moved about for access within the permit site. Annual seepage from the hillside occurs on the permit site. An intermittent stream is located to the west (indicated by blue dashed lines) and carries spring runoff. A permanent stream lies about a half mile south and is generated from accumulated runoff from the surrounding mountains. Occasional runoff is captured with diversion ditches on the mine site and channeled into a catch basin (blue teardrop) where the runoff is absorbed. The blue dashes indicate diversion ditches used to catch runoff. Other seepage eventually emerges at this location. We maintain these ditches as required and they average a foot in depth with berms as necessary. These are all located within the current disturbance site.

The operation is fluid and rock piles, unprocessed "ore", and screenings do not remain in any particular place. The map indicates their current location, however, as material is removed and screened (processed) through the shaker system, the resulting material, which consists of everything except boulders and topsoil (and topaz), is returned to the excavation site of origin. Reclamation has begun in the northeast corner. As reclamation occurs, boulders will be taken from the temporary storage spots (indicated in blue gray) and be reworked into the reclaimed areas. Topsoil is then brought in from their storage piles (purple hatched rectangles) for final. The map nor satellite view show the previous reclaimed areas from Walt Rubeck prior to 2006. These areas extend from the southwest corner of the permit site to the fence adjacent the road along the access road and include the access road and several feet along the south border to the southwest corner of the permit site. These areas were in the previous permit site that also extended south of Rd 211. The area indicated by green circles and green-hatched box is the current site for "processing" material. The two cattle troughs (circles) for hand-washing will be here as well as the shaker and grizzly (green-hatched box and blue tarp). Blue dotted line shows drainage and diversion ditch for eventual return of settled water from cattle troughs to the catch basin (blue tear drop). All excavated material (with the exception of boulders and top soil as marked on the map) will systematically be brought down to this site to be run through a grizzly and then through a small shaker which processes about two yards a day.

The timber (and most topsoil) was removed with the original permitted site by Walt Rubeck. Some timber was subsequently cut by wood cutting permits (without my knowledge but through Forest Service permits). There are 10 mature Douglas fir trees on the edge of the east side of the current excavation which may be removed, but not likely. The permit boundary was established to go beyond the productive terrace but allow us to excavate any fissures that may have trapped topaz. The excavation to the east is 95% complete. As stated, we are now processing the current piles of "gravel," and further excavation will be minimal. Most mechanized operations (in addition to the shaker) will be to take material for sorting down to the shaker and return material to current excavation sites. Mature aspens on the southwest side of the permit area will not be removed until the main excavation has been entirely reclaimed. We will leave the final, approximately .7 acres for the last stages of this operation after reseeding and reclamation of the other acreage. Any timber over three inches will be used cross-slope for reclamation. No trees not on the permit site will be removed (unless included in wood cutting permits of which I'm unaware).

The topsoil piles are currently located within the purple shaded areas and are from current and past operations. We establish these within the permit boundaries in accessible reach of the excavator. Minor amounts of topsoil may be removed from the east boundary and will be stored in the two areas indicated on eastern boundary (purple squares).

C. Project Description: *Describe all aspects of the operation including mining, milling, and exploration methods, materials, equipment, workforce, construction and operation schedule, power requirements, how clearing will be accomplished, topsoil stockpile, waste rock placement, tailings disposal, proposed number of drillholes and depth, depth of proposed suction dredging, and how gravels will be replaced, etc. Calculate production rates of ore. Include justification and calculations for settling pond capacities and the size of runoff diversion channels.*

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Nature of economic deposit: All geologic materials are silicates. There are no metals or sulfides and all rock is non-reactive. The deposit is an ancient terrace of marginally sorted sediment, clay, sand, and minor gravel. The predominant material is weakly segregated Red Skin granite. Two separate layers of mixed soil, subsoil, sand, and clay are encountered, which indicates several major erosional episodes, probably glacial. Thin to deep topsoil (three feet) has originally accumulated in places on the terrace. Some cobbles are scattered throughout the deposit. Large boulders, several at ten tons, compose over 50 percent of the terrace. Unaltered granite bedrock lies under the terrace at depths from three to fifteen feet. Topaz and minor quartz which originated in pegmatite pockets have washed down and are now deposited widely scattered throughout the terrace. The terrace covers approximately 2 acres however, 4.5 acres have been permitted to allow equipment movement, storage of soil piles, and for set up and use of a shaker system. About 2.5 acres are currently disturbed with 1.5 acres open.

