



DESERT TORTOISE COUNCIL

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May 31, 2026

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County of San Bernardino, Land Use Services Department, Planning Division

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RE: Castle Mountain Mine Phase II Expansion Project – Draft Environmental Impact Report

Dear Mr. Newland,

The Desert Tortoise Council (Council) is a non-profit organization comprising hundreds of professionals and laypersons who share a common concern for wild desert tortoises and a commitment to advancing the public’s understanding of desert tortoise species. Established in 1975 to promote conservation of tortoises in the deserts of the southwestern United States and northern Mexico, the Council routinely provides information and other forms of assistance to individuals, organizations, and regulatory agencies on matters potentially affecting desert tortoises within their geographic ranges.

Both our physical and email addresses are provided above in our letterhead for your use when providing future correspondence to us. When given a choice, we prefer to receive emails for future correspondence, as mail delivered via the U.S. Postal Service may take several days to be delivered. Email is an “environmentally friendlier way” of receiving correspondence and documents rather than “snail mail.”

We appreciate this opportunity to provide comments on the above-referenced project. Given the location of the proposed project in habitats potentially occupied by the Mojave desert tortoise (*Gopherus agassizii*) (synonymous with Agassiz’s desert tortoise), our comments include recommendations intended to enhance protection of this species and its habitat during activities that may be authorized by the Bureau of Land Management (BLM), which we recommend be added to project terms and conditions in the authorizing documents [e.g., issuance of right-of-way (ROW) grants, management plan and decision document, etc.] as appropriate. Please accept, carefully review, and include in the relevant project file the Council’s following comments and attachments for the proposed action.

The Mojave desert tortoise is among the top 50 species on the list of the world’s most endangered tortoises and freshwater turtles. The International Union for Conservation of Nature’s (IUCN) Species Survival Commission, Tortoise and Freshwater Turtle Specialist Group, now considers the Mojave desert tortoise to be Critically Endangered (Berry et al. 2021), “... based on population reduction (decreasing density), habitat loss of over 80% over three generations (90 years), including past reductions and predicted future declines, as well as the effects of disease (upper respiratory tract disease/mycoplasmosis). *Gopherus agassizii* (sensu stricto) comprises tortoises in the most well-studied 30% of the larger range; this portion of the original range has seen the most human impacts and is where the largest past population losses have been documented. A recent rigorous rangewide population reassessment of *G. agassizii* (sensu stricto) has demonstrated continued adult population and density declines of about 90% over three generations (two in the past and one ongoing) in four of the five *G. agassizii* recovery units and inadequate recruitment with decreasing percentages of juveniles in all five recovery units.”

This status, in part, prompted the Council to join Defenders of Wildlife and the Desert Tortoise Preserve Committee (DTPC) to petition the California Fish and Game Commission (Commission) in March 2020 to elevate the listing of the Mojave desert tortoise from Threatened to Endangered under the California Endangered Species Act (CESA) (Defenders of Wildlife et al. 2020). Importantly, following California Department of Fish and Wildlife’s (CDFW) (2024a) status review, in their April 2024 meeting the California Fish and Game Commission voted unanimously to accept the CDFW’s petition evaluation and recommendation to uplist the tortoise from threatened to endangered under the CESA based on the scientific data provided on the species’ status, declining trend, numerous threats, and lack of effective recovery implementation and land management (CDFW 2024b). On July 15, 2025, the tortoise was officially uplisted to endangered status under the CESA (Commission 2025).

Description of the Proposed Action

Castle Mountain Ventures (CMV or Applicant) initiated operation at Castle Mountain Mine (Mine) in June 1991 to extract gold and silver. The Applicant proposes to expand mining operations on public land. The Applicant would extend the life of activities at the Mine by approximately 30 years to 2060, with 20 years of mining and processing, and 10 years of reclamation.

Three alternatives were evaluated in the Castle Mountain Mine Phase II Expansion Project Draft Environmental Impact Report (DEIR) in addition to the No Project Alternative. These four alternatives are:

- **Alternative A: No Project Alternative** – Current mining operations would continue. The major components at the Mine site include mine pits, overburden (waste rock) sites, crushing plants, overland conveyor systems, heap leach pads and the comminution plant, solution storage tanks, and the processing plant. Current mining is authorized for up to 22 million tons of material (ore + waste rock) per year. This includes approximately 6 million tons of ore and 16 million tons of overburden (waste rock). The Mine Plan’s annual average mining rate will increase by approximately 58 million tons, including 13 million tons of ore, and 45 million tons of overburden.

- **Alternative B: Proposed Project** – The Applicant would expand the active open-pit gold mine in California, construct a new 0.7 mile administrative access road to avoid National Park Service (NPS) jurisdiction and remain on BLM-managed lands (Figure 1), and following the access road, construct an approximately 16.5-mile-long underground water pipeline from Nipton, CA and a 9-mile-long 69-kilovolt (kV) overhead power line from Walking Box Ranch (Figure 2). Mining activity would quadruple the current annual mining rate from 22 million to 80 million tons, increase the crushing rate from 6 million to 19 million tons per year, increase overburden stockpiling by an additional 196 million tons, increase groundwater use from 625 to 2,250 acre-feet per year (AFY), expand and deepen open pits to more than 400 feet below the water table, create an open-pit lake that would remain a permanent land feature, and require up to 25 megawatts of power. Total direct land disturbance would increase by 1,854-acres.
- **Alternative C: Backfilling to Avoid Surface Expression of South Pit Lake** – This alternative is the same as Alternative B except the Applicant would partially backfill the South Extension Pit following completion of ore extraction, with the objective of reducing or eliminating the formation of a residual surface pit lake. The pit floor would be raised from an approximate pre-backfill elevation of 3,120 feet amsl to approximately 3,480 feet amsl by placing approximately 17 million tons of non-ore-waste rock previously generated at the Mine.
- **Alternative D: Solar Facility for Supplementation** – This alternative is the same as Alternative B except the Applicant would install a small on-site solar power facility to supplement energy needs for Mine operations. The solar facility would be located within the Mine site in an area burned in 2023 in the New York Fire.

The proposed Project is located on BLM-managed lands in Clark County, Nevada and San Bernardino County, California. The Project site is approximately 100 miles east of Barstow, California, 60 miles south of Las Vegas, Nevada, and about 17 miles southwest of the town of Searchlight, Nevada. The Mine occupies private land owned by CMV and unpatented mining claims on BLM-managed land (Mine Project Area) (Figure 2) and the ROWs cross BLM-managed lands in California and Nevada (ROW Project Area) including Avi Kwa Ame National Monument in Nevada. The Mine Plan of Operations Boundary area is surrounded by the Castle Mountain National Monument in California that is managed by the National Park Service, and the analysis area for the proposed utilities overlaps 118 acres of designated critical habitat for the tortoise.

