

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

**Preliminary Environmental Assessment  
DOI-BLM-CA-B050-2018-0007-EA  
July 2018**

**Environmental Assessment  
for a  
Modification to Keystone Mine  
Plan of Operations CACA-33965**

*Location:*

Within Section 16 of  
Township 24 South,  
Range 45 East,  
Mount Diablo Meridian,  
Inyo County, California

*Applicant/Address:*

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## **LIST OF ACRONYMS AND ABBREVIATIONS**

amsl	above mean sea level
BLM	Bureau of Land Management
BMC	Bush Management Companies
BMPs	Best Management Practices
California Desert Plan	California Desert Conservation Area Management Plan of 1980
CDCA	California Desert Conservation Area
CDPA	California Desert Protection Act
CESA	cumulative effect study area
CFR	Code of Federal Regulations
District	Great Basin Unified Air Pollution Control District
DRECP	Desert Renewable Energy Conservation Plan
EA	Environmental Assessment
FLPMA	Federal Land Policy and Management Act of 1976
KMC	Keystone Mining Company
NAWS	Naval Air Weapons Station
NEPA	National Environmental Policy Act
NPS	National Park Service
NRHP	National Register of Historic Places
PM	particulate matter
PM <sub>10</sub>	particulate matter with an average maximum size of 10 microns
PM <sub>2.5</sub>	particulate matter with a diameter of less than 2.5 microns
PoO	Plan of Operations
Project	Keystone Mine Plan of Operations Amendment
QA	Quality Assurance
QC	Quality Control
RFFA	reasonably foreseeable future action
SHPO	State Historic Preservation Office
USFWS	U.S. Fish and Wildlife Service
USC	United States Code

# 1. Introduction

On September 2, 2016, Bush Management Companies (BMC) submitted a modification to the Keystone Mine Plan of Operations, the *Keystone Mine (CACA-033965) Plan of Operations Amendment* (Project) (SRK, 2016). The approved Plan of Operations (approved PoO) consists of approval of an existing underground mine in 1981, approval of an amendment in 1983, and a further amendment in 1988. The decision documents are listed below:

- 1981 Plan – Letter from Mark Lawrence (Bureau of Land Management [BLM]) to Kirk DuShane (Keystone Mining Company [KMC]) approving the April 21, 1981 plan of operations application with stipulations. July 21, 1981.
- 1983 Plan Amendment – Letter from Gerald Hillier (BLM) to Kirk DuShane (KMC) approving the April 18, 1983 plan amendment application with stipulations. June 9, 1983.
- 1988 Plan Amendment - Letter from Patricia McLean (BLM) to Kirk DuShane (KMC) approving the September 16, 1988 plan amendment application with stipulations. October 14, 1988.

The Project is located in Inyo County, California on unpatented lode claims on public lands administered by the BLM Ridgecrest Field Office. The general location is shown on Figure 1 and land status is shown on Figure 2.

The BLM has prepared this Environmental Assessment (EA) in conformance with the Council on Environmental Quality regulations for implementing the National Environmental Policy Act (NEPA) (40 Code of Federal Regulations [CFR] § 1500-1508) and the BLM NEPA Handbook H-1790-1. The NPS is a cooperating agency.

This EA describes the Proposed Action (approval of the proposed amendment) and the No Action Alternative (denial of the proposed amendment) and evaluates the impacts to the affected environment associated with their implementation, respectively. This document further describes the applicant-committed environmental protection measures specifically designed to eliminate or reduce potential environmental impacts and summarizes the conservation management actions (CMAs) relevant to the proposed activity and location.

## 1.1 Need for Action

The need for action is for the BLM and NPS to consider the proposed amendment and evaluate environmental impacts in order to make an informed decision to approve, approve with modifications and stipulations, or deny the proposed amendment.

## 1.2 Decision to be Made

The BLM's decision is whether to approve, approve with conditions, or deny the proposed modification authorizing the drilling program. As outlined in this EA, the BLM's NEPA decision will apply to land under BLM-jurisdiction, which includes the Keystone Mine site and the water line route in Goler Wash (as described for the Project). The activities associated with the transmission of water along Goler Wash Road are within the jurisdiction of BLM.

The NPS has jurisdiction over the Sourdough Springs area within Death Valley National Park. The NPS's decision will apply to activities proposed under the modification to the extent those activities take place within the park.

## 1.3 Conformance with BLM Land Use Plans

This proposal is in conformance with the *California Desert Conservation Area Management Plan* of 1980 (California Desert Plan) (BLM, 1980) as amended by the *Northern and Eastern Mojave Management Plan*, Record of Decision approved December 20, 2002 (BLM, 2002). It is also in conformance with the land use plan amendment (LUPA) developed as part of the Desert Renewable Energy Conservation Plan (DRECP), approved on September 14, 2016 (BLM, 2016a and 2016b). These and other plans are publicly available at the California BLM website for land use planning <https://www.blm.gov/programs/planning-and-nepa/plans-in-development/california>.

Table 1 of the California Desert Plan provides that mineral-related operations be allowed on public lands classified for Limited Use subject to the authorization process for plans of operation detailed in Surface Management regulations 43 CFR § 3809. The affected lands were formerly classified for Limited Use under these land management plans. The provisions of the LUPA supersede previous land management plans and have eliminated previous multiple use classifications.

Existing authorized mineral operations including existing authorizations, modifications, extensions, and amendments and their required terms and conditions, are designated as an allowable use within BLM lands in the LUPA Decision Area. Amendments and expansions authorized after the signing of the DRECP LUPA Record of Decision are subject to applicable CMAs, valid existing rights, and governing laws and regulations (CMA LUPA-MIN-2). In the absence of specific direction in the DRECP, former Land Use Class rules and regulations would still apply. Other applicable CMAs are discussed in Chapter 1.5.

## 1.4 Relationship to Statutes, Regulations or Other Plans

The Proposed Action and No Action Alternative are evaluated in this EA for consistency and compliance with the following federal laws and regulations:

- The Mining Law of 1872 (30 USC 22) provides for the right to explore and purchase valuable mineral deposits on lands belonging to the United States, so far as is not inconsistent with the laws of the United States.
- The FLPMA of 1976 states that it is the policy of the United States to manage the public lands for multiple use and sustained yield while providing for resource protection in a manner that also recognizes the nation's need for domestic sources of minerals, provides rights of ingress and egress to locators under the Mining Law of 1872, and mandates the Secretary of the Interior to prevent unnecessary or undue degradation of public lands (43 USC 1701(a) (12)) and (43 USC 1732(b)).
- The Mining and Minerals Policy Act of 1970 (30 USC 21a) declares it is the policy of the United States to foster and encourage the orderly and economic development of domestic mineral resources.
- Surface management regulations 43 CFR § 3809 (November 21, 2000) establish procedures and standards to prevent unnecessary or undue degradation of public lands by operations authorized by the mining laws.
- Federal regulation 43 CFR § 3809.11 (October 1, 1996) specifies that an operator must submit a plan of operations for any operations causing surface disturbance greater than casual use except as described in 43 CFR 3809.21. The authorization of a plan of operations is a federal decision subject to the NEPA.
- Federal regulation 43 CFR § 3832.34 states that an operator may use and occupy dependent mill sites upon obtaining authorization under the surface management regulations of the surface managing agency.
- The National Historic Preservation Act of 1966 (NHPA: Public Law 89-665; 54 USC 300101 et seq.) (16 USC 470) requires federal agencies to consider the effect of federal undertakings (including federal authorizations) on sites that may be eligible for inclusion in the National Register of Historic Places (NRHP).
- The Endangered Species Act of 1973 (16 USC 1536) requires federal agencies to ensure that federally authorized actions are not likely to jeopardize the continued existence of any threatened or endangered species.

The portion of the proposed action that would take place within Death Valley National Park (i.e., the withdrawal and diversion of up to 470 gallons per day of water from Sourdough Spring, as well as needed maintenance activities) is evaluated in this EA for consistency with the laws, regulations, and policies applicable to mining operations in park units, including:

- The National Park Service Organic Act which states that the purpose of the National Park System is “to conserve the scenery, natural and historic objects, and wildlife in the



System units and to provide for the enjoyment of the scenery, natural and historic objects, and wild life in such manner and by such means as will leave them unimpaired for the enjoyment of future generations” (54 USC § 100101(a)).

- The California Desert Protection Act, 16 USC § 410aaa to 410aaa-7, established Death Valley National Park to conserve the area’s superlative natural, ecological, geological, archeological, paleontological, cultural, historical and wilderness values. Congress also withdrew the area from further operation of the mining laws, subject to “valid existing rights.”
- Congress directed the Secretary of Interior to issue such regulations considered necessary or proper for the use and management of System units (54 USC § 100751). 36 CFR Section 9.8, an NPS regulation that implements the Mining in Parks Act (54 USC §§ 100731-100737), states that mining operators can use water from within parks if the right to that water is perfected under applicable state law. Under 36 CFR Section 9.10(a)(3), the applicable approval standard is that the portion of the BMC operation that would take place within Death Valley National Park may not constitute a nuisance in the vicinity of the operation or significantly injure or adversely affect federally owned lands.