Mining, milling, and exploration: We use an excavator (generally a John Deere 690, 24 ton) to dig up potential "gravel" which contains topaz. Since the topaz is contained throughout the deposit, even within the topsoil, everything is considered "ore" except the numerous boulders. Additionally, there is no topaz once bedrock is encountered. We segregate the topsoil for use in reclamation but initially rake through it by hand in search of topaz. Everything below the topsoil layer is dug and stored in low piles for eventual processing through either a mechanized shaker or a hand screen system. All of the material dug is initially raked by hand to search for topaz. Once raked, the material is eventually moved to be processed through a stationary grizzly for separating out larger cobbles before running via conveyer through a small shaker. A small garden tractor with bucket or standard back hoe is used to feed the grizzly. The tractor is then used to move the resulting cobbles and small boulders temporarily off to one side. The material that runs through the grizzly is then subsequently classified through a miniature version of a gravel plant which is powered by lawnmower engines. A short conveyer feeds material from the grizzly and a second short conveyer stacks the resulting fines (less than three eighths inch material). The shaker classifies the material through vibrating decks into 1 inch to 3 inch (top screen) material and three eighths inch to 1 inch (bottom screen). The resulting screened gravel which is three eighths inch to 1 inch is loaded in buckets or taken by a second conveyer where it is sorted and searched for topaz. The material which falls through the bottom screen, less than three eighths inch, is put with the top screen material and the rock from the grizzly and piled near the shaker for temporary storage for return to the excavation from where it came. There is no significant (less than two yards) accumulated "waste" piles since this material is soon returned to the excavations. (The piles currently visible throughout the permit site is "ore" awaiting processing. It has been too wet recently to run the shaker.) While excavating, the boulders are moved to boulder piles within reach of the excavations in order to facilitate reclamation. Any gravel which might be under the boulders is removed to the shaker system. Boulders are moved to the sides in order to access the loose material surrounding and lying underneath them. The same excavator is used to take the temporary piles of "waste material" back to the excavation of origin. During reclamation, the excavator will fill the excavation with the "waste material" and work in boulders for a more natural appearance. The topsoil will then be brought from the nearby soil piles and be spread.

Topsoil storage: 90 percent of the topsoil on the dig site has previously been removed and stored. Topsoil piles are indicated in purple. The quality of "topsoil" or growing medium from the permit site is very good. Only the decomposed granite, which we do not excavate (and the boulders), is not suitable growing substrate. However, we only concern ourselves with preserving the topsoil and to whatever depth it is found and then include several inches of subsoil. The soil formation and profile is sporadic. It is nonexistent in rocky areas and is thin under the conifers and in the areas of decomposing granite boulders. The former operator used a bulldozer to scrape the topsoil off; however, we prefer the excavator. This allows us to go to the appropriate depth much more precisely and to collect all the soil. Two of the topsoil piles are from previous operations but are stable and overgrown with good vegetation. All the topsoil piles all located within the permit boundaries. We do not store topsoil in one area but have placed it within reach of our excavator for more efficient and higher quality reclamation and to decrease inadvertent loss through repeated movements. By using an excavator, we have better control of redistribution of the soil and there is less loss than trying to use a bulldozer. We can spread it more evenly around boulders, distribute it as needed onto shallower sites (or remove from deep sites), and we can form it better to the natural pre-existing contour. The soil is protected by capping under some subsoil and by annual reseeding. The volume of topsoil that has been stored is estimated at 1,200 cu yds based on average six inch depth (plus some subsoil) for the 1.5 acres that is open. If future soil is removed, it will be stacked at sites along the east boundary away from the excavation as much as possible. The remaining volume is as little as 50 cu yds and as much as 420 cu yds.

Drilling, dredging, and wet processing: There will be no drilling nor dredging. On average, thirty pounds of mine-run topaz is recovered per season of which about 10 pounds is gem quality. Currently we dry-screen the recovered gravel and hand pick the topaz. We propose using a small "wash plant" for wet processing." Conditions have been too damp to allow use of the dry system during the last several seasons. The "wash plant" will be used to wash the gravel from the second deck (three eighths). It will consist of two, 250 to 300-gallon galvanized cattle tanks and a small, 50-gallon capacity gasoline driven rotating trammel. Basically, it will be a self-contained water system wherein washing will be conducted in one tank while the other tank will allow settling of clay and sediments. We will wash up to one cubic yard a day or forty, 5-gallon buckets of gravel. (This operation will not be simultaneous with excavating.) Sediment (about 100 gallons) will be placed with other material that will be returned to the excavation and mixed in. None of the sediment would be introduced into the watershed except that it becomes part of the reclaimed excavation. The resulting washed gravel (about 100 gallons) will also be mixed back into the excavation. Eventually the water from the tanks will be released into the catch basin where it will seep back into the ground. The water source will be the seepage from the permit site or be brought in from off site. There are no contaminants since all material is non-reactive silicates.