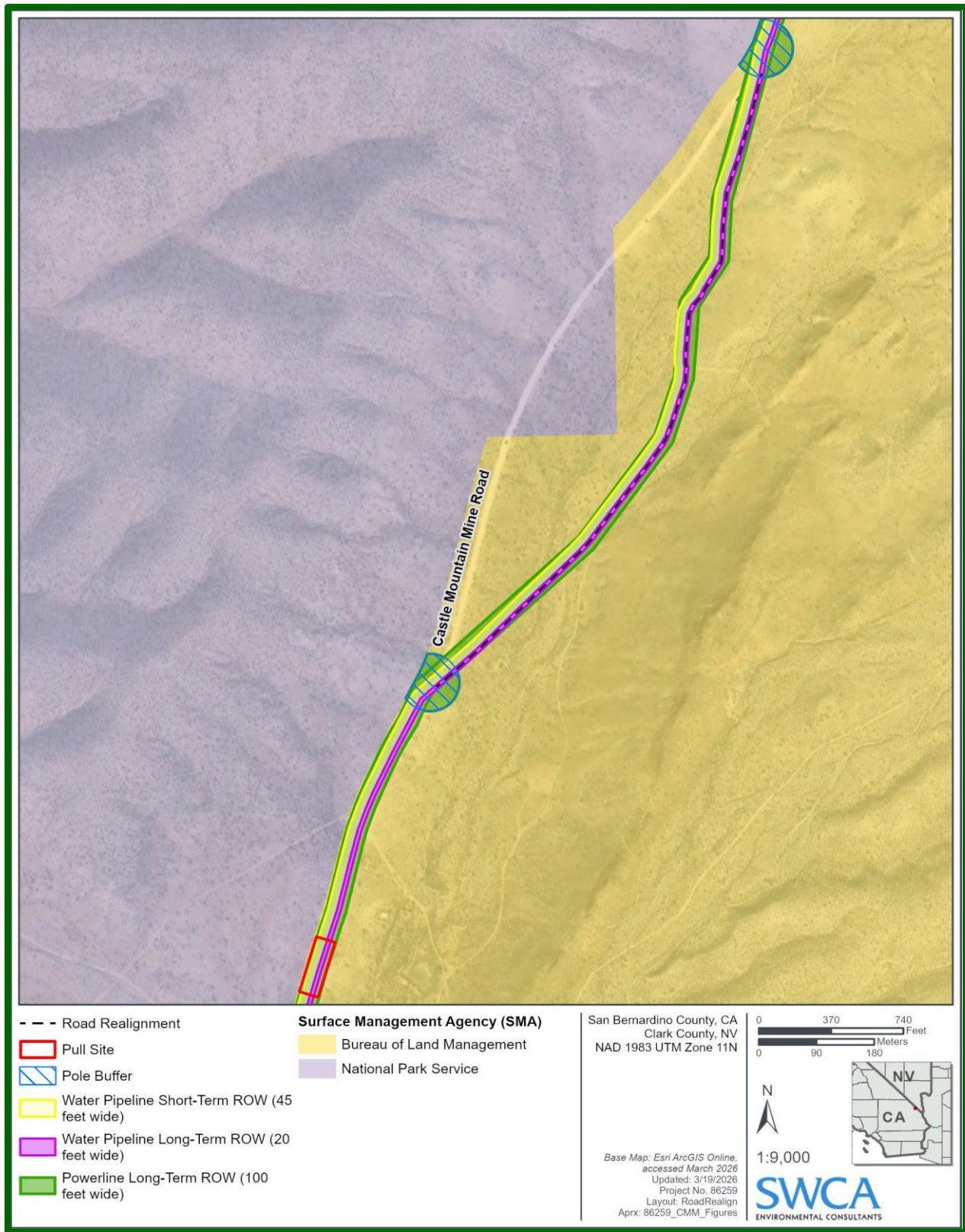


Figure 1. Proposed location of access road to avoid Mojave National Preserve, San Bernardino County, CA.

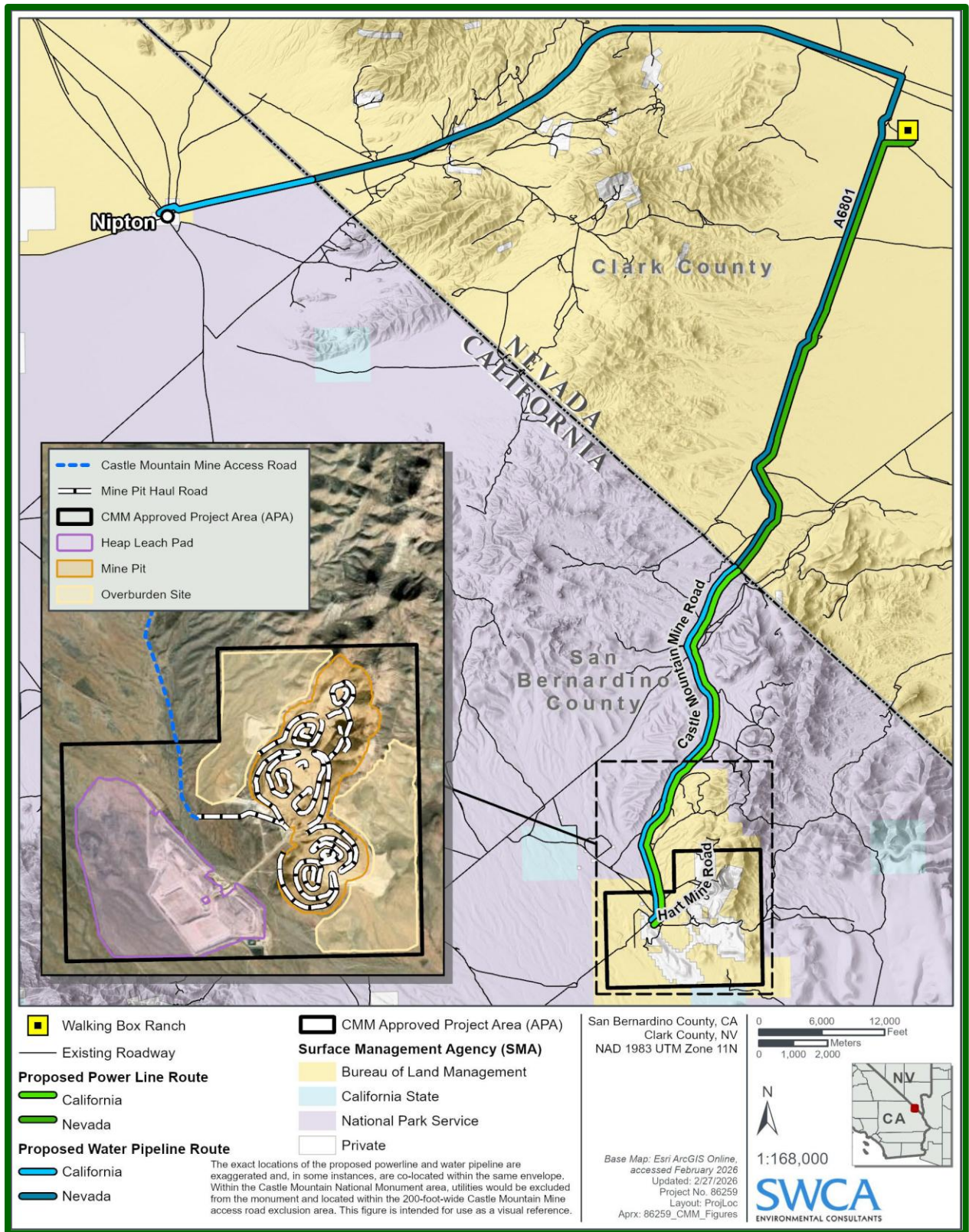


Figure 2. Map of Castle Mountain Mine site and access road with proposed pipeline from Nipton, CA and powerline from Walking Box Ranch.