## 1.5 Conservation Management Actions

The following CMAs, listed by name with a short descriptor, are applicable to the Proposed Action (as defined herein) due to the location and the types of activities proposed. Information regarding implementation of the CMAs can be found in Appendix D of the DRECP LUPA (BLM, 2016a and 2016b). A link to the DRECP is available at [www.blm.gov/california](http://www.blm.gov/california). Where applicable, references to the CMAs have also been included under the Proposed Action description and the environmental protection measures.

- LUPA-BIO-1 – these CMA requirements have been met through the completion of a baseline biological survey;
- LUPA-BIO-2 – a biologist would be on-site during excavations and equipment movement as needed to ensure avoidance and minimization measures are appropriately implemented;
- LUPA-BIO-3 – resources setbacks would be identified to avoid and minimize adverse effects to specific biological resources such as the edge of mapped riparian vegetation or suitable habitat for Focus and BLM special status species, if present;
- LUPA-BIO-4 – seasonal restrictions would be implemented or visual barriers installed for activities which may impact Focus or BLM special status species, if present;

- LUPA-BIO-5 – worker education would be implemented to cover the topics specified by this CMA including but limited to biological resource identification and protections, avoidance, reporting, and protection measures;
- LUPA-BIO-7 – site-specific habitat restoration measures would be covered by the proposed site reclamation activities discussed in Chapter 2.5.6;
- LUPA-BIO-8 – the described closure and decommissioning measures would be covered by the site reclamation activities;
- LUPA-BIO-9 – implement water and wetland dependent resource protection measures including but not limited to: construction site standard practices; equipment maintenance; drainage erosion and sediment control actions; erosion control measure inspections; and ramps for the egress of wildlife from water management infrastructure;
- LUPA-BIO-10 – weed management practices would be implemented as part of the Proposed Action operations including but not limited to vehicle cleaning, use of weed-free materials, and monitoring;
- LUPA-BIO-11 – nuisance animals and invasive species would be controlled, if needed, as described in this CMA;
- LUPA-BIO-12 – standard noise controls would be used on drilling equipment;
- LUPA-BIO-13 – the presence of a biological monitor would be used to establish avoidance areas as needed. Nighttime lighting would be short-term and limited to only necessary use areas. Proposed Action activities would be confined to the designated routes and drill pads;
- LUPA-BIO-14 – the general standard practices listed under this CMA would be implemented for the protection of wildlife;
- LUPA-BIO-15 – drilling operations would use state-of-the-art techniques to minimize erosion and soil compaction. No new disturbance would occur;
- LUPA-BIO-16 – the baseline biological survey and presence of a biological monitor during construction, as needed, would be part of this CMA implementation;
- LUPA-BIO-PLANT-1 – the baseline biological survey was conducted during the appropriate survey season;
- LUPA-BIO-RIPWET-3 – conduct pre-construction/activity nesting bird survey for BLM special status riparian and wetland birds according to agency-approved protocols for activities occurring within 0.25 mile of a riparian or wetland DRECP vegetation type which may impact BLM special status riparian and wetland birds;

- LUPA-BIO-BAT-2 – mines are assumed to be occupied bat roosts unless surveyed during all seasons;
- LUPA-BIO-IFS-9 - Vehicular traffic would not exceed 15 miles per hour within the areas not cleared by protocol level surveys where desert tortoise may be impacted;
- LUPA-BIO-IFS-24 – Proposed Action activities would not occur within one mile of an active golden eagle nest;
- LUPA-AIR-1 – the air resource requirements listed under this CMA would be met;
- LUPA-AIR-2 – the Proposed Action would not result in the exceedance of location air quality standards or requirements;
- LUPA-AIR-4 – fugitive dust is addressed as part of this EA in Appendix A as a resource which is present and affected but not to a degree necessitating additional analysis;
- LUPA-AIR-5 – a fugitive dust control plan would be prepared and implemented;
- LUPA-CUL-4 – the cultural baseline survey was used to inform the Proposed Action design and avoid impacts to cultural resources;
- LUPA-MIN-2 -this Proposed Action, as an amendment to an existing operation, is subject to applicable CMAs subject to valid existing rights and governing laws and regulations;
- LUPA-SW-1 - stipulations or conditions of approval for any activity would be imposed that provide appropriate protective measures to protect the quantity and quality of all water resources and associated riparian habitat;
- LUPA-SW-6 – up-to-date industry practices would be used to prevent toxic substances from leaching into the soils;
- LUPA-SW-7 – an emergency response plan would be prepared for the control of spills;
- LUPA-SW-18 – water used as part of this Proposed Action would be used solely for the beneficial use of the Proposed Action as specified in approved plans and permits; and
- LUPA-SW-31 - the construction and abandonment of all wells shall conform to specifications contained in the California Department of Water Resources Bulletins #74-81 and #74-90 and their updates.

## 1.6 Scoping and Public Comment

A BLM Interdisciplinary Team meeting and site visit was held on February 16, 2017. Substantive issues discussed and potential impacts resulting from the Proposed Action and alternatives are summarized in the Interdisciplinary Team checklist, included as Appendix A. Resources present with the potential for significant impact are analyzed in detail in this EA. Resources either not

present or present, but not affected to a degree requiring detailed analysis, were not carried forward in this EA. The rationale for determination for each resource is included in Appendix A.

Resources determined to be present with the potential for significant impact, which have been carried forward in this EA, are:

- Air Quality;
- Cultural Resources;
- Recreation;
- Special Status Animal Species other than U. S. Fish and Wildlife Service (USFWS) candidate or listed species;
- Special Status Plant Species other than USFWS candidate or listed species;
- Wildlife; and
- Water and Related Resources within Death Valley National Park.

An EA will be published and posted on the internet under the BLM's ePlanning system for NEPA, available through <https://eplanning.blm.gov/epl-front-office/eplanning/nepa/>. This EA will also be posted on the NPS Planning Environment and Public Comment website at <https://parkplanning.nps.gov/>. The BLM and the NPS will accept comments on the EA for 30 days. Each bureau will then issue its own decision document, a Finding of No Significant Impact and a Determination of No Impairment, if no significant impacts are identified. Throughout this process, the BLM and the NPS will coordinate and collaborate closely to make this process as streamlined as possible.

## 2. Description of Alternatives

### 2.1. Site History

Exploration and mining have occurred in the area since the early 1900's. Mining at the Keystone site has been intermittent since 1940 with the most recent activity occurring during the late 1970's and into the early 1990's as documented through site inspections and permitting. The approved Plan consists of approval of an existing underground mine in 1981, approval of an amendment in 1984, and a further amendment in 1988. Authorized operations as described under the 1981 Plan, the 1983 Plan Amendment, and the 1988 Plan Amendment include the following:

- Operations in compliance with Inyo County Conditional Use Permit No. 80-20 dated October 23, 1980<sup>1</sup>.
- Underground mining including adits, drifts, and haulage drifts. It was anticipated that approximately 40,000 tons of ore would be generated during the life of the project at the rate of about 5,000 tons per year (1981 Plan);
- Waste rock disposal at portal mouths, to be used as backfill during reclamation;
- Ore haulage including a haulage cable, a jig-back tram, and ore bins including an ore bin in Panamint Valley. The ore bins have since been removed;
- Milling at a millsite located on the eastern side of the Keystone canyon, below the saddle. The mill has since been removed;
- Closed circuit cyanide processing at the old mill site which has since been removed;
- Goler Wash Road improvements;
- Mine area road construction for sole use of the mine as shown on Figure 3;
- Water usage and a water pipeline from Sourdough Spring located on Sourdough Springs mill site on NPS-managed land; and
- Generator usage.

In 2015, BMC acquired the operation in bankruptcy proceedings. That same year, BMC drilled 16 holes under a notice filed in 2015 (CACA-056805). The BLM determined that a plan of operations amendment, rather than a notice, was required for such drilling activities. Thus, BMC

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<sup>1</sup> Federal Surface Management regulations 43 CFR 3809 took effect January 1, 1981. Operations already in existence were granted an additional 120 days to submit a plan of operations per 43 CFR 3809.1-8 (<https://heinonline.org/HOL/P?h=hein.cfr/cfr1981146&i=690>).

submitted an amendment to the approved PoO (the Proposed Action), which is described in chapter 2.5.

In September of 2017 the California Water Board assigned water license 4716 to BMC, which is located on the Sourdough Springs, mill site.

Authorized features, which are relevant to the Proposed Action, are described in the following chapters.