Catch basin for runoff: The catch basin is sufficient to capture about 2,000 gallons of water. The maximum capture has been 500 – 600 gallons after storm events. This capture infiltrates the strata within which the basin sits. Bermed diversion ditches are used for intermittent runoff into the catch basin to settle sediment. Diversion ditches are standard one foot in depth and up to two feet wide with berm. Diversion ditches and catch basin will be reclaimed at completion of mining although natural seepage will continue as it does from alluvial fans in this region.

Power requirements will be auto gasoline for the lawnmower motors, three on the shaker, and one on the trammel. A small gasoline-powered generator is also available if needed.

Operational days and workforce: The operation is designed to be a one-man operation. However, we allow for 30 mechanized days with a three-man work crew. Mechanized operations are limited to good weather and daylight hours. Production with the track hoe consists of a maximum of 30 operational days although it has generally been 15. A week is spent digging and piling "ore" in the spring and then again in the fall. Other operational days throughout the season are spent moving material through the shaker system and hand raking. A track hoe and/or backhoe is used to move "ore" piles between the two weeks of active excavation. This workforce consists of one equipment operator and up to six people to rake and watch for topaz. Operations are intermittent and seasonal. Closeout is the end of October with site visits for security or hand work or minor reclamation as weather permits. Equipment, except for the grizzly and the portable restroom, is removed at the end of the season. The grizzly, although movable, is costly and impractical to move each season. It requires bringing out an excavator for loading as well as a flatbed trailer. It has no motor nor moving parts and is designed similar to other gravel operations wherein the grizzly remains until final reclamation.

We will average 1,050 man-hours on site per season, not counting security visits, equipment runs, etc. This is equivalent to about 135 man-days. This does not include visitors or inspections. It should expand another 250 hours for wet processing and boulder removal operations.

Waste removal: No trash or refuse is allowed to collect on site but is removed to an offsite dump (Teller County waste). Similarly, the chemical portable restroom is serviced weekly by Teller County waste. It is winterized in October and re activated in April. (Passing hikers, ranchers, other recreationalists sometimes use this restroom.) Although we continuously maintain the site, there are times when vandals and claim jumpers have dumped their trash, built campfire rings, damaged our tools and equipment, etc. We remove any refuse daily.

Safety: We keep high walls under eight feet in height and fill any unauthorized digs. When operating, if we exceed eight feet, we bench the walls. Nevertheless, by close of each day, the walls are made safe by breaking down to below eight feet. (The walls are compacted boulders, cobbles, and gravel and are not loose. This is typical terrace formation wherein mining can occur safely underground due to the stable nature; however we do not do so. Additionally, we have had claim jumpers attempt to burrow into the terrace when it is exposed. This is the major reason we break these walls down and cover the exposed terrace.) Also, no piles exceed eight feet in height unless compacted and tapered to below thirty degrees. Some loose piles may be generated during active daily operations that exceed eight feet but these are broken down by close of

each day. Potentially loose upslope boulders or timber have been removed or stabilized. The active mine site has a gate at the entrance, which although not locked, is maintained and kept closed. The site is also signed to the extent allowed.

Secondary Product: We plan to sell some of the medium-size boulders for landscaping and road reinforcement purposes if able to do so. These boulders will be taken from the piles which are indicated on the accompanying maps. None are being quarried for the primary use as boulders. These would be a "secondary" opportunity product. It is likely only a few dozen may be removed, but we would like the option of doing so. They will be loaded with the same excavator that is used for mining. We will use a dump truck on site that is appropriate for weight of the recovered boulders, or we may load them onto a flatbed that can be backed onto site.

Removal of some of the boulders would also improve reclamation efforts which we are just beginning. We could return the site to a more pleasing contour. It would lessen the volume created by the "fluff" factor and make it easier to reduce the appearance of a boulder pile as well as making it more efficient to move the overburden material and soil back into place. Additionally, less rock exposure gives more surface area for grasses and forage plants. However, if this is too difficult to approve we'll forgo this part of the plan.