Comments on the Draft Environmental Impact Report

We appreciate that the Council received notification from San Bernardino County Planning Department (County) about the availability of the DEIR for public review and comment on April 22, 2026.

In our policy documents, the Council's objectives include (1) gathering and disseminating scientific information on desert tortoises and their habitats, (2) advocating for science-based management for the tortoise, (3) bringing the best available science into the agency decision-making process, and (4) providing comments to decision makers and project proponents based on scientifically sound, comprehensive, and up-to-date information on desert tortoises, their habitats, and other issues associated with conservation and management of desert ecosystems.

Comments from the Council on proposed projects would help the County to stay current with the scientific findings on the tortoise/tortoise habitat. The County would use the Council's comments and provided information to describe and actually analyze in its California Environmental Quality Act (CEQA) documents the impacts of a proposed action/proposed project to the tortoise/tortoise habitat especially with respect to its survival and recovery, and to identify and implement effective management actions to comply with Section 7(a)(1) of the Federal Endangered Species Act (FESA) and Section 2081 of the California Endangered Species Act (CESA).

Identification of Alternatives to the Applicant's Proposed Project

It is essential that the County examine alternatives that use "state of the art" methods to minimize impacts to the environment. These alternatives include avoiding the use of toxic or hazardous materials in the mining and processing of ore whenever possible and using onsite facilities/areas to host solar energy production. In the DEIR there is an alternative that considers using solar energy production as a source of power for the Mine. We thank the County for including and analyzing this alternative in the DEIR. However, we were unable to find an alternative that was analyzed or considered but not analyzed in detail that avoided the use of toxic or hazardous material in the mining and processing of ore whenever possible. In our scoping comments to the BLM, which are attached, we asked that such an alternative be considered, which it was not. More reasons for our recommendation to develop this alternative are included on page 15 of our scoping comment letter to the BLM.

Consequently, since the BLM has failed to do so, we request that in the final environmental impact report (FEIR) the County address the Council's substantive comment about analyzing an alternative that avoids the use of toxic or hazardous materials in the mining and processing of ore whenever possible.

All pipes and similar materials that could be used as shelter by tortoises should be covered or capped in storage or laydown areas to prevent entrapping tortoises, including when placed in trenches. In addition, auger holes, trenches, pits and other steep-sided excavations may entrap tortoise and other wildlife species. These construction and maintenance features should either be constructed with escape ramps (earthen or wooden) with a slope that is easily accessible by a tortoise or securely covered when unattended to prevent entrapping animals. They should be inspected twice a day for trapped wildlife and, if found, the wildlife should be safely removed and

released away from the work area in habitat for the species. In addition, we were unable to find a description of the environmental conditions (e.g., ambient temperature, etc.) under which tortoises would be moved from the ROW and released or the monitoring of the tortoises that would occur after they are moved and released.

Because tortoises have a strong homing ability (Berry 1986) and site and burrow fidelity (UDWR 2024), we expect that moving them during the active season would result in them returning to/near their previous location, which may occur during Project construction. For example, if moved during the cooler inactive season, the Applicant should be required to place each tortoise in a suitable burrow and monitor it for a specified duration to ensure that each tortoise has accepted its new burrow and will remain there. A similar requirement should be made during the inactive hot season with the additional requirement of hydrating tortoises before being released. Please add this requirement to the FEIR, the decision document, and authorizations for the Project.

The USFWS has documented substantial declines in tortoise abundance and density since 2004, especially in California (USFWS 2015, 2016, 2018, 2019, 2020, 2022a, 2022b, 2025). The primary reason for the substantial decline in tortoise abundance, density, and recruitment has been from increased mortality caused by indirect impacts from human activities. These include human activities that result in the degradation and/or fragmentation of tortoise habitat (USFWS 2011); surface disturbance and proliferation of non-native invasive plant species (Brooks and Berry 2006) via construction equipment, vehicles, and other sources; replacement of native forbs with high nutritional and water value with low nutritional non-native invasive grasses (Drake et al. 2016); increased occurrence of size, intensity, and frequency of human-caused wildfires from fuels provided by non-native invasive plant species (Brooks and Esque 2002); increased predation from substantially increased numbers of coyotes that utilize human subsidies of food and water (Richter et al. 2024) and ravens that utilize human subsidies of food, water, roosting, perching, and nesting locations (Boarman 2003); and increased human access that provides opportunities for vandalism and collecting tortoises for pets (Lovich and Bainbridge 1998, Berry et al. 2020). Major sources of surface disturbance include residential, commercial, and industrial development projects and associated roads/highways (such as the proposed Project); military training; and off-highway vehicle use (USFWS 2011, Tuma et al. 2016).

We request that the DEIR be amended to fully analyze environmental effects in the FEIR for all actions associated with the Project, especially for the tortoise and other listed and special status species and their habitats. This analysis would mean that buffer areas from the location of direct impacts would need to be sufficiently large to include the area of indirect impacts as well as synergistic, interactive, and cumulative impacts. We note that although buffer areas are identified for nesting birds (see page 4.4-72 of the DEIR), kit foxes (page 4.4-70), and burrowing owls (page 4.4-71), none are identified for desert tortoises, even though a 500-foot buffer area was identified by the BLM in its DEIS.

Mine reclamation is defined as “the process of modifying land that has been mined to restore it to an ecologically functional or economically usable state.” Abella (2010) reported that the regeneration times for native vegetation for cover takes on average 76 years while return to species composition is an estimated 215 years. We expect that this time would be reduced because of activities conducted by the Applicant to assist the reclamation and vegetation restoration efforts.

However, the 10-year period that the County gives for monitoring reclamation (see page 4.11-10, 4.14-20, 4.16-8, etc. in the DEIR) is unsupported by references from the scientific literature given in the DEIR. The reclamation period for vegetation would be much longer with the Applicant implementing the vegetation methods the Applicant described in the DEIR. We conclude that the County (which probably adopted the BLM's proposed methods) arbitrarily endorsed this reclamation time period and request that the County, assuming it adopts BLM's recommendations, provide documentation from the scientific literature regarding the reclamation and monitoring times needed to ensure that native plants species cover, density, and composition are restored to prevent unnecessary or undue degradation of the lands.

In the DEIR, we found a brief description for naming of likely impacts with stated assumptions about the analysis method for which we found no scientific references to support these assumptions that impacts would be limited to a 50-foot buffer to the water pipeline and powerline. Why was a 50-foot buffer assumed to encompass all areas that may be impacted? Why not a 25-foot or 100-foot buffer? The designation of a 50-foot buffer appears to be arbitrary and not supported by scientific literature. The absence of information to demonstrate that science was used in determining the types and extent of impacts to vegetation is problematic.