## **2.2. Access to the Keystone Mine**

The Project Area is accessed from Wingate Road and Goler Wash Road as shown on Figure 1. The main roads used are Goler Wash Road and the Keystone Mine Maintenance Road as labeled on Figure 2. The general locations of roads developed in 1984 and 1988 are shown on Figure 3. The Goler Wash Road is an Inyo County road, which has been used for access since submittal of the original 1981 Plan. Road improvements to the Goler Wash Road were carried out under an encroachment permit from Inyo County (encroachment permit E15-56). Inyo County also performs annual maintenance of the Goler Wash Road.

Goler Wash Road is a popular off-road route between Panamint Valley, into the Death Valley National Park boundary, and across the Panamint Range. Four-wheel drive vehicles are recommended. Recreational use of this route is described in Chapter 3.4. Due to the adjacent steep terrain, road conditions are easily affected by precipitation events.

## **2.3. Water Use and Pipeline**

Sourdough Spring is on mill site claims located in 1988 and now owned by BMC. The water rights to Sourdough Spring date from 1941 described by California State Water Rights Board License for Diversion and Use of Water 4716 and are registered to BMC. The license allows for up to 470 gallons per day as provided in the reporting requirements at the State Water Resource Board. In 1981, the BLM recognized a need to divert water from Sourdough Spring to the base of the Keystone Mine Maintenance Road along the south side of the Goler Wash Road and outside of the Manley Peak Wilderness Area as shown on figures 2 and 4.

## **2.4. Power**

The approved 1981 Plan included use of an onsite diesel generator. The generator was removed by previous operators. BMC has since replaced the site generator, which would be used to support drilling described under the Proposed Action.

## **2.5. Proposed Action**

### **2.5.1. Summary and Anticipated Disturbance**

BMC proposes to amend the existing plan of operations to include the following changes:

- Inclusion of up to 45 additional drill holes located on seven existing drill pads. The drill pads are located on existing disturbance. More than one hole would be located on each pad; and
- Water diversion from Sourdough Spring in Death Valley National Park, in addition to haulage of water via truck from Trona and storage in a 5,000-gallon water tank at the intersection of Goler Wash Road and the Keystone Mine Maintenance Road.

Proposed operations would occur on existing disturbance. No additional disturbance acres are proposed.

### **2.5.2. Drilling**

BMC is proposing a drilling program to advance up to 45 drill holes within seven drill pads located on previously disturbed areas. The proposed locations of these holes are shown on Figure 5. The purpose of the drilling is to confirm resource specifications including location, amount, grade, and metallurgical content in and around previously mined areas.

Drilling would be conducted with a diamond core drill with HQ and NQ drill bits. Drill holes may be advanced up to 1,020 feet below ground surface with the average drill depth of less than 600 feet. The drill rig would be a small, track-mounted unit measuring approximately six by eight feet including work decks. Drill pads would be located on existing disturbance and would measure approximately 12 to 15 feet wide by 30 feet long. The drill pads would contain drilling equipment and activities including the sumps, which were constructed under the Notice. Multiple holes would be drilled from one drill pad, utilizing one sump. Only one hole would be open at a given time. The drill pad locations are shown on Figure 5, and their areas are shown in Table 2-1. Photographs of the drill sites from the site visit are included as Appendix B and photographs of the general area are included in Appendix C.

**Table 2-1: Proposed Drill Pad Areas on Existing Disturbance**

<b>Drill Pad</b>	<b>Area (acres)</b>	<b>Area (square feet)</b>
Pad 1	0.020	887.9
Pad 2	0.033	1,441.8
Pad 3	0.066	2,893.2
Pad 4	0.031	1,353.6
Pad 5	0.032	1,385.1
Pad 6	0.031	1,366.2
Pad 7	0.166	7,244.8
<b>Total Area</b>	<b>0.380</b>	<b>16,572.6</b>

The proposed drill sites are located between 700 and 1,150 vertical feet in elevation above Goler Wash. The adjacent Keystone Mine workings are dry, so groundwater is not expected to be encountered during drilling.

Water would be injected into the drill pipe to wash away cuttings from around the core and to reduce friction and wear on the drill. Sumps would be excavated within the drill pad footprint to contain water and drill cuttings and would measure approximately four feet wide by eight feet long with a depth of five feet. Sumps would be positioned to capture the drill water and allow cuttings to settle. Best management practices such as utilizing certified weed-free straw bales, silt fencing, or other measures would be used if needed. Sumps would be fenced for safety reasons during periods prior to and following the actual drilling of the hole. The sump would be backfilled after work at that pad is complete.

### **2.5.3. Water Haulage and Storage**

In accordance with CMA LUPA-SW-18, water used as part of the Proposed Action would be used solely for the Proposed Action. A minimum sized 5,000-gallon enclosed portable plastic water tank would be set up at the base of the Keystone Mine Maintenance Road where it meets the Goler Wash Road. The tank would be filled using the water trucked in from Trona and the water piped in from Sourdough Spring. Water haulage and piping would continue for the duration of the Proposed Action.

The water trucks would have a capacity of about 5,000 gallons and a maximum of three trips per day may be made. The water trucks would not travel to Sourdough Spring or within the Death Valley National Park boundary.



Existing infrastructure at Sourdough Spring includes a bathtub collection device with associated plumbing that allows water to flow from a spring orifice into the bathtub, and a three-inch PVC pipe, which allows water to flow by gravity, feed across the park boundary and alongside Goler Wash Road toward the Keystone Mine. A photo of the bathtub collection device is included in Appendix C. The pipeline would ultimately tie into the proposed water tank at the base of the Keystone Mine Maintenance Road.

A flow meter or some other device, such as a restriction valve or smaller intake, would be installed in the pipeline at Sourdough Spring to ensure that the 470-gallon per day limitation is not exceeded.

Water would be pumped uphill from the temporary water tank through temporary pipes or hoses to a second enclosed holding tank placed on Pad 5, where it would be used to provide gravity-fed water to the various drill sites. The onsite generator would be used to power the pumps. The piping, water tank location, and holding tank location are shown on figures 5 and 6.

The existing water line and proposed hoses would be checked regularly and maintenance or repairs would be conducted by hand or backhoe, as needed. BMC would access the Sourdough Spring water collection facilities and plumbing using light vehicles on Goler Wash Road. Regular access needs into the Sourdough Springs area would involve facility maintenance, repair, and vegetation management.

#### **2.5.4. Schedule**

The proposed activities would begin as soon as approvals are received and weather and resulting road conditions allow. BMC anticipates that drilling activities and reclamation would be completed approximately seven months after the start date. In the case of a project interruption, such as a weather-related road wash-out, drilling activities and reclamation may take up to 18 months. However, should drilling identify economic resources, the Plan of Operations would be amended, and reclamation would be undertaken per the amended plan. Proposed Action activities would occur 24 hours per day, seven days per week.

#### **2.5.5. Equipment**

The following equipment listed in Table 2-2 would be used to perform the activities. Photographs of the types of drill rigs, which may be used, are included in Appendix D. Drilling supplies would be managed on each active pad by the drilling contractor.

**Table 2-2: Mobile Equipment**

Equipment	Pieces of Equipment
Diamond core drill rig	1
Backhoe	1
Pickup truck	1
Water Truck	1
Support Truck	1
Portable Generator/water pump	1

### 2.5.6. Employment

A maximum of six people may be employed at any given time during the Proposed Action duration. This would include the contracted drill rig crew, a water truck driver, a project geologist, and security personnel.

Employees/contractors would live in Ballarat, Trona, and Ridgecrest. A single security/safety person would remain on site during drilling and mining activities and would live in a trailer with onboard sanitation and storage. The trailer would be located near the junction of Goler Wash Road and the Mine Maintenance Road. Occupancy would be in accordance with 43 CFR 3715. This trailer would be removed during reclamation unless economic resources are identified. In this event, the Plan of Operations would be amended, and reclamation would be undertaken per the amended plan and comply with 43 CFR 3715. Drilling supplies would be managed by contractor on the pad.

### 2.5.7. Reclamation

Closure, decommissioning, and reclamation would occur in accordance with CMA LUPA-BIO-7 and 8. No new disturbance is proposed, and the drill pad sites have been constructed on existing authorized roads and disturbance areas approved under previous plan amendments as shown on Figure 3. Reclamation of the disturbed areas, as identified in Notice CACA-056805 (0.38 acres) would be conducted to approximate the original contour of the road and to fill in the drill sumps with excavated materials.

Reasonable measures would be taken to prevent unnecessary or undue degradation of public lands and resources during operations pursuant to the standards of 43 CFR 3809. Concurrent reclamation would be performed as conditions allow.

At completion of drilling activities, materials associated with drilling would be removed from the drill sites. In addition to the sump reclamation described above, areas containing excess drill cuttings or rutting would be regraded to approximate the road contour. Where possible, displaced boulders would be replaced, especially at the entrance to overland travel routes from existing roads and jeep trails to prevent unapproved future public use.

Constructed sediment control features would be regraded following reclamation to approximate the natural drainage patterns. Silt fences would be used to contain sediment on reclaimed sites immediately adjacent to drainages, if they are needed.

The pipeline and other plumbing from Sourdough Spring would be removed.