Waste Rock: There is no waste rock. All material remains on site with these exceptions. Less than 400 lbs of topaz will be removed from this deposit during its lifetime. Additionally about 40, five-gallon buckets of gravel are removed annually—one cubic yard. We would like to remove about a dozen boulders annually. Based on average excavation depth of six feet on seventy percent of the permit site, approximately 30,500 cubic yards of material will be moved. This material is not removed but remains on site along with boulder piles and topsoil piles and will be used in reclamation. At any one time the volume of open excavation which needs to be filled is less than 15,000 cubic yards. We estimate ten full days of operations with a John Deere 350 excavator (48" bucket can handle 2,500 cu yds per day) to completely reclaim, recontour, and reseed the site (not including maintenance of the site and additional reclamation.)

D. Equipment and Vehicles: *Describe that which is proposed for use in operation (Examples; drill, dozer, wash plant, mille, etc.). Include: sizes, capacity, frequency of use, etc.*

We plan to operate mechanized equipment for thirty days. Fifteen days are eight hour days using a John Deere 350, 39 ton excavator. Fifteen days are eight hour days using a garden tractor; John Deere 690, 24 ton excavator; and a shaker system.

We plan an additional 10 to 15 days processing gravel with the wash plant, shaker system, and garden tractor.

Mechanized excavation operations occur after soil stabilizes in the springs, usually one of last two weeks of April and again in late September or early October. These operations are for a week at a time. The other operations occur during the remainder of the season as weather and manpower permit.

Most of our hours are non-mechanized in which we are using rakes or screens.

The John Deere 350 excavator is 39 ton with 36 to 48 inch bucket. It is used in the spring for a week and again in the fall for a week for primary excavation of ore. During final reclamation, it will be the primary piece of equipment. It will also be used to load boulders which will take place only during the two weeks of excavation operations.

The John Deere 690 is 24 ton with 30 inch bucket. It remains on site after placement in April until close out at the end of October. It is used sporadically to move dirt piles when the shaker system and wash system are in use. It is also used if necessary to clean out the catch basin, repair roads, cover unauthorized digs, etc.

The wash plant will be two cattle troughs with a gas-powered trammel (currently being designed). The trammel will have a 50 gallon capacity for movement of gravel, but will process 5 gallons (one bucket) of gravel at a time. The cattle troughs will be 250 or 300 gallon. The tanks will remain on site. We will use a small garden pump and hose to pump water from the catch basin. This will operate approximately 20 days.

The shaker system is as pictured. It is a miniaturized gravel classifier designed to be operated by a single person. It consists of feed in (separate) conveyor and another (separate) feed out conveyor. The shaker itself consists of two vibrating decks. Both conveyors and the shaker are driven by gasoline lawnmower engines. The conveyors are 5hp. The shaker is 8 hp. This will operate approximately 20 days.

The garden tractor is a Koboto 4 cylinder 43 hp with 900 lb capacity bucket. This is used for loading the grizzly and moving small piles. It will remain on site from its placement in April until its removal in October.

We may use a small bulldozer, approximately 10 ton, 105 hp to do reclamation on areas where there are no boulders.

We may also use a standard backhoe such as a John Deere 310 L, 93 hp, 8 ton, rubber tire, for loading the grizzly and doing appropriate reclamation or excavating. It is also used if the grizzly needs to be moved.

If approved to remove some of the boulders, we anticipate we'll use a C7500 single axel, 15-ton dump truck, which can be brought on site so the excavator can load small boulders. We anticipate moving boulders during one of the spring or fall operating seasons. We may do this for one or two days.

We use 4WD trucks for personnel access and will park these in the designated site during operations. During the two weeks of excavation operations, there will be 3 or 4, 4WD trucks on site. During shaker operations, there will be one or two on site. During other operations there will be usually one on site. Other vehicles (visitors, etc.) will park in the Forest Service pull-out across from the mine access (this is off the permit site but on the Rubeck No. 1 Claim).

A portable restroom is permanently on site. It is winterized in October and re activated in April. It is serviced by Teller County Waste, weekly or as needed.

H. Reclamation: *Describe the annual and final reclamation standards based on the anticipated schedule for construction, operations, and project closure. Include items as the removal of structures and facilities including bridges and culverts, a revegetation plan, permanent containment of mine tailings, waste, or sludge which poses a threat of a release into the environment, closing ponds and eliminating standing water, a final surface shaping plan,a nd post operations monitoring and maintenance plans.*

There are two major aspects to this section. The first is the ongoing annual reclamation, site protection, and environment protection. The second is final reclamation and monitoring.