The DEIR indicates that dust control plans, revegetation, and soil compaction would be implemented to prevent fugitive dust emissions, but does not otherwise analyze the impacts of dust on healthy vegetation communities. We found no citations from the scientific literature to support the statement that these listed impacts would likely occur. The listing of impacts does not say whether the alterations or impacts would be adverse or beneficial. We found no actual analysis of the deposition of anthropogenic dust on native vegetation, its aerial extent under past mining operations, or its likely aerial extent in the future under expanded mining operations. Also, we did not find that the analysis of effects "connected the dots" between the stressor (dust) generated by mining activity and the resulting effects to native vegetation.

Once disturbed (by human activities such as mining), soils in the Mojave Desert are easily eroded by wind and water (Army 2006) with wind erosion producing airborne dust. Eller (1977), Thompson et al. (1984), Sharifi et al. (1997), and Farmer (1993) have indicated that varying amounts of dust settling on vegetation can block stomata, increase leaf temperature, and reduce photosynthesis thereby adversely affecting transpiration and growth of native desert plants. Airborne dust generated by vehicles buried soil crusts, resulting in the death of their photosynthetic organisms (e.g., cyanobacteria and green algae) (Belnap et al. 2001), and wind generates dust that can cover or abrade annual vegetation or seedlings. Dust deposition may reduce shoot length, increase water stress, and reduce or eliminate reproductive output for established plants (Wijayratne et al. 2005).

The extent of this damage and loss of plants depends on the amount of dust produced, duration of production, and distance traveled. Distance traveled is related to the size of the dust particle and wind velocity. Large dust particles settle out near the source, whereas considerable amounts of fine particles also are emitted and dispersed over much greater distances from the source. Particulate matter 10 µm, or PM-10, represents a relatively fine particle size range and, as such, is not overly susceptible to gravitational settling¹.

¹ <http://www.epa.gov/ttnchie1/ap42/ch13/final/c13s02.pdf>

Under a typical wind speed of 10 mph, larger dust particles that are 30 to 100 µm (PM-30 to PM-100) in diameter are likely to settle within a few hundred feet from the source. Smaller particles, (e.g., PM-10) have much slower gravitational settling velocities and are much more likely to have their settling rate reduced by atmospheric turbulence². Thus, they may be transported greater than a few hundred feet from the source under a typical wind speed of 10 mph. Greater wind speeds would transport these dust particles farther. Thus, a 50-foot buffer surrounding the Project Area that encompasses all areas that may be impacted is not sufficient to capture the distance that larger dust particles or fine dust particles produced during mining operations; construction of the powerline, pipeline, and road; and use of the road would be transported before settling on vegetation and adversely affecting their respiration, growth, reproduction, and survival.

These are the impacts to vegetation and the area they would cover that would occur unless all the anthropogenic dust from the Mine construction, operations, and vehicle use associated with the Mine and access roads is halted at its source. Please expand the 50-foot buffer area surrounding the Project Area for vegetation impacts because it is unlikely that it encompasses all areas of vegetation that may be impacted by the activities associated with the Mine.

The DEIR fails to analyze what the impacts of this “lost” vegetation would be from an additional 20 years of expanded operations at the Mine, which would generate more anthropogenic dust than in the past. These impacts and the resulting effects on the wildlife including the tortoise that depend on vegetation for food and cover from predators and thermal extremes should be analyzed in the FEIR. The impacts to critical habitat for the tortoise from dust deposition should also be analyzed in the Final EIR.

In its DEIS, the BLM recommends reducing impacts related to loss of vegetation communities by minimizing impacts related to fugitive dust and erosion and sediment, maintaining native seedbank through topsoil salvage, reintroducing native plant species through reseeding and revegetation (plant salvage), and reducing introduction and spread of nonnative plant materials by pressure washing vehicles before and after site visits, conducting vehicle/equipment checks, using certified weed-free products, and conducting annual monitoring. On page 2-12 of the DEIR, the County says that the Applicant will implement, “...backfilling with restoration of topsoil and vegetation *in accordance with BLM requirements* [emphasis added].”

We found no references from the scientific literature in the BLM’s DEIS (and by association, the County’s DEIR) that support this statement. In other words, the County is adopting BLM restoration procedures that are not supported by the scientific literature. The Council maintains that the methods identified in the DEIS for reintroducing native perennial plant species would not likely be effective according to past experiments and information in the scientific literature. Our statement appears to be supported by the apparent low density and species richness (diversity) of native perennial plants that are expected after 5 and 10 years of reclamation activities using seeding and salvaging/transplanting cacti and succulents (Table 9 in the DEIS, Success Criteria, Castle Mountain Venture Ivanpah Underground Water and 69 kv Overhead Power Line Rights-Of-Way Project Clark County, Nevada and San Bernardino County, California Plan Of Development 2025).

² <http://www.epa.gov/ttnchie1/ap42/ch13/final/c13s02.pdf>

To improve the success of revegetation efforts, we recommend using the latest information from the scientific literature regarding methods to restore soil crusts (e.g., Chiquoine et al. 2016) and arbuscular mycorrhizal fungi (AMF) (Titus et al. 2002, Clark et al. 2009, Hernandez et al. 2023, Chavez-Gonzalez 2024), seed banks (DeFalco et al. 2012, Lee et al. 2024), and seeding and outplantings (Abella et al. 2012, Abella and Berry 2016, Abella et al. 2023). For example, Abella and Berry (2016) reported that because of cost and logistical challenges, outplanting (planting nursery-grown perennials) can be criticized for being unable to cover as much area as seeding. However, no matter how large an area is seeded, “the area revegetated is still zero if no seeded species become established, a situation not uncommon.” They identified outplanting as the preferred method for success and three primary best practices that are well supported in the scientific literature for increasing success of outplanting: carefully select species, use good planting stock, and perform effective plant care.

DeFalco et al. (2012) reported on why supplementing impoverished seed banks and improving the seedbed (i.e., seeding) frequently fail as revegetation efforts.

Chiquoine et al. (2016) reported that soil crusts are significant in contributing to soil surface stability (Belnap and Gillette 1998, Chaudhary et al. 2009), carbon cycling and sequestration (Elbert et al. 2012, Cantón et al. 2014), nitrogen cycling (Belnap 2002, Castillo-Monroy et al. 2010), surface hydrology (Warren 2003, Belnap 2006), ecosystem resilience (Kuske et al. 2012), and ecological restoration (Bowker 2007).

Hernandez et al. (2023) reported that some Mojave-native perennial and annual plant species have been identified to form relationships with important soil biota, such as arbuscular mycorrhizal fungi (AMF). Ecological restoration may be facilitated by utilizing cost-effective inoculants of indigenous soil biota and evaluating not only above ground factors, but potential interactions in the rhizosphere of the soil. Soil crusts and AMF should be restored/inoculated before revegetating areas in the Mojave Desert with native perennial species using outplantings rather than reseeding. Thus, there is a symbiotic relationship between the biota in desert soils and vegetation that promotes the survival and growth of native vegetation. If the County desires to have a high level of success in rehabilitating the Mine site, it should require that soil crusts and AMF be restored/inoculated before revegetating areas in the Mojave Desert with native perennial species using outplantings rather than reseeding.