Reclamation of the Keystone Mine Maintenance Road is not proposed at this time. Reclamation would be performed as required under the approved Plan back to pre-1981 conditions or an amended plan should economic resources be located. The Goler Wash Road is an Inyo County road which would remain open and in place during and after the proposed activities.

## **2.6. No Action Alternative**

In accordance with BLM NEPA Handbook H-1790-1, Chapter 6, this EA evaluates a No Action Alternative, which is a required alternative to the Proposed Action. The objective of the No Action Alternative is to describe the environmental consequences that would result if the Proposed Action were not implemented. The No Action Alternative is the existing approval(s) described in Chapter 2.1. The No Action alternative forms the baseline from which the impacts of all other alternatives can be measured. Under the No Action Alternative, the Proposed Action would not be approved by the BLM or the NPS, and no drilling activities would be carried out. Like the Proposed Action, the No Action Alternative is subject to a financial guarantee sufficient to ensure reclamation. No drilling may take place until the operator provides and BLM and NPS accepts a financial guarantee sufficient to cover the estimated cost of reclamation under this alternative.

## **2.7. Environmental Protection Measures**

Applicant committed environmental protection measures and best management practices (BMPs) have been developed as a means of minimizing or avoiding environmental impacts. They are discussed below by subject.

### **2.7.1. Cultural and Paleolithic Resources**

The applicant has submitted an application to modify their existing and approved PoO to include the ability to conduct exploratory drilling at seven locations within their Project Area. These

seven locations are either at leveled pads previously bulldozed from the barren rocky hillsides or within the constructed mine access roadbed. None of these seven locations involves undisturbed lands.

To confirm the previously disturbed nature of these seven locations, Danny Tyree, BLM Archeologist, conducted a field visit and site inspection on February 16, 2017. He confirmed the previously disturbed nature of these seven locations. Thus, the modification of the applicant's approved PoO to include the ability to conduct exploratory drilling at these seven locations would not have adverse effects to significant or historic properties.

Under the provisions of the BLM-State Historic Preservation Office (SHPO) Statewide Heritage Protocol Agreement, February 2014, a determination was made to use an exempt undertaking category for the NHPA of 1966, Section 106, review and compliance. Appendix A, Exempt Undertakings, Class B Activities, Activity B-12: Approval of minor modifications to or minor variances from activities described in an approved underground or surface mining plan of operations that does not affect historic properties for which previous Section 106 consultation has been completed. The identification number for the Exempt Undertaking finding is CA-650-EX-2017-34.

The NPS would conduct a new survey of the Sourdough Spring mill site and prepare an Assessment of Effects finding for the SHPO and the Timbisha Shoshone Tribe as required by Section 106 of the NHPA.

Avoidance is the BMC-preferred treatment for preventing effects to historic properties (an historic property is any prehistoric or historic site eligible to the NRHP or unevaluated cultural resources). BMC would coordinate with the NPS Office of Environmental Compliance at the Death Valley National Park prior to conducting ground-disturbing activities within the park. Ground-disturbing activity would require monitoring by a professional archeologist that meets the Secretary of Interior standards.

If cultural properties, items, or artifacts (i.e., stone tools, projectile points, historical items, etc.) are encountered during operations, the activity would be halted immediately, and the BLM and NPS would be notified. Site area borders would be staked and/or flagged with buffer areas as needed. It is not anticipated that any cultural resources would be encountered, as this project would be conducted entirely on previously disturbed ground utilizing existing access roads. BMC would take measures to ensure that its employees or others associated with the activities do not collect artifacts or vandalize sites or artifacts.

### **2.7.2. Surface and Ground Water**

The Project Area is between 700 and 1,150 feet above Goler Wash. Sourdough Spring is located 1.4 road miles from the intersection of Goler Wash Road and the Keystone Mine Maintenance Road and within the Death Valley National Park boundary at an elevation of 3,130 feet amsl. The Project Area is an additional 0.9 mile up the Keystone Mine Maintenance Road to the nearest drill pad at an elevation of approximately 3,400 feet amsl for a total of 2.3 road miles from Sourdough Spring. Surface water features identified within one air mile of the Project Area includes a small spring near Newman's Cabin in Goler Wash. The Keystone Mine workings are dry, so groundwater is not expected to be encountered during drilling. Drill holes would be closed in accordance with BLM Handbook H-3809-1 (BLM 2012). in accordance with the California Department of Water Resources Bulletins #74-81 and #74-90 and their updates (CMA LUPA-SW-31) to minimize potential impacts to ground water, and in accordance with BLM handbook H-3042-1 (BLM 1992).

A flow meter or some other device, such as a restriction valve or smaller intake, would be installed in the pipeline at Sourdough Springs to ensure that the 470-gallon per day limitation is not exceeded. The actual device and protocol would be developed in the implementation phase. The NPS would inspect the plumbing and determine the rate of flow on an at will basis. An annual water usage report may be requested by the NPS. The operator would be required to remove all unneeded pipes and other items from the Sourdough Spring area.

### **2.7.3. Waste**

Acceptable Project-related refuse would be hauled to the authorized landfill in Trona. No refuse would be disposed of on-site. If hazardous or regulated material, such as diesel fuel is spilled, the affected soils would be removed, and the BLM and appropriate state agencies would be notified.

### **2.7.4. Air Quality**

Project-related traffic would observe prudent speed limits to minimize fugitive dust. Mobile equipment would be kept in good working order to minimize unnecessary combustion-related emissions. The air resource requirements listed under CMA LUPA-AIR-1 would be met and the Project would not result in the exceedance of local air quality standards or requirements (CMA LUPA-AIR-2). A fugitive dust control plan would be prepared and implemented per CMA LUPA-AIR-5.

### **2.7.5. Vegetation and Wildlife**

A baseline survey was conducted in accordance with CMA LUPA-BIO-1 and LUPA-BIO-PLANT-1. The Keystone Mine area is dominantly characterized by very steep rocky slopes with

little vegetative cover. To minimize impacts to wildlife and vegetation within the Project Area, BMC would utilize existing roads and disturbance areas. In addition, no new surface disturbance would be required to provide safe equipment access and crew working areas.

In accordance with CMAs LUPA-BIO-2, LUPA-BIO-13, and LUPA-BIO-16, a contracted biologist would be on-site during excavations and equipment movement as needed to ensure avoidance of sensitive biological resources and to ensure that minimization measures are appropriately implemented. In accordance with CMAs LUPA-BIO-3 and LUPA-BIO-4, resource setbacks would be identified, and/or seasonal restrictions or visual barriers installed to avoid or minimize adverse effects to specific biological resources such as riparian vegetation or Focus or BLM special status species habitat areas.

To be in compliance with the International Migratory Bird Treaty Act, no birds may be harmed or killed. BMC would attempt to perform drilling outside of the avian breeding season (February 1st through August 1st). If work must be conducted during nesting season, a pre-drilling survey would be conducted by a contracted biologist approved by the BLM within seven days prior to initiation of drilling activities to determine the presence or absence of active nests. The survey would cover the drill pad area plus a one-mile buffer. Surveys of canyon walls may be conducted using binoculars. If active nests are located during pre-drilling surveys, drilling activities within a species-specific buffer of the nest would be postponed or halted until the nest is vacated and juveniles have fledged, as determined by the designated biologist. The appropriate buffer area would be decided in consultation with the BLM. Drilling would be postponed if the biologist notes evidence of a second nesting attempt. Buffers would be defined with flagging, fencing, or other appropriate barriers and drilling personnel would be instructed about the sensitivity of nest areas. The project biologist should serve as a monitor during those periods when drilling activities would occur near active nest areas to ensure that no inadvertent impacts would occur. The results of the pre-drilling survey and the avoidance measures taken would be submitted to the BLM within 30 days of completion of the surveys and/or drilling activity monitoring.

Weeds would be controlled as described in CMA LUPA-BIO-11. Weed management would include, but not be limited to, the washing of vehicles that have previously worked in areas of noxious weeds, use of weed-free materials, and monitoring as described in CMA LUPA-BIO-10.

In accordance with CAM LUPA-14, wildlife would not be harassed or fed, trash would be kept contained, and the area would be checked for wildlife prior to the movement of equipment and drilling activity. Domestic pets would be prohibited in the area. Drilling is expected to occur 24 hours per day, so artificial light would be necessary to maintain safe work practices. This lighting would be kept to a minimum and directed toward the ground.

One end of each sump would be sloped to provide an escape route in the event an animal enters the sump. Temporary fencing would be constructed around the sumps to limit access. Sumps would be back-filled after completion of drilling.

The BLM would be immediately notified in the event that any indication of desert tortoise, Nelson's bighorn sheep, or other special status species, is found or noticed in the Project Area.