Annual reclamation consists of making high walls safe by breaking them down and seeding any topsoil piles. We also cover the base of the high walls so they are not accessible to claim jumpers. (Claim jumpers frequently dig when we are not present on site and have burrowed into the walls on occasion. By breaking the wall down and covering the base, this becomes impractical. It also makes it so cattle or wildlife can come into the excavation.) We also reestablish berms to catch and divert any possible runoff to the catch basin. Normal rainfall and snowfall do not create any erosional events not otherwise experienced on the surrounding forest. However, we install berms and diversion ditches in the event of an abnormal event so we can catch possible runoff. The piles that remain from season to season are porous material and normal precipitation soaks into these piles without any detrimental erosion. No piles exceed eight feet in height and are below the angle of repose for appropriate materials, which sufficiently stabilizes the piles The soil piles are protected with some subsoil to protect them against abnormal erosional events. They are also seeded. Most of the soil piles on site are completely revegetated and experience no erosion other than what is normal for the surrounding forest. Most of the possible runoff is potential sheet erosion from road surfaces and the compacted areas; thus we have installed berms and diversion ditches to channel any possible runoff to the catch basin. Otherwise, the precipitation soaks in.

Final reclamation and monitoring. Upon completion of mining activities we will remove all materials such as the restroom and the grizzly and water tanks and reclaim this material for use elsewhere. All fencing and platforms installed by the previous operator will also be removed. This will include some PVC pipe, a couple of concrete slabs, and a wood platform. We will load this material in a dump truck using our excavator. These items will be disposed of at a suitable landfill. The road up to the permit boundary will be scarified, recontoured, and reseeded. Appropriate water bars will be cut to prevent gullying of the

old surface. Additionally, some of the boulders will be returned to the road area in order to blend it with the rest of the dig site. Next, all excavations that have not yet been reclaimed will be refilled, recontoured, and reseeded. (Final reclamation for parts of the dig site have begun and will continue at an approximate .3 acre rate through the end of this operation. As a result, a major portion of the dig area will be completely recovered by the time of final reclamation.) Some boulders will be completely buried and others will be allowed to blend with the surrounding topography. All remaining "waste material" will be returned to the excavation—this material consists of the material taken down to the shaker system—cobbles, gravel, sand, and clay. There will be no discharged material since this is blended in with the screened material. Any water used annually will be allowed to enter the catch basin and be absorbed into the alluvium, similar to the natural occurrences in the area. There are no caustic nor toxic wastes since this is non-reactive material. The remnants of the catch basin and any diversion ditches will be filled and recontoured. However, since this site is alluvium and the alluvium is being replaced as it was, it is likely seepage will occur naturally in this area or other areas along the base of the alluvial fan. This will depend on annual precipitation rates. After the entire site has been returned and contoured to match the preexisting topography and slope, the topsoil will be spread. We use an excavator in order to distribute the soil evenly in and around boulders and varying topography. Any remaining logs will be placed cross slope. No areas exceed 30 percent slope, however there may be some rocky areas and areas with underlying decomposed granite. In this case matting and mulching will be used to help establish vegetation. The slopes and entire reclaimed area will intentionally be left somewhat rough in order to trap seeds and moisture. Seeding will occur after the reclamation is completed but before the soil can compact. Seeds will be broadcast and groused in with the excavator tracks. The soil is relatively rich and heavy with leaf litter and mulch and should not need additional fertilizer or much.

The area will be monitored in the out years until 80 percent revegetation has been achieved and the bonds are released. If necessary, regrading will be accomplished as well as reseeding. The year following reseeding, we will plant about two dozen ponderosa pines in the lower, well-drained section of the permit site. We will plant about three dozen Douglas fir to match the upper east edge, especially if timber was removed. This site was heavily forested prior to the Hayman fire so this will help return it to its previous condition. We may also plant a few aspens in clumps to make the site blend in with the surrounding area.

Final clean-up will insure that all debris will be removed as well as any traces of human use as much as possible The gate will be left in place, since this is open range and livestock can then use the claim site.

We use the South Park Ranger District approved seed mix which was approved in 2006 for our mining sites. See Appendix F. "Required Seed Mixes." We broadcast seeds in the fall after our second active operating period. We use the excavator to scarify appropriate areas and then broadcast the seeds at 70 pounds per acre rate. For final reclamation, we will also plant shrubs and trees to help blend the area into the surrounding habitat.