The action alternatives include the construction of a new segment of road. With respect to the impacts to vegetation, this results in the long-term loss of vegetation. Once a road is constructed it collects water during precipitation events and deposits it off the shoulder of the road. This increased amount of water promotes the growth of non-native invasive plant species near the roadway for its entire length. These non-native invasive plants outcompete native plants, provide a fuel source for fire, and provide a recurring seed source of non-native seeds for the seed bank near the road. Vehicles using the road provide a nitrogen source that promotes the growth of non-native invasive plants. Thus, the construction of a road and its use establish a long-term cycle that promotes the growth of non-native invasive annual vegetation along the road that eventually spreads away from the road.

Devitt et al. (2022) found that a simple service road built over 27 years before a solar facility was constructed, decoupled the flow of water from up gradient washes to down gradient washes and once decoupled, altered the area in which rain water harvesting occurred. The decoupling of the wash system led to a significant decline in soil moisture, canopy level NDVI (Normalized Difference Vegetation Index) values and mid-day leaf xylem water potentials. Plants within the first 300 meters from where the wash was decoupled were placed under significantly greater stress during the higher environmental demand summer months (Devitt et al. 2022). Schwinning et al. (2011) argued that the overall health of desert ecosystems is directly linked to the integrity of their surfaces and such drainage systems.

The construction and maintenance of roads usually focuses on maintaining the integrity of the road and preventing water damage in the most cost effective manner. The focus does not include ensuring that most or all downgradient vegetation continues to receive the pre-project flow of water thus ensuring that soil moisture is adequate for continued plant survival and seed germination. This alteration by construction and/or maintenance of a long linear barrier that allows the passage of surface flows at a few discrete downgradient locations would have a substantial impact to much of the vegetation located on the downgradient side of the road and in tortoise habitat/critical habitat. The alteration of surface flow and the resulting impacts to soil moisture and vegetation should be described and analyzed with respect to their effects on tortoise habitat to provide for the survival of the tortoise in the Ivanpah Valley Tortoise Conservation Area (TCA), El Dorado Valley TCA, the Eastern Mojave Recovery Unit, and designated critical habitat. The impacts to critical habitat from non-native invasive plant species should be analyzed in the FEIR.

Page 4.4-75 of the DEIR indicates, “Weed containment and control measures such as the removal of invasive species primarily via mechanical means, with the use of herbicides [will be] restricted to BLM-policies and approved usage.”

The County should revise this statement to include new technologies (e.g., directed energy) that have been developed and are used on ROWs in other parts of the country or may be developed in the future. Using directed energy has several advantages over using herbicides including targeting only the plants it is pointed at (e.g., no herbicide drift to downwind locations), no requirement to use a licensed applicator, no chemical half-life or breakdown concerns, and no concerns about acute or chronic impacts (i.e., mortality or disease) to animal species. We recommend modifying the wording in the FEIR to include the use of other effective methods such as directed energy to control invasive plants and noxious weeds.

The County should add to the FEIR that any herbicides identified by BLM or the Applicant for use under any of the alternatives should first be coordinated with USFWS to determine whether the U.S. Environmental Protection Agency (USEPA) completed Section 7 consultation under FESA before licensing the use of that herbicide. For many licensed herbicides, USEPA has not completed Section 7 consultation for this licensing. In addition, CDFW should also be contacted because of similar impacts under CESA.

Page 2-2 of the DEIR states the Project Area, “...includes the Mine Area, the mine access road, the proposed underground water pipeline and overhead electrical powerline, and a 50-foot buffer surrounding the water pipeline and powerline, encompasses approximately 4,285 acres.” The Council supports an analysis area that accounts for the unique movement patterns and habitat requirements by species. The life history strategy of each species to survive, grow, and reproduce varies so the analysis area should vary.

The Council strongly disagrees with the analysis area used in the DEIR for the tortoise because it does not reflect the movement patterns and habitat requirements of the tortoise during its lifetime or the life of the proposed Project. Regarding movement patterns, the lifetime home range for the Mojave desert tortoise is more than 1.5 square miles (3.9 square kilometers) of habitat (Berry 1986) and tortoises may make periodic forays of more than 7 miles (11 kilometers) at a time (Berry 1986).

These movements are much greater than the 500-foot buffer beyond the disturbance footprint identified by BLM and the 50-foot buffer identified by the County for the Project Area. Again, we are unsure how BLM determined that a 500-foot buffer would be appropriate for the tortoise, much less the 50-foot buffer identified by the County. No references from the scientific literature were provided to support these buffers as appropriate to determine impacts to the tortoise, its movement, and habitat requirements. Were USFWS biologists consulted to determine if this is an appropriate action area for impacts to tortoises? If not, we suggest that the FEIR document the USFWS-recommended buffer area for tortoises.

Any development in tortoise habitat has an edge effect (i.e., indirect impact) that extends from all sides into the tortoise's habitat further narrowing or impeding the use of this habitat, depending on the extent of the edge effect (Averill-Murray et al. 2021). One example of edge effect with an impact that extends far beyond the footprint of the surface disturbance is the construction and use of a road. Several scientific studies have been conducted on how roads and road use affect tortoises abundance and behavior. These effects are negative and documented to extend farther than the 500-foot buffer used by BLM and the 50-foot buffer used by the County.

The DEIR is negligent in assessing impacts to tortoises. On page 4.4-58, there is one paragraph describing direct impacts and one paragraph describing indirect impacts. We did not find an actual analysis of how these impacts would affect the survival and recovery of the tortoise in the Ivanpah Valley Tortoise Conservation Area (TCA), El Dorado Valley TCA, the Eastern Mojave Recovery Unit, or rangewide. For example, had the County conducted an actual analysis of the impacts from the proposed Project on the survival and recovery of the tortoise, it should have included as part of the analysis the following information:

- The Eastern Mojave Recovery Unit had a 67 percent decline in tortoise density from 2004 to 2014 (Allison and McLuckie 2018).
- Tortoise populations in both TCAs in this recovery unit have densities that are below viability (USFWS 1994).
- The population in the Ivanpah Valley TCA experienced declines in densities of 56% from 2004 to 2014 with further declines documented in 2021 (Allison and McLuckie 2018, USFWS 2022b).
- The population in the El Dorado Valley TCA experienced declines in densities of 61% from 2004 to 2014.
- The Eastern Mojave Recovery Unit had a decline in abundance of adult tortoises of 67% between 2004 and 2014 (Allison and McLuckie 2018).

This is the baseline information for the demographic status of the tortoise (see trend data in Appendix A). In the FEIR, the County should identify the types and extent of impacts to the tortoise from the proposed Project with the available information on tortoise demographics including population trends for the Ivanpah Valley TCA, El Dorado Valley TCA, Eastern Mojave Recovery Unit, and rangewide. An analysis of the impacts to the TCA, recovery unit, and rangewide are needed because of the criteria identified by the USFWS for survival and recovery of the tortoise.