The USFWS was contacted in September 2017 with a memorandum informing them that the project may affect the federally threatened desert tortoise and that the BLM has proposed to authorize the work under the *Biological Opinion for Activities in the California Desert*. The USFWS reviewed the information and determined the authorization to work appropriate contingent upon additional protection measures (USFWS, 2017a). These additional protection measures state:

- All employees of the project proponent who work on-site shall participate in a tortoise education program prior to initiation of field activities. The project proponent is responsible for ensuring that the education program is developed and presented prior to conducting activities. New employees shall receive formal, approved training prior to working on-site. The employee education program must be received, reviewed, and approved by the BLM Resource Area Office at least 15 days prior to the presentation of the program. The program may consist of a class presented by a qualified biologist (BLM or contracted) or a video.
- The project proponent shall designate an on-site biologist who will be responsible for overseeing compliance with protective stipulations for the desert tortoise and for coordination with the BLM. The biologist must be on-site with a copy of the stipulations during all project activities and they shall have the authority to halt all project activities that are in violation of the stipulations. If a tortoise is sighted in or near project work areas, the biologist will stop work until the tortoise leaves of its own accord. Handling of tortoises is prohibited

Project-related traffic would observe a prudent speed limit of 25 miles per hour or less within the Project Area, to protect wildlife. Standard equipment noise controls would be used on drilling equipment in accordance with CMA LUPA-BIO-12.

A speed limit of 15 miles per hour would be adhered to in area outside of the Project area possibly occupied by desert tortoise in accordance with CMA LUPA-BIO-IFS-9. The Project would be operated under the Programmatic Biological Opinion for Small Disturbances.

In accordance with CMA LUPA-BIO-9, water and wetland-dependent resource protection measures would be implemented to avoid or minimize adverse impacts to these areas. Pre-construction/activity surveys would be carried out for BLM special status riparian and wetland

birds for activities occurring within 0.25 miles of a riparian or wetland vegetation type per CMA LUPA-BIO-RIPWET-3. As stipulated under the 1981 Plan, riparian vegetation below Sourdough Spring would be maintained by diverting excess water flow at the cistern back to the point of diversion at Sourdough Spring. The cistern and point of diversion are shown on Figure 4. Maintenance of the water diversion lines would be accomplished using hand tools or a backhoe to protect riparian vegetation from heavy equipment use. Although Sourdough Spring is now located in Death Valley National Park and not under BLM's surface management jurisdiction, BMC would not burn riparian vegetation as stipulated in the 1988 Plan Amendment. Vegetation control measures such as trimming would not occur during the avian breeding season (February 1st through August 1st). BMC would coordinate with the NPS prior to any plantings and the NPS would be notified within 30 days of improvements, rehabilitation, or other activities occurring at Sourdough Spring in order to allow for the recordation and evaluation of archaeological resources by the staff archaeologist.

As stipulated in the 1981 Plan, BMC would notify the BLM ten days prior to the disturbance of limestone or dolomitic limestone outcrops to avoid the disturbance of sensitive plant species, which may grow on these rock types.

As stipulated in the 1988 Plan Amendment, the water collection box at Sourdough Spring was to be moved to the lower end of the riparian zone and a screen installed partially inside the cement collection box to allow escape by small animals. There is no record of the previous operator having completed this work. BMC will see that these requests have been addressed.

#### **2.7.6. Erosion and Sediment Controlled**

Roadwork would not occur during rain or snowstorm events and for a period of time following when the Project Area is covered with snow or the soil is in a saturated, muddy, or in unstable condition. Maintenance of the Keystone Mine Maintenance Road may include minor seasonal regrading when necessary. The effectiveness of erosion control measures would be monitored in the spring and fall.

Sumps for drill water, fluids, and cuttings would be excavated within the limit of the drill site. Anticipated sump dimensions would be about eight feet by four feet by five feet deep or smaller depending on the hole depth and volume needed. Final sump dimensions would be designed to meet the estimated required capacity of drill fluids and cuttings with one foot of freeboard. It is anticipated that one sump would be sufficient for multiple holes on the same pad but for bonding purposes, one sump was added to the cost estimate for each drill hole. This would provide sufficient capacity to fully contain all drilling fluids.

Stormwater management structures would be installed, as required, to ensure the existing drill pad sites would not channel stormwater that could either result in excessive sediment loss or



make the road impassable. The proposed reclamation would be conducted at the earliest practical time.

### **2.7.7. Fire Protection**

BMC would comply with all applicable state and federal fire laws and regulations, and reasonable measures would be taken to prevent and suppress fires. Due to the rocky nature of lack of vegetation on the drill pads, fire risks would be low (see photos in Appendix B and Appendix C). Smoking would only be permitted in areas free of flammable materials and only if allowed by state law or federal regulations. If smoking is allowed, smokers would position themselves in such a manner that burning material would fall within cleared areas. Smoking materials would be extinguished by pressing said materials into mineral soils. When completely extinguished, debris associated with smoking would then be put into containers designed solely for this purpose and properly disposed.

The following precautionary measures would be taken to prevent and report wildland fires:

- All vehicles would carry fire extinguishers;
- Adequate fire-fighting equipment (i.e., shovel, Pulaski, extinguishers), and a minimum ten gallons of water would be kept at each drill site;
- Vehicle catalytic converters would be inspected often and cleaned of brush and grass debris;
- Welding operations would be conducted in an area free from or mostly free from vegetation. A minimum of ten gallons of water and a shovel would be on hand to extinguish any fires created from the sparks. Extra personnel would be at the welding site to watch for fires created by welding sparks. Welding aprons would be used when conditions warrant (i.e., during red flag warnings); and
- Wildland fires would immediately be reported to the Ridgecrest BLM. Information reported would include the location (latitude and longitude if possible), fuels involved, time started, who or what is near the fire, and the direction of fire spread.

### **2.7.8. Public Access**

As stipulated in the 1988 Plan Amendment, Goler Wash Road would remain open to public access. To achieve this, drilling equipment would be staged on the Keystone Mine Maintenance Road as needed to keep public movement along the Goler Wash Road open. The Keystone Mine Maintenance Road would not provide public access to the Project Area until the completion of exploration or mining activities.

### **2.7.9. Employee Training**

BMC would train employees, contractors, and other related personnel as to the environmental responsibilities required under this Proposed Action in accordance with CMA LUPA-BIO-5.

### **2.7.10. Wilderness**

The Project Area is about one road mile (0.6 air mile) south of Goler Wash Road and the boundary of the Manly Peak Wilderness Area, and between 700 and 1,150 vertical feet above Goler Wash. In accordance with the 1988 Plan Amendment, no work or disturbance of any kind was permitted to extend into the then designated adjacent wilderness study area. The Manly Peak Wilderness Study Area has since been designated as a wilderness area. No work would be permitted inside the Manly Peak Wilderness. The pipeline to Sourdough Spring would be laid within the 30-foot setback of the Goler Wash Road where it forms the southern boundary of the Manly Peak Wilderness area, and under joint inspection with the BLM. The collection basin and associated plumbing exists within the exclusion or “cherry-stem” of the Death Valley Wilderness.

### **2.7.11. Hazardous Substances**

Hazardous materials, if used, and wastes would be stored and disposed of in accordance with federal, state, and local regulations.

### **2.7.12. Spill Contingency**

A safety “spill kit drum” would be placed at each active drill pad. The kit contains sorbent materials to allow for efficient clean up in the event of a fuel, oil, or drilling mud spill. Up-to-date industry practices would be used to prevent toxic substances from leaching into the soils (CMA LUPA-SW-6) and an emergency response plan would be prepared for the control and cleanup of spills (CMA LUPA-SW-7).

### **2.7.13. Monitoring**

To ensure compliance with the Plan Amendment and other federal and state laws and regulations, BMC would oversee the Project to ensure activities remain within the permitted areas and that the Project is not causing undue or unnecessary degradation to the environment. Monitoring of specific resources is described under those environmental protection measure sections.

### **2.7.14. Quality Plan**

BMC would provide inspection of Project Area activities. These inspections would include on-site inspections as satellite phone or radio contact with crews to determine if problems are

encountered. Quality control (QC) includes functions and procedures that are performed by the contractor. Quality assurance (QA) is a process to independently verify and test that the contractor performs the activities to meet the intent of the design and conform to project specifications. In general, QA and QC activities would include:

- Coordination;
- Documentation;
- Quality control and inspection; and
- Records and reports.

## **2.8. Alternatives Considered but Eliminated from Further Analysis**

Drilling from within the Keystone Mine underground workings was considered but eliminated. The workings would need to be rehabilitated to current Mine Safety and Health Administration standards prior to underground drilling at this time. This work would have been cost-prohibitive for drilling.

### **3. Affected Environment**

Resources determined to be present with the potential for significant impact, which have been carried forward in this EA, as presented in Chapter 1.6 and Appendix A, include:

- Air Quality;
- Cultural Resources;
- Recreation;
- Special Status Animal Species other than USFWS candidate or listed species;
- Special Status Plant Species other than USFWS candidate or listed species;
- Wildlife; and
- Water and Related Resources within Death Valley National Park.