Topaz Mountain Gem Mine

Shaker Operations showing grizzly, two-deck shaker, and conveyors.
Garden tractor for feeding

APPENDIX F
REQUIRED SEED MIXES

Dry / Lower Elevation Seed Mix (7,500 to 10,000 feet in elevation)

SCIENTIFIC NAME	COMMON NAME	HABIT	LIFESPAN	% MIX
Elymus lanceolatus ssp. Dasystachyum var. Critana	Thickspike wheatgrass	Sod former	Long-lived	23
Bromus marginatus var. Bromar	Mountain brome	Bunchgrass	Short-lived	20
**Festuca arizonica* var. Redondo	Arizona fescue	Bunchgrass	Long-lived	15
**Festuca ovina* var. Covar	Sheep fescue	Bunchgrass	Long-lived	15
Koeleria cristata (macrantha)	Prairie junegrass	Bunchgrass	Short-lived	15
Leymus cinereus var. Magnar	Great basin wildrye	Bunchgrass	Long-lived	10
Bouteloua gracilis var. Hachita	Blue grama	Sod former	Long-lived	10
Poa canbyi var. Canbar	Canby bluegrass	Bunchgrass	Medium	5
Trifolium fragiferum	Strawberry clover	Legume	Short-lived	2

*Choose only one of these fescues; Arizona fescue is preferred.

Riparian Seed Mix (streamside areas or wetlands)

SCIENTIFIC NAME	COMMON NAME	HABIT	LIFESPAN	% MIX
**Carex aquatilis*	Water sedge	Rhizomatous	Long-lived	30
**Carex nebrascensis*	Nebraska sedge	Sodformer	Long-lived	30
Deschampsia caespitosa	Tufted hairgrass	Bunchgrass	Long-lived	20
Calamagrostis Canadensis	Bluejoint reedgrass	Sodformer	Pioneering	15
Juncus balticus	Baltic rush	Sodformer	Medium	15
Beckmannia syzigachne var. Egan	Sloughgrass	Rhizomatous	Short-lived	10
Eleocharis parvula	Spikerush	Rhizomatous	Pioneer	10

*Choose only one of these sedges; the Nebraska sedge may be preferred.

Design Criteria for Topaz Gem Mine Plan of Operations
June 2018

DESIGN CRITERIA

Forest Service wildlife biologist, botanist, archaeologist, geologist, hydrologist, recreation, lands, timber, wilderness, fuels, and fire specialists have reviewed the proposed project. Measures necessary to protect threatened or endangered species, Region 2 sensitive species, their habitat, or potential habitat from the effects of the proposed management actions are addressed through the development of project design criteria. Design criteria are intended to minimize the project's effects to the environment. The FS has created the following design criteria that will be required of the Operator to be incorporated into the final MPO prior to MPO approval. Specific design criteria include:

Administration and General Site Requirements

1. The bond for this operation must be posted prior to commencing any exploration activities. The amount of bond would be calculated to ensure full reclamation and revegetation of areas disturbed by the exploration activity.
2. The Operator shall arrange for the FS to inspect any mining-relate equipment, prior to it entering NFS lands at the beginning of each operational period, in order to prevent the spread of noxious weeds and their seeds.
3. The Operator will dispose of camper holding tank contents (if applicable) at an offsite facility or provide a temporary self-contained portable toilet.
4. In the event previously unidentified cultural or paleontological materials are discovered during project implementation, all work will cease until a qualified archaeologist is contacted and the need for further investigation and consultation determined.
5. Operations may be suspended and/or changed if the FS administrator determines that they are not compliant with this decision, the approved Plan, applicable laws or regulations, or that resource conditions have changed. Operations may resume after compliance items have been resolved between the Forest Service, the Operator, and appropriate regulatory agencies.
6. The operator is required to be consistent with Park County building and sanitation code requirements, with CDRMS permitting requirements, and with the Colorado Department of Public Health and Environment requirements.

   These requirements include, but are not limited to state water rights permit, state water discharge permit, county conditional use permit and all necessary building permits. These conditions are included in the approved Plan of Operations. If the operator does not comply with these conditions, he/she will be in noncompliance with the USFS regulations and appropriate action would be taken at that time.

Access

7. Access routes will be confined to the existing non-system road unless otherwise approved by the Forest Geologist. This road will be decommissioned during final reclamation.