In our November 19, 2025 letter to the BLM, which is attached and incorporated by reference, the Council identified the following impacts to the tortoise/tortoise habitat from implementation of the proposed Project:

- Surface water quality, soils, and vegetation located down-gradient and down-wind from the Mine from the transport of toxic elements and compounds via wind and precipitation that are released during mining activities;
- new subsidies for tortoise predators;
- ingestion (geophagy and lithophagy), inhalation, surface contact, and foraging on plants contaminated from increased releases of heavy metals (e.g., arsenic, gold, cadmium, mercury, antimony, and tungsten) and REE into the environment from mining activities where plants and animals including the tortoise would be exposed to them, ingest them, and be harmed by them;
- increased traffic on roads to and in the project area expanding the “road effect zone” and associated mortality, and adverse effects to tortoise behavior and physiology (Harju et al. 2024, Hromada et al. 2020, Hromada et al. 2023, Peaden et al. 2017);
- impacts from blasting, noise, and vibrations;
- increased opportunities for unauthorized collection for pets and vandalism;
- increased predation from new human subsidies of food, water, garbage, and nest sites (Boarman 2003);
- surface disturbance and introduction/proliferation of non-native invasive plant species via construction equipment, vehicles, and other sources;
- increased competition of non-native plant species with native plants species;
- replacement of native forbs that contain high nutritional and water values needed by hatchling, juvenile, and adult tortoises for survival, reproduction, and growth with non-native invasive grasses that contain low nutritional and low water values (Drake et al. 2016); and
- increased occurrence of size, intensity, and frequency of human-caused and lightning-caused wildfires from fuels provided by non-native invasive plant species (Brooks and Esque 2002).

We request that in the FEIR the County analyze these impacts to the tortoise regarding how they affect their survival and recovery given the demographic status and trend of the tortoise. Herein we provide information and references from the scientific literature that identify these impacts to the tortoise and tortoise habitat from research conducted and published in the scientific literature. We request that the County analyze these impacts to the tortoise, tortoise habitat and other special status species and their habitats, and how the County proposes to mitigate these impacts to comply with pertinent laws.

We remind the County that when USFWS issues a biological opinion, the reasonable and prudent measures and terms and conditions to minimize the impacts of the taking in the biological opinion are not discretionary. Implementation is not discretionary. BLM (and by association, the County) is required to include them in the document authorizing the expanded mining activities and for the Applicant to receive coverage for incidental take.

Although MM-BI-1.28 on page 4.4-72 identifies a few measures to minimize attraction of the Mine site to common ravens, the DEIR does not indicate that the Applicant would contribute to the National Fish and Wildlife Foundation's Raven Management Fund (Fund) for regional and cumulative impacts, at least for the California portion of the powerline. This has been a standard mitigation measure for projects in tortoise habitat in California. The Fund amount to be contributed should be determined following the formula in USFWS (2010) with the addition of the annual inflation rate that has occurred for each of the 17 years since the formula and Fund were implemented.

Although the following statement is given on page 4.9-11 of the DEIR, "The County proactively mitigates or reduces the negative effects of fire, hazardous materials release, and structural collapse by implementing the California Fire Code, adopted with County amendments," we found no wording that would obligate the Applicant to restore any damage to ecological functions and values destroyed/damaged by a fire that started at the Mine site or along access roads used by Mine vehicles or equipment that were the source of the fire.

We found no measures that would prevent fires from occurring along the access routes. We remind the County that the ignition sources for most fires in the Mojave Desert are associated with vehicles along roads (Brooks and Matchett 2006). Consequently, all fire prevention and control measures that the Applicant must implement should include the access roads and the Applicant's/contractors' use of these roads.

Goal NR-1 described on pages 4.11-9 and 4.11-10 would be implemented because of human health concerns. We found no monitoring requirement for adverse impacts of dust deposition on native vegetation. This is important because dust deposition from anthropogenic sources has been documented to reduce growth and reproduction in plants and cause plant death.

We request that monitoring of particulates in the air and on plants occur offsite, especially in areas that are typically down-wind from the Mine, to determine the extent of dust deposition on native vegetation. If monitoring results indicate an adverse impact to vegetation, the Applicant should be required to implement adaptive management to ensure that dust leaving the Project site is not adversely affecting native vegetation. Monitoring fugitive dust leaving the Mine site, its adverse impacts on native vegetation, and implementing adaptive management to correct the adverse impacts by the Applicant is prudent.

MM-BI-1.19 on page 4.4-69 of the DEIR indicates that impacts would be compensated at the ratio of 1:1 for permanent impacts to approximately 1,559 acres of habitat for desert tortoise and 5:1 for approximately 118 acres of desert tortoise critical habitat. The text further states that compensation would either comprise these ratios or "...other USFWS-determined ratio." First, USFWS does not

require or govern compensation ratios for replacement habitat; CDFW is the regulatory agency that does require specified compensation ratios in its Section 2081 incidental take permits. That the Applicant proposes to mitigate at a ratio of only 1:1 suggests that CDFW was not consulted in this determination. In the past 10-or-so years, we are unaware of a compensation ratio of less than 3:1 when CDFW issues a Section 2081 for a project affecting tortoises.

We note that MM-BI-1.6 described on pages 4.4-63 and 4.4-64 of the DEIR reference a project-specific Section 2081 permit for the project. We ask that the County ensure that the compensation ratio given in that permit is the same as those stated above. We suspect that the ratio will be higher than 1:1 and the County should ensure that the higher of the two ratios is applied to this project.

On page 4.4-46, we note that APM-WILD-12 states, “Employees shall not bring domestic cats to the site. Dogs must be kept on a leash at all times.” Unless there is a human safety reason for allowing dogs on the Project site, dogs should not be allowed because of their predatory behavior/documented attacks on tortoises (Berry et al. 2013, Berry et al. 2014). Also as written, a dog can be on a leash but the leash is not held by a person, making the dog free-roaming. Please explain the need for a dog on the Project site and clarify that “on a leash” means physical restraint at all times, or prohibit dogs on the Project site, which reflects current management.

For the impacts of a road, the scientific literature indicates that the action area for a road depends on the amount of vehicle use. Von Seckendorff Hoff and Marlow (2002) reported a linear relationship between traffic level and tortoise reduction. For a lightly used road, the reduction in tortoises and sign was evident 1.1 to 1.4 km (3,620 to 4,608 feet = 0.68 to 0.87 mile) from the road. See also LaRue (1992). Nafus et al. (2013) reported that roads may decrease tortoise populations via several possible mechanisms, including cumulative mortality from vehicle collisions and reduced population growth rates from the loss of larger reproductive animals. Other documented impacts from road construction and use include increases in roadkill of other wildlife species that create or increase food subsidies for common ravens, and contribute to increases in raven numbers and predation pressure on the tortoise. Because the proposed project would result in a substantial increase in vehicle use to access the Mine and construct a new segment of access road, the action area would extend beyond the area impacted by current use.

Roads also affect tortoise behavior. Harju et al. (2024) reported that when females were nearer to a road, they were more likely to switch to and stay within a more energy demanding movement state. Further, when in this state, they moved even greater distances than when in the traveling state and far from the road. Thus, the presence of a road near a tortoise resulted in a greater expenditure of energy, which is not desirable in an arid environment where food and water to support increased energy demands are limited and this increased energy demand reduces the reproductive output and survival of female tortoises (Henen 2002).

We appreciate this opportunity to provide the above comments and trust they will help protect tortoises during any resulting authorized activities. Herein, we reiterate that the Council wants to be identified as an Affected Interest for this and all other projects funded, authorized, or carried out by the County that may affect desert tortoises, and that any subsequent environmental documentation for this project is provided to us at the contact information listed above.