#### **3.1. General Setting**

The Project is located in Goler Wash in the rugged, north trending Panamint Range. The elevation at the mouth of the wash is about 1,560 feet above mean sea level (amsl). The western escarpment of the range is characterized by deeply incised canyons and steep, rugged slopes. The mountainous areas are sparsely vegetated by local grasses, creosote bush, buckwheat, and cactus. Alluvial fans form at the mouths of the larger canyons as a result of sporadic flooding over geologic time. The Goler Wash Alluvial Fan extends horizontally about 1.4 miles into the Panamint Valley playa. The playa, with a local base elevation of about 1,115 feet amsl, is a barren alkali flat sometimes covered with a thin sheet of water following spring rains or as a consequence of rare, thunder storm driven, flash-flood runoff (AGI, 2015).

Goler Wash extends from the mountain front east about 2.1 linear miles to the northern terminus of the Keystone Mine Maintenance Road and another 1.3 linear miles to Sourdough Spring. About 0.8 miles east of Sourdough Spring is Barker Ranch and Myers Ranch. The sidewalls of the wash are exceptionally steep from the mouth of the canyon to the mine. Small tributary canyons in the sidewalls are often choked with nested cobble/boulder debris. The wash has a meandering course with large and small bends, often very tight and narrow at the canyon bottom. The character of the wash changes east of the Keystone Mine. Sidewalls are laid back with decreased surface ratios (AGI, 2015). Area photographs are included in Appendix C.

Rainfall in Panamint Valley is generally three or four inches per year with an average of 3.8 inches. Rainfall generally occurs in winter and spring months. Higher portions of the Panamint Range north of Goler Wash may receive up to 12 inches of rainfall per year, but records are scarce. Monthly evaporation greatly exceeds monthly rainfall. Average yearly evaporation is 150

inches. Summer temperatures can exceed 120 degrees Fahrenheit. Winter temperatures are milder by comparison, but still generally hot. Freezing conditions are rare (AGI, 2015).

Debris left from previous mining and exploration activities are present within the Project Area. No debris movement is anticipated to occur as part of the Proposed Action.

The China Lake Naval Air Weapons Station (NAWS) is located approximately 3.5 miles to the south of the Project Area. The China Lake NAWS is used for the development and testing of naval aircraft and weapons. The Project Area is located within the R-2508 airspace complex associated with the China Lake NAWS which is managed for military operation and training. A variety of military-type aircraft frequents the airspace around the Project Area daily.

The Sourdough Springs area includes large cottonwood trees that provides nesting and roosts for birds such as hawks and riparian vegetation (willow, etc.) which can be utilized for nesting for a variety of other bird species and other wildlife use.

### **3.2. Air Resources**

The Project Area is within the Great Basin Valleys Air Basin. The Great Basin Unified Air Pollution Control District (District) has state air quality jurisdiction over the area. The District regulates seven pollutants called “criteria pollutants”: ozone, carbon monoxide, lead, two types of particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>), sulfur oxides, and nitrogen oxides. The District also regulates hydrogen sulfide under a state standard. California has a toxins program that adopts regulations for particular sources of toxins, such as benzene from retail service stations, which the district is then required by state law to enforce. Title III of the Clean Air Act Amendments of 1990 also regulates toxins.

The primary criteria pollutant present in the District is particulate matter. The vast majority of mitigation efforts go to controlling such dust emissions. As mentioned above, two types of PM are regulated, PM<sub>10</sub> and PM<sub>2.5</sub>. The difference is in the size of the particles. PM<sub>10</sub> is particulate matter with an average maximum size of 10 microns and PM<sub>2.5</sub> is particulate matter that is 2.5 microns or smaller. The District monitors PM<sub>10</sub> levels at nine locations in Inyo County and three locations in Mono County. Much of the PM<sub>10</sub> the District monitors comes from wood burning or dust from the Owens and Mono dry lakebeds.

The Federal Clean Air Act as amended (42 USC 7401 et seq. Section 176(c) and EPA regulations (40 CFR part 93 subpart W) state in part “no department, agency or instrumentality of the Federal Government shall engage in, support in any way or provide financial assistance for license or permit, or approve any activity which does not conform to an applicable implementation plan”. They further state that a federal agency must make a determination that Federal actions conform to the applicable implementation plan before the action is taken.

The U.S. Environmental Protection Agency provides a list of nonattainment areas for PM<sub>10</sub> dust emissions within California, one being within Inyo County. That nonattainment area is Owens Valley Planning Area Hydrologic Unit # 18090103. This action is not within Owens Valley but in Panamint Valley. Panamint Valley is an unclassified area for PM<sub>10</sub> and an attainment area for PM<sub>2.5</sub>. Conformity requirements thus do not apply to actions in this area. District rules concerning fugitive dust emissions may apply to portions of this project.

The main air emission sources in the area include combustion emissions and fugitive dust resulting from recreational use of the Goler Wash Road, described in Chapter 3.4, combustion emissions related to the China Lake NAWS, described in Chapter 3.1, and water haulage trucks. The Goler Wash Road is one of the few access routes to the Death Valley National Park and is heavily used by off-highway vehicle enthusiasts.

### **3.3. Cultural Resources**

Cultural resources have been surveyed for the Project Area, and no sites were identified.

Two Class 1 surveys (report reference numbers 650-1990-68 and 650-1988-40) indicated that a field study had been carried out in 1981 from the Keystone Mine area along Goler Wash Road to Sourdough Springs with a length of 2.5 miles and a transect width of 20 feet. The field report (reference number CA-650-1981-08) mentions a prehistoric site at Sourdough Springs. This site was not recorded, however, since it was located outside of the area of potential effect.

As noted in Chapter 2.7.1, the NPS would conduct a new survey of the Sourdough Springs mill site and prepare an Assessment of Effects finding for the State Historic Preservation Office and the Timbisha Shoshone Tribe as required by Section 106 of the NHPA. BMC would coordinate with the NPS Office of Environmental Compliance at the Death Valley National Park prior to conducting ground-disturbing activities within the park. Ground-disturbing activity would require monitoring by a professional archeologist that meets the Secretary of Interior standards.

### **3.4. Recreation**

The general area of Panamint Valley and the Panamint Range supports a wide-range of recreational activities, including, but not limited to: dispersed vehicle camping; motor vehicle touring (four-wheel drive or dual-sport bikes); horseback riding; hunting; backpacking; hiking; climbing; historical investigations; and photography. The Project Area is located within the Goler Wash Road Recreation Management Zone of the Panamint Valley Special Recreation Management Area as designated under the DRECP LUPA adopted by the BLM in September 2016. The management objective for this area is to continue to provide an outstanding recreational environment which focuses on low- to high-impact multi-use recreation along with the enhancement of primitive and dispersed recreation to serve multiple publics (BLM, 2014).

Goler Wash Road is a popular off-road route between Panamint Valley, into the Death Valley National Park boundary, and across the Panamint Range. Travel is only possible using four-wheel drive or off-highway vehicles. Recreationists using this route often visit the Ballarat ghost town, which is 15 miles from the mouth of Goler Wash Road, to the west then follow the Goler Wash Road beyond the Keystone Mine to the Barker Ranch, known for its role in the last standout with Charles Manson. Recreationists often make a loop through Mengel Pass and into Butte Valley where travelers can continue on to Furnace Creek, the location of the main Death Valley National Park visitor's center.

Since the Project Area is about one mile south of Goler Wash Road and between 700 and 1,150 vertical feet above Goler Wash, recreationists rarely traverse this steep hillside. The Keystone Mine Maintenance Road was constructed in accordance with the 1984 and 1988 Plan Amendments and intended for the sole use of mine. Reclamation would be performed as required under the approved Plan to pre-1981 conditions or an amended plan should economic resources be located. The Goler Wash Road is an Inyo County road which would remain open and in place during and after the proposed activities.

### **3.5. Special Status Animal Species other than USFWS Candidate or Listed Species**

Special status species are species for which state or federal agencies afford an additional level of protection by law, regulation, guidance, or policy. Migratory birds, eagles, and raptors fall within the special status species category. No special status animal species were observed during baseline surveys and no golden eagle nests are known to occur within one mile of the Project Area.

Special status animal species having the potential to occur in the area include the golden eagle (*Aquila chrysaetos*), prairie falcon (*Falco mexicanus*), Nelson's bighorn sheep (*Ovis canadensis nelsoni*), the desert tortoise (*Gopherus agassizi*), Panamint alligator lizard (*Elgaria panamintina*) and other raptors (BLM, 2013).

The Keystone Mine Plan area is located on the northern periphery of newly modeled desert tortoise (*Gopherus agassizi*) habitat with a reported sighting in the spring of 2017 at the mouth of Goler Canyon (C. Woods, personal communication). No tortoise or their sign was found in the Project area during the 2017 biological survey. The project is about three miles away from the mouth of Goler Canyon, is disturbed and does not contain all of the elements for desert tortoise occupancy.