Noxious Weeds

8. Apply Forest Service approved native seed mix for reclamation practices.
9. Protocols for noxious weed management should include the monitoring and treatment of noxious weeds every year during the life of the mine. Treatment should occur along roads and access roads to reduce the threat of inadvertent distribution.
10. As a standard operating procedure, the Operator should treat noxious weed occurrences as soon as they are identified, and cooperate with the Forest Service to inventory, monitor, and control noxious weeds/undesirable plants within areas of disturbance until release of all bond monies.
11. Establish effective ground cover on disturbed sites to prevent accelerated on-site soil loss. Restore ground cover using certified native plants as practicable to meet revegetation requirements. Avoid persistent or invasive exotic plants.
12. To further minimize the spread of noxious weeds and their seeds, equipment should be washed thoroughly, especially the undercarriage, to eliminate undesirable or noxious weed seeds potentially carried from previous jobs. Washing should occur at the closest facility available, prior to entry onto NFS lands.
13. At the end of the mine life during the mine reclamation period, revegetated areas should be monitored for the presence of plants on the Colorado State Noxious Weed list for a period of five years. A and B list species from the Colorado State Noxious Weed list (Appendix A) will be eradicated prior to bond release.

Timber

14. To the best ability of the Operator, reclaim site to pre-disturbance conditions as listed in the reclamation plan and bond. If at any time deleterious effects occur to multiple trees or larger swathes of existing vegetation please contact Silviculture / Timber management for further consultation.
15. In regards for timber removal, if necessary, all trees to be removed will need to be identified by the Claimant and agreed upon by a USFS Minerals Specialist. Timber specialists will be notified of the agreed upon trees for removal and an inventory will be made. This will allow the Timber Program of Work to account for the volume removed. According to FS handbook / manual the Claimant has the right to free use of timber:

    2813.13b - Claims Validated Subsequent to Act of 1955

    Such claims which otherwise come under Title 30, United States Code, Section 612 (30 U.S.C. 612) carry the same surface rights as those described in section 2812, except for the following modifications:

    1. Right to occupancy and use necessary for prospecting, mining, and processing, but not the exclusive right to the surface. Lands containing such claims are subject to the rights of the United States to manage and dispose of the vegetative resources, to manage other resources except locatable minerals, and to the right of the United States, its permittees and licensees, to use so much of the surface area necessary for such purposes and for access to

adjacent lands.

2. Right to cut timber on the claim for mining uses and for necessary clearing, except that timber cut in the process of necessary clearing cannot be sold by the claimant. The United States has the right to dispose of timber and other vegetative resources.

3. Right to additional timber required for mining purposes, if timber was removed from the claim by the Forest Service after claim location. The quantity and kind of timber to be provided, free of charge from the nearest available source which is ready for harvesting, will be substantially equivalent to that previously removed from the claim.

The Claimant must gather a 2400-1 permit from the South Park Ranger District and follow aforementioned protocol to use the identified timber for removal. Please contact Pike National Forest Timber Staff, if any further questions arise.

Water Quality/ Soils

16. Avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources caused by physical and chemical pollutants during minerals exploration activities.
17. Monitor restored ground to ensure no rills or gullies are forming and that no invasive plant species are present.
18. Install contour berms and trenches around vehicle service and refueling areas, chemical storage and use areas, and waste dumps to fully contain spills. Use liners as needed to prevent seepage to groundwater.
19. Reclaim each mining area when its use ends, using certified local native plants as available; avoid persistent or invasive exotic species. Stabilize waste dumps and tailings in non-use periods to prevent wind and water erosion.
20. Reclaim and stabilize facilities, disturbed areas, surface water diversion structures, and transport and storage areas before the end of seasonal shutdown so that they will function as designed to prevent adverse impacts to surface water from erosion and sedimentation.
21. Back-fill and re-contour disturbed areas, including exploratory trenches, pits, or holes to the original contour, where practicable, or to an acceptable post-mining contour that blends with the surrounding topography to re-establish surface and subsurface hydrologic pathways to the extent practicable.
22. Report spills and take appropriate clean-up actions in accordance with applicable state and federal laws, rules and regulations. Contaminated soil and other material shall be removed from NFS lands and disposed of in a manner according to state and federal laws, rules, and regulations.
23. Limit the amount of exposed or disturbed soil at any one time to the minimum necessary for efficient operations during minerals production activities. Stabilize mined areas and surface disturbance activities as soon as practicable before moving and opening new areas.
24. Clearly delineate the geographic limits of the area to be cleared.
25. Conduct extraction activities in such a manner as to minimize the potential for slope failures, limit slope steepness and length, limit disturbed areas to those actively used for extraction, retain existing vegetation as long as possible, and allow for progressive reclamation of the site where practicable.