Please respond in an email that you have received this comment letter so we can be sure our concerns have been registered with the appropriate personnel and office for this Project.

Respectfully,



Edward L. LaRue, Jr., M.S.
Desert Tortoise Council, Ecosystems Advisory Committee, Chairperson

Attachment: Castle Mountain Mine Phase II Expansion Project – Scoping (DOI-BLM-CA-D090-2025-0016-EIS) from the Desert Tortoise Council, November 19, 2025

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Attachment: Castle Mountain Mine Phase II Expansion Project – Scoping
(DOI-BLM-CA-D090-2025-0016-EIS)
Comment Letter from the Desert Tortoise Council, November 19, 2025



DESERT TORTOISE COUNCIL

3807 Sierra Highway #6-4514

Acton, CA 93510

www.deserttortoise.org

eac@deserttortoise.org

Via BLM NEPA ePlanning & email

November 19, 2025

Project Manager
Castle Mountain Mine Phase II Scoping
Bureau of Land Management Needles Field Office
1303 U.S. 95
Needles, CA 92363
rpettiette@blm.gov
cwoods@blm.gov

RE: Castle Mountain Mine Phase II Expansion Project – Scoping (DOI-BLM-CA-D090-2025-0016-EIS)

Dear Ms. Pettiette and Ms. Woods,

The Desert Tortoise Council (Council) is a non-profit organization comprising hundreds of professionals and laypersons who share a common concern for wild desert tortoises and a commitment to advancing the public’s understanding of desert tortoise species. Established in 1975 to promote conservation of tortoises in the deserts of the southwestern United States and northern Mexico, the Council routinely provides information and other forms of assistance to individuals, organizations, and regulatory agencies on matters potentially affecting desert tortoises within their geographic ranges.

Both our physical and email addresses are provided above in our letterhead for your use when providing future correspondence to us. When given a choice, we prefer to receive emails for future correspondence, as mail delivered via the U.S. Postal Service may take several days to be delivered. Email is an “environmentally friendlier way” of receiving correspondence and documents rather than “snail mail.”

We appreciate this opportunity to provide comments on the above-referenced project. Given the location of the proposed project in habitats potentially occupied by the Mojave desert tortoise (*Gopherus agassizii*) (synonymous with Agassiz’s desert tortoise), our comments include recommendations intended to enhance protection of this species and its habitat during activities

that may be authorized by the Bureau of Land Management (BLM), which we recommend be added to project terms and conditions in the authorizing documents [e.g., issuance of right-of-way (ROW) grants, decision document, etc.] as appropriate. Please accept, carefully review, and include in the relevant project file the Council's following comments and attachment for the proposed action.

The Mojave desert tortoise is among the top 50 species on the list of the world's most endangered tortoises and freshwater turtles. The International Union for Conservation of Nature's (IUCN) Species Survival Commission, Tortoise and Freshwater Turtle Specialist Group, now considers the Mojave desert tortoise to be Critically Endangered (Berry et al. 2021), "... based on population reduction (decreasing density), habitat loss of over 80% over three generations (90 years), including past reductions and predicted future declines, as well as the effects of disease (upper respiratory tract disease/mycoplasmosis). *Gopherus agassizii* (sensu stricto) comprises tortoises in the most well-studied 30% of the larger range; this portion of the original range has seen the most human impacts and is where the largest past population losses have been documented. A recent rigorous rangewide population reassessment of *G. agassizii* (sensu stricto) has demonstrated continued adult population and density declines of about 90% over three generations (two in the past and one ongoing) in four of the five *G. agassizii* recovery units and inadequate recruitment with decreasing percentages of juveniles in all five recovery units."

This status, in part, prompted the Council to join Defenders of Wildlife and the Desert Tortoise Preserve Committee (DTPC) to petition the California Fish and Game Commission (Commission) in March 2020 to elevate the listing of the Mojave desert tortoise from Threatened to Endangered under the California Endangered Species Act (CESA) (Defenders of Wildlife et al. 2020). Importantly, following California Department of Fish and Wildlife's (CDFW) (2024a) status review, in their April 2024 meeting the California Fish and Game Commission voted unanimously to accept the CDFW's petition evaluation and recommendation to uplist the tortoise from threatened to endangered under the CESA based on the scientific data provided on the species' status, declining trend, numerous threats, and lack of effective recovery implementation and land management (CDFW 2024b). On July 15, 2025, the tortoise was officially uplisted to endangered status under the CESA (Commission 2025).

Description of the Proposed Project

Castle Mountain Venture (CMV or Proponent) submitted an application (Plan Amendment Application) that was revised in 2025 seeking approval from the BLM and the San Bernardino County Land Use Services Department (County) to modify and expand current authorized activities (Phase II) at the Castle Mountain Mine (CMM or Mine) (Figure 1). The Mine initiated operation in June 1991 to extract gold and silver.

"Current mining is authorized for up to 22 million tons of material (ore + waste rock) per year. This includes approximately 6 million tons of ore and 16 million tons of overburden (waste rock). The Plan's annual average mining rate will increase by approximately 58 million tons, including 13 million tons of ore, and 45 million tons of overburden" (CMV 2025).