The following bat species are special status species also with the potential to inhabit the area, although it has been reported that no bat maternity roosts are known to exist within 500-feet of

the Proposed Action: pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii*), and western mastiff bat (*Eumops perotis californicus*).

Migratory bird species in the area may include but are not limited to the mourning dove (*Zenaida macroura*), sage sparrow (*Amphispiza belli*), horned lark (*Eremophila alpestris*), and the black-throated sparrow (*Amphispiza bilineata*) (BLM, 2013).

Other species of concern at the state level and/or migratory birds may inhabit the riparian vegetation area around Sourdough Spring (Figure 7). Species described in the DRECP which may use this vegetation type include the: willow flycatcher (*Empidonax traillii extimus*), Bell's vireo (*Vireo bellii pusillus*), Lucy's warbler (*Oreothlypis luciae*), yellow warbler (*Setophaga petechia*), yellow-breasted chat (*Icteria virens*), common yellowthroat (*Geothlypis trichas*), summer tanager (*Piranga rubra*), blue grosbeak (*Passerina caerulea*), song sparrow (*Melospiza melodia*), vesper sparrow (*Pooecetes gramineus*), lark sparrow (*Chondestes grammacus*), Gila woodpecker (*Melanerpes uropygialis*), ash-throated flycatcher (*Myiarchus cinerascens*), crissal thrasher (*Toxostoma crissale*), orange-crowned warbler (*Oreothlypis celata*), common nighthawk (*Chordeiles minor*), verdin (*Auriparus flaviceps*), green-tailed towhee (*Pipilo chlorurus*), Abert's towhee (*Melozona aberti*), and gilded flicker (*Colaptes chrysoides*) (BLM, 2016a).

### **3.6. Special Status Plant Species other than USFWS Candidate or Listed Species**

Special status species are species for which state or federal agencies afford an additional level of protection by law, regulation, guidance, or policy. No mesquite bosques or riparian areas are found in the Project Area although riparian vegetation is located around Sourdough Spring.

Plant surveys indicated that no special status species have recolonized the disturbed areas. However, the following special status species have the potential to occur in the area: *Astragalus gilmanii*, *Galium hilendiae* ssp, *Eriogonum hoffmannii*, *Cryptantha clokeyi*, and *Penstemon fruticiformis* var *amargosae*. However, the *Astragalus* and *Galium* species generally occur above 5,400 feet amsl, and have been documented only from upper elevations of Death Valley National Park. While these species could potentially occur in the Project Area, their occurrence is unlikely since the highest drill pad is at an elevation of approximately 3,850 feet amsl.

The section of Goler Wash near Sourdough Spring and below has been mapped as part of the Madrean warm semi-desert wash woodland/scrub vegetation type, a riparian macrogroup community described in the DRECP. The Mojavean semi-desert wash scrub and the Sonoran-Coloradan semi-desert wash woodland/scrub are sub-communities, which may occur within the Madrean warm semi-desert wash woodland/scrub macrogroup (BLM, 2016a). Species, which may occur within these groups, are listed in Table 3-1 with their rarity ranking. Mapping of the



Mojavean semi-desert wash woodland/scrub from the DRECP is shown on Figure 7. Riparian vegetation is not continuous throughout Goler Wash as suggested by the DRECP data. Areas of riparian vegetation visible from aerial imagery are also shown on Figure 7 and are more representative of the actual riparian vegetation locations.

**Table 3-1: Madrean Warm Semi-Desert Wash Woodland Scrub Macrogroup**

Species	Rarity Ranking <sup>1</sup>
<b>Mojavean semi-desert wash scrub group</b>	
<i>Ambrosia salsola</i>	S4
<i>Artemisia tridentata ssp. parishii</i>	S3?
<i>Bebbia juncea</i>	S3?
<i>Brickellia incana</i>	S2?
<i>Ephedra californica</i>	S3
<i>Ericameria paniculata</i>	S3
<i>Lepidospartum squamatum</i>	S3
<i>Prunus fasciculata</i>	S3
<b>Sonoran-Coloradan semi-desert wash woodland scrub</b>	
<i>Acacia greggii</i>	S4
<i>Chilopsis linearis (microphyll)</i>	S3
<i>Hyptis emoryi</i>	S3
<i>Parkinsonia floridosa-Olneya tesota (microphyll)</i>	S4
<i>Pluchea sericea</i>	S3
<i>Prosopis glandulosa (microphyll)</i>	S3
<i>Psoralea argophylla (microphyll)</i>	S3

Data Source: BLM, 2016a

<sup>1</sup>State Rankings: S2 = imperiled; S3 = vulnerable; S4 = apparently secure

### 3.7. Wildlife

The area is classified as Mojave Creosote Bush Scrub. The local vegetation is dominated by creosote bush (*Larrea tridentata*), saltbush species, burro bush (*Ambrosia dumosa*), and brittlebush (*Encelia farinosa*). Wildlife species generally associated with the Mojave Creosote Bush Scrub vegetation include coyotes (*Canis latrans*), kit foxes (*Vulpes macrotis*), rodent species, and lagomorphs such as black-tailed jackrabbit and desert cottontail. Ground squirrels, pack rats, and kangaroo rats are relatively common in this type of ecosystem. Snakes and lizards such as the side-blotched lizard (*Uta sp.*), Great Basin fence lizard (*Sceloporus occidentalis longipes*), and western collared lizard (*Crotaphytus collaris*) are also found in the area (BLM, 2013).

## **4. Environmental Impact Analysis**

### **4.1. Introduction**

This chapter analyzes the impacts of the Proposed Action to those potentially impacted resources within the Project Area described in the affected environment Chapter 3, above.

### **4.2. Cumulative Effects Study Area**

One cumulative effect study area (CESAs) has been created for analysis of the Proposed Action's overall cumulative impacts in the region. It is located in portions of Sections 9, 10, 11, 15, and 16 of Township 24 South, Range 45 East within the Mount Diablo Base and Meridian and includes approximately 327 acres as shown on Figure 8. Sources of information used to determine past and present actions and reasonably foreseeable future actions include the following:

- BLM Land & Mineral Legacy Rehost 2000 System - LR2000;
- Google Earth imagery; and
- Death Valley National Park Maps.

#### **4.2.1. Past and Present Actions**

They CESA has been affected by the follow categories of past and present actions:

- Mining and exploration;
- Off-highway travel and recreation;
- Wildlife and wild burro use; and
- Military use of surrounding air space from the China Lake NAWS.

Exploration and mineral development has occurred primarily as part of the Keystone Mine operations, formerly known as the Lotus Mine. Underground workings, the Keystone Mine Maintenance Road, and debris remain as remnants of these activities.

General recreation occurs along Goler Wash Road particularly in the form of off-highway vehicle travel and historical investigations. Other recreational activities may include hiking, backpacking, photography, and climbing. Unauthorized off-highway vehicle use may also occur within the CESA, primarily along closed linear disturbance features.

Wildlife and wild burro use occurs in the CESA, particularly around the Sourdough Spring as a source of water and vegetation.

Military-related air traffic from the China Lake NAWS frequent the air space around and above the Project Area, which is designated as part of the R-2508 airspace complex, creating noise and vibrations within and around Goler Wash.

#### **4.2.2. Reasonably Foreseeable Future Actions**

Reasonably foreseeable future actions (RFFAs) within the CESA would include a continuation of the present actions including mining and exploration, recreational use of the Goler Wash Road, wildlife and wild burro use, and military air traffic use.

### **4.3. Air Quality**

#### **4.3.1. Proposed Action**

The Project Area is in Panamint Valley, which is not in a federal non-attainment area. Conformity requirements do not apply to actions in this area. District rules concerning fugitive dust emissions may apply.

An increase in fugitive dust during windstorms could occur due to the loosening of previously disturbed soil disturbance as a result of the Proposed Action. Vehicle (including water trucks) and off highway vehicle use on the Goler Wash Road and the Keystone Mine Maintenance Road would generate PM<sub>10</sub> emissions and the drilling operations would generate PM<sub>10</sub> emissions as heavy equipment moves soil. The drill rigs, generator, water trucks, and other vehicles would also result in combustion-related emissions.

The Proposed Action would negligibly affect air quality because activities utilizing mechanized equipment would be geographically limited within the canyon and short-term, lasting for a maximum of 12 to 18 months. No measurable offsite impacts are anticipated. Because of its location in Panamint Valley, which is an unclassified area for PM<sub>10</sub> and an attainment area for PM<sub>2.5</sub>, no further conformity analysis or determination is necessary.

#### **4.3.2. No Action Alternative**

Under the No Action Alternative, the proposed drilling operations would not occur. No impacts to air quality would occur beyond those resulting from previously authorized activities.

### **4.3.3. Cumulative Effects**

Past, present, and RFFAs contribute to air emissions, particularly regarding recreational off-highway vehicle activity along the Goler Wash Road and military airspace use related to the China Lake NAWS. The Proposed Action's cumulative impacts to air quality would be minimal and would thus contribute only incrementally to the cumulative impacts for the short-term.