Wildlife - Terrestrial

26. Existing roads would be used for most operations, and if new roads are determined to be necessary for operations in the MPO, they would be required to be obliterated and reseeded (final reclamation) according to USFS standards.
27. Trees removed should be limited and would be approved by the Forest Service prior to their removal to ensure tree conservation.
28. Trees should not be removed May 15 – July 15 to protect sensitive and migratory birds.
29. Mining activities would not occur in historic mine shafts or adits. If mining activities are proposed in adits or shafts, they would have to first be surveyed for the presence of bats by qualified personnel.
30. Biological surveys should be carried out, using standard protocols recommended by the USFS, for northern goshawk, bald eagle, golden eagle, peregrine falcon and other raptor species prior to project activities.
31. If mining operations are planned in wetland or riparian areas, another BAE would be required and surveys for amphibian species would need to be completed prior to project implementation.
32. Where goshawk or other raptor nests are present, no heavy equipment operations would take place between March 1 and September 30 within a 0.5 mile radius of the nest.
33. Within 650-foot radius of an identified active goshawk nest, no mining activity (including the use of hand tools and occupancy) or vegetation removal would occur at any time.
34. Appropriate reclamation practices and erosion protection measures would be carried out in order to limit the impacts to soil, water and amphibian species.
35. If any nest or den site or migratory bird, threatened, endangered or sensitive (TES) species is located or observed during implementation of the project, the wildlife biologist will be notified and any appropriate conservation measures (for example, timing restrictions or buffer zones) will be put in place

Reclamation

The operator'(s) agree to complete the following reclamation measures:

36. Within the one year expiration of this authorization, the operator will commence final reclamation.
37. Remove all materials and return the mining area to the original natural contours. This includes all excavation cuts.
38. Silt fences or other erosion control will be utilized to prevent off-site sediment transport.
39. Straw waddles must be certified weed-free (shredded aspen fill recommended).
40. Water bars may be required on slopes and access road to control erosion.
41. Slash should be scattered and/ or piled, or used in erosion control on slopes.
42. Any erosion control blankets must be 100% natural fiber (i.e. no monofilament) and

certified weed-free.

43. Reclamation will be monitored by the operator, USFS personnel, and State of Colorado (DRMS) inspectors on an as needed basis.
44. All non-system access roads will be ripped, re-contoured, graded, and seeded at the end of operations.
45. The road and site will be seeded with USFS-approved seed mixtures, as needed.
46. Re-vegetation will not be complete until at least 50% plant re-growth has been established; when compared to adjacent undisturbed areas.
47. Top soil must be saved and used to cover all disturbed areas.
48. Return large rocks, boulders, and logs to their original (general) position.
49. The U.S. Forest Service may require additional reclamation measures if needed.
50. Remove all trash off of Forest Service Lands.
51. Remove all structures (fences, signs) from Forest Service Lands.
52. Complete all reclamation within one year of the end of the operating plan.
53. Refund of any reclamation bond is contingent upon the success of reclamation.

MONITORING

- The Forest Service will monitor and assess the progress of reclamation activities, including re-vegetation and erosion control, for a minimum of three years. Dependent on the success of the second phase of reclamation, additional seeding, weed treatment, or installation of erosion control structures may occur.

THE FOLLOWING STANDARD TERMS AND CONDITIONS ARE TAKEN FROM FOREST SERVICE FORM FS -2800-5 AND ARE <u>REQUIRED</u> FOR THIS PLAN OF OPERATIONS:

- Information provided within this plan that is marked confidential will be treated in accordance with the agency's laws, rules, and regulations.
- Approval of this plan does not relieve me of my responsibility to comply with other applicable state or federal laws, rules, or regulations.
- Approval of this plan does not constitute recognition or certification of ownership to any person named as owner herein.
- Approval of this operating plan does not constitute, now or in the future, recognition or certification of the validity of any mining claim to which it may relate or to the mineral character of the land on which it lies.

I acknowledge and understand these modifications and mitigation measures. I agree to adopt them into my mining Plan of Operations and abide by them through the life of my mining operation.

Joseph L. Lewis — 5 JUNE 2018

Operator's Signature — Date

John S Vaccaro — 6/12/2018

District Ranger — Date