## **4.4. Cultural Resources**

### **4.4.1. Proposed Action**

The Proposed Action would occur on previously disturbed ground, and no cultural sites were identified within these areas during surveys. As described in Chapter 2.7, avoidance is the preferred treatment for preventing effects to historic properties. No impacts to cultural resources are anticipated to occur.

### **4.4.2. No Action Alternative**

Under the No Action Alternative, the proposed activities would not occur. No impacts to cultural resources would occur beyond those related to previously authorized activities.

### **4.4.3. Cumulative Effects**

Because there would be no direct or indirect effects to cultural resources under the Proposed Action or the No Action Alternative, further analysis for cumulative impacts is not necessary.

## **4.5. Recreation**

### **4.5.1. Proposed Action**

The recreational experience may be impacted by the presence of drilling equipment, personnel, and noise from the Project Area during drilling activities. Recreational access along the Keystone Mine Maintenance Road would also be restricted. The visual presence of the water tank and pipeline may also impact the recreational experience for this stretch of road. These impacts would be short-term, lasting a maximum of 12 to 18 months while drilling is underway, and would be limited to the portion of Goler Wash Road from which the drilling operations would be visible. Goler Wash Road, a county road, would be kept open for recreational use.

With consideration for the short-term nature of the impacts and limited geographic scope within Goler Wash, impacts to recreation are considered to be present but minimal.

#### **4.5.2. No Action Alternative**

Under the No Action Alternative, the proposed drilling activities would not be carried out. No impacts to recreation would occur beyond those resulting from previously authorized operations. When not in operation, the Keystone Mine Maintenance Road would remain open to public access.

#### **4.5.3. Cumulative Effects**

Recreation is one of the main activities occurring within the CESA. Recreation is anticipated to continue as an RFFA. While wildlife use in the area would be expected to impact the recreational experience positively, mining, exploration, and military air space use activities may reduce the quality of the experience. Inyo County has a memorandum of understanding with the BLM and the National Park Service to maintain Goler Wash Road, which allows for ongoing use by recreationists. The Proposed Action's contribution to cumulative impacts would be minimal and incremental, lasting for the short-term, a maximum of 12 to 18 months.

### **4.6. Special Status Animal Species other than USFWS Candidate or Listed Species**

#### **4.6.1. Proposed Action**

Proposed Action activities would occur within existing disturbance areas. Native habitats would be avoided, and no vegetation removal is proposed. Breeding bird surveys would be carried out as described in Chapter 2.7, and drilling activities near active nests would be minimized as described. Therefore, no direct impacts to wildlife are anticipated.

Impacts to desert tortoise are not anticipated in the Project Area; however, potential impacts to desert tortoise could occur while entering and leaving Goler Canyon. These impacts would be mitigated by following the 15-mile per hour speed limit per CMA LUPA-BIO-IFS-9 and *Biological Opinion for Small Projects Affecting Desert Tortoise Habitat in Imperial, Inyo, Kern, Los Angeles, Riverside, and San Bernardino Counties, California (6840 CA-063.50) (1-8-97-F-17)* (USFWS 2017b).

Drilling may have indirect impacts on special status species as a result of human presence, noise, and vibrations. The presence of equipment, personnel, and noise may cause certain species to avoid the active drilling areas, thereby increasing wildlife use on adjacent areas. However, because of the limited area of activity and the short-term nature of the project, lasting a maximum of 12 to 18 months, indirect impacts to special status wildlife species are considered to be minimal.

Limited access cages were installed at key underground openings to prevent public access and also to discourage use by bats. Photographs of these cages are presented in Appendix C. It is anticipated that the vibrations from drilling described under the Proposed Action would not be enough to affect the walls or ceilings of the Keystone underground workings and access to the underground workings is not proposed. Impacts to bats are not anticipated.

#### **4.6.2. No Action Alternative**

Under the No Action Alternative, the proposed activities would not occur. No impacts to special status animal species would occur beyond those related to previously-authorized activities.

#### **4.6.3. Cumulative Effects**

The past, present, and RFFAs having the greatest impact on special status species would be the recreational use of Goler Wash Road and the military use of air space. Flyovers and off-high vehicle use may alter special status species use of the area due to increased noise, dust, and human presence. The cumulative impacts to special status species resulting from the Proposed Action would be minimal and incremental, lasting for a maximum of 12 to 18 months.

### **4.7. Special Status Plant Species other than USFWS Candidate or Listed Species**

#### **4.7.1. Proposed Action**

While special status plant species may occur in the area, no impacts to these species are anticipated since no disturbance is proposed.

#### **4.7.2. No Action Alternative**

Under the No Action Alternative, the proposed activities would not occur. No impacts to special status plant species would occur beyond those related to previously-authorized activities.

#### **4.7.3. Cumulative Effects**

The past, present, and RFFAs having the greatest impact on special status plant species would be the recreational use of Goler Wash Road. Hikers and unauthorized vehicle use in undisturbed areas could crush individual plants. Cumulative impacts to special status plant species resulting from the Proposed Action would not occur.

## **4.8. Wildlife**

### **4.8.1. Proposed Action**

Proposed Action activities would occur within existing disturbance areas. Native habitats would be avoided and no vegetation removal is proposed. No direct impacts to wildlife are anticipated.

Exploratory drilling may have indirect impacts on wildlife as a result of human presence, noise, and vibrations. The presence of equipment and personnel may cause certain species to avoid the active drilling areas, thereby increasing wildlife use on adjacent areas. However, because of the limited area of activity and the short-term nature of the project, lasting a maximum of 12 to 18 months, indirect impacts to wildlife are considered to be minimal.

### **4.8.2. No Action Alternative**

Under the No Action Alternative, the proposed activities would not occur. No impacts to wildlife species would occur beyond those related to previously authorized activities.

### **4.8.3. Cumulative Effects**

The past, present, and RFFAs having the greatest impact on wildlife would be the recreational use of Goler Wash Road. Off-high vehicle activity on Goler Wash Road may alter wildlife use of the area due to increased noise, dust, and human presence. The cumulative impacts to wildlife resulting from the Proposed Action would be minimal and incremental, lasting for a maximum of 12 to 18 months.

## **4.9. Water and Related Resources within Death Valley National Park**

### **4.9.1. Proposed Action**

Existing infrastructure at Sourdough Spring includes a bathtub collection device with associated plumbing that allows water to flow from a spring orifice into the bathtub, and a three-inch PVC pipe which allows water to flow by gravity feed across the park boundary and alongside Goler Wash Road toward the Keystone Mine. The pipeline would ultimately tie into the proposed water tank at the base of the Keystone Mine Maintenance Road. Impacts to NPS-managed resources from the use of the Sourdough Springs water are not likely to be significant. The existing infrastructure and its maintenance does not pose any problems for the NPS and the 470 gallons of water per day is not likely to draw down the spring to unacceptable limits, nor dewater the area.

#### **4.9.2. No Action Alternative**

Under the No Action Alternative, the proposed activities would not occur. No impacts to water and other related resources within Death Valley National Park would occur beyond those related to previously authorized activities.

#### **4.9.3. Cumulative Effects**

The past, present, and RFFAs having the greatest impact on water and other related resources within Death Valley National Park would be the recreational use of Goler Wash Road and visitors to the springs. Cumulative impacts to water and other related resources within Death Valley National Park resulting from the Proposed Action would be minimal.



## **5. Persons, Groups, and Agencies Consulted**

Persons consulted in the preparation of this EA are listed in the following chapters. Persons involved in determining the inclusion or exclusion of each resource are listed in Appendix A.

### **5.1. BLM Personnel**

Randall Porter – Geologist and Project Lead

Martha Dickes – Wilderness Specialist

Donald Storm – Cultural Specialist

Alexander Neibergs – Fuels and Fire Management

Craig Beck – Recreation Specialist

Caroline Woods – Wildlife Biologist

Loren Dunham – Field Technician

### **5.2. NPS Personnel**

Julia Brunner – Regulatory Specialist

Josh Hoines – Resource Division Chief

Johnathan Penman-Brotzman – Compliance Program Manager

### **5.3. Third Party Preparers, SRK Consultant (U.S.), Inc.**

Carrie Schultz – Senior Environmental Scientist

Brett Bingham – GIS Specialist

Val Sawyer – Principal Environmental Scientist

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## **Figure 1: Project Location**

## Figure 2: Land Status

## **Figure 3: Keystone Mine Maintenance Road Development**

## **Figure 4: Sourdough Millsite Claims**

## **Figure 5: Proposed Action**

## Figure 6: Pipeline



## **Figure 7: Riparian Vegetation**

## **Figure 8: Cumulative Effects Study Area**

## **Appendix A: Interdisciplinary Team Checklist**

## **Appendix B: Drill Pad Photographs**

## **Appendix C: Site Photographs**

## **Appendix D: Drill Rig Photographs**