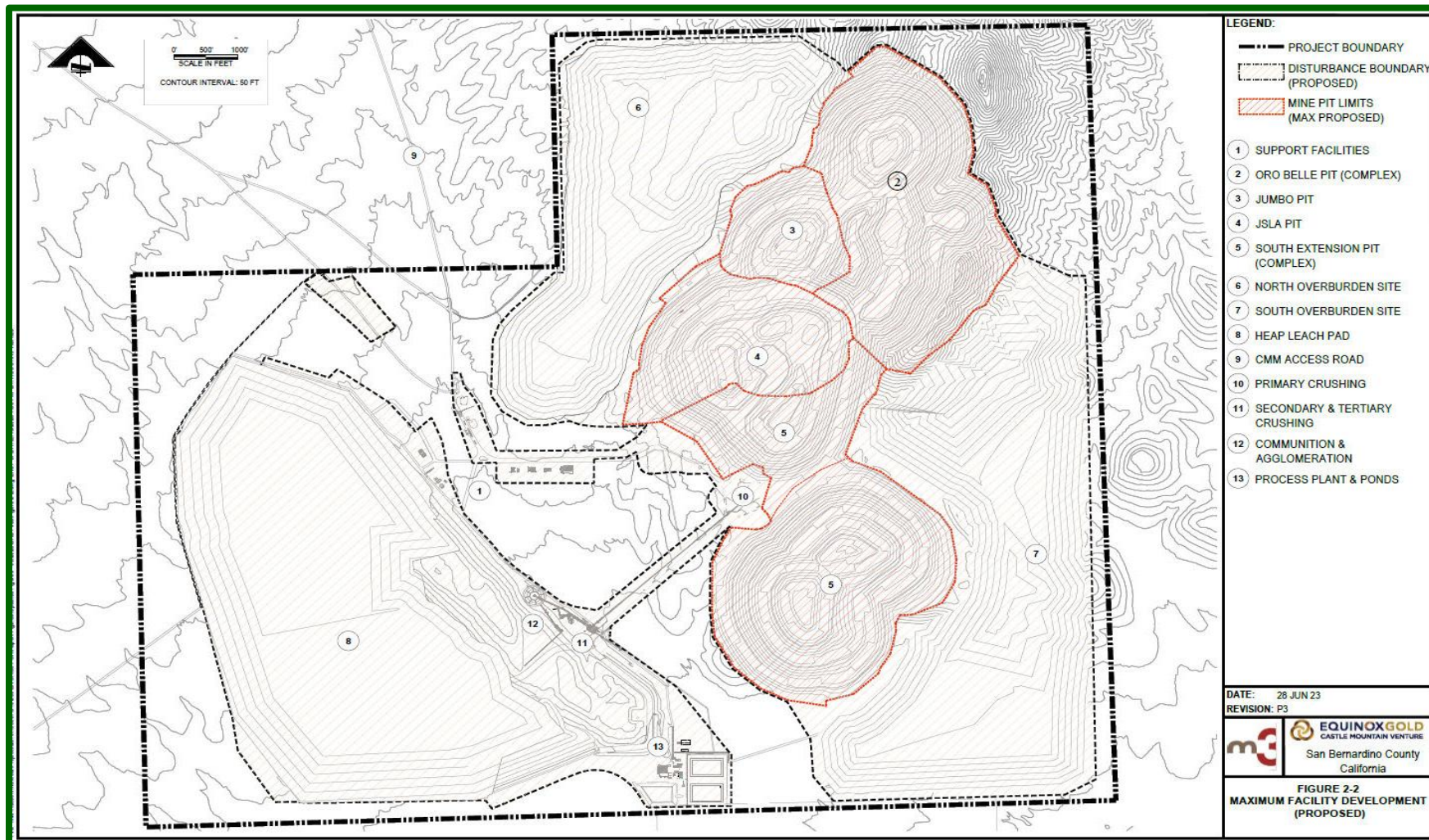


Figure 1. Location of existing and proposed expansion (Phase II) of mining operations at the mine site for the Castle Mountains Mine.

The major components at the Mine site include mine pits, overburden (waste rock) sites, crushing plants, overland conveyor systems, heap leach pads and the comminution plant, solution storage tanks, and the processing plant.

The Proponent proposes to expand current mining practices. These include exposing the orebody using heavy equipment, blasting, excavating, and transporting ore-grade rock to the crusher, next to the Comminution Plant for reduction and aggregation. The high-grade portion of the ore “is further reduced and partially leached in barren cyanide solution [at the leach pad]. After leaching, the slurry is thickened and filtered. The filtrate, containing dissolved gold, flows by gravity in pipes to the gold process plant. The leached residue, which still contains recoverable gold, is agglomerated with leach grade (crushed) ore, lime, and binder (cement) and conveyed to the heap leach pad for additional leaching.”

“Low-grade ore (protore) excavated from the pits are [*sic*] stored in stockpiles for potential processing later when price and/or technology improvements allow for profitable gold recovery.” “If, at that time, conditions are such that the protore stockpiles would not be profitable to process, their upper surface would be prepared for revegetation, similar to other overburden.”

“Leach-grade ore is stacked onto the leach pad. A dilute sodium cyanide solution (125 to 150 ppm (parts sodium cyanide per million parts water)), also known as *barren solution (gold-free)*, dissolves the gold in the ore as it flows vertically through the ore pile. The pregnant (gold-bearing) solution is pumped to the gold recovery process plant, where vessels containing activated carbon adsorb the gold from the solution. The now barren solution flows by gravity to the barren solution storage tank, where cyanide is added before the barren solution is recycled back to the leach pad to continue the leaching process. All solutions are continuously recycled, and the process operates without environmental discharge.”

“The gold-bearing carbon is chemically treated to “strip,” the gold from the carbon. The gold is electrically plated onto steel wool, washed, and melted in a furnace. The resulting product is a bar of alloy gold and silver, known as a “dore” bar. The dore is then sold or shipped to a refinery for further purification.”

The mining and processing activity will occur continuously, 24 hours a day, 365 days a year.

The mine pits, overburden sites, and the leach pad would all expand in size. “On average, up to 19 million tons of ore per year will be delivered to the Primary Crusher. This represents a 13 million ton increase from the approved ore production rate. Annual overburden production will range from 36 to 61 million tons per year, a maximum 45 million ton increase from the approved rate of overburden production.”

“The approved 1998 Plan included an estimated 307 acres of open pit areas for Phase I and Phase II mining. These same pits (ISLA, Jumbo, Oro Bell Complex, and South Extension Complex) will be extended to an estimated 830 acres.”

Ancillary facilities include a laboratory, receiving parts warehouse, crushing plant warehouse, process plant warehouse, comminution warehouse, geology and core storage, office buildings and

training facility, security gate and truck scale, parking, hazardous waste storage yard, maintenance area, and a truck ready-line and other vehicle parking. Many of these facilities would be relocated because of the proposed expansion of the mine pits.

Currently water is supplied to the Mine from two water systems. The Lanfair – West Well Field (WWF) (Figure 2) has three groundwater wells. Water is pumped to a 250,000-gallon storage tank and provides water to the Mine via gravity flow. Water would be supplied from an existing well that is part of the Ivanpah-Northwest Water System (NWS) (Figure 3). The well is located on private land just west of Nipton, CA.

A proposed 33-mile long buried pipeline would convey water from an existing well (installed in 2021) in the Ivanpah Valley to the Mine. Also proposed is a pumphouse, booster pumps, a storage tank near the existing well and a second well. The pumphouse, pumps, storage tank, and a possible second well would be located on private land. The pipeline would be located in an existing easement along Nipton Road (SR-164) to Walking Box Ranch, then following the Mine access road to the Mine.

A third water system, the East Well Field (EWF), is used to dewater the mine pits. Three wells, two on private land and one BLM land, comprise the EWF (Figure 2). Water from these wells “balance make-up water for the heap leach pad process” and is used “as dust control.” CMV proposed to add seven pit dewatering wells to the EWF.

The Mine anticipates needing 15 to 25 MW of electricity for operation. A portion (10 MW) of the project’s electrical power will be generated on site by a LNG microturbine thermal generating system. Thirteen generating units will be located adjacent to the power substation. CMV proposes to construct a 69kV powerline parallel to the access road from the Walking Box Ranch to the Mine.

Currently, telecommunications are provided by a private microwave facility installed at the Mine and an uplink to existing equipment located at Searchlight, NV. If the proposed powerline is installed, a fiber optic line will be included with the overhead powerline.

The proposed expansion of the mine pits, overburden sites, and heap leach pad and the installation of the associated pipeline and powerline would disturb directly an additional 1,800 acres of BLM-managed public land for a total project disturbance of 3,294 acres.

Scoping Comments on the Proposed Project

Alternatives should be developed that use “state of the art” methods to minimize impacts to the environment. These alternatives include avoiding the use of toxic or hazardous materials in the mining and processing of ore whenever possible and using onsite facilities/areas to host solar energy production. The standards for ensuring human health should also apply to the environment (e.g., flora and fauna including special status species nearby) that would be directly and indirectly impacted by the construction, operation, maintenance, and reclamation of the mine site, associated facilities, and nearby locations indirectly impacted by the Mine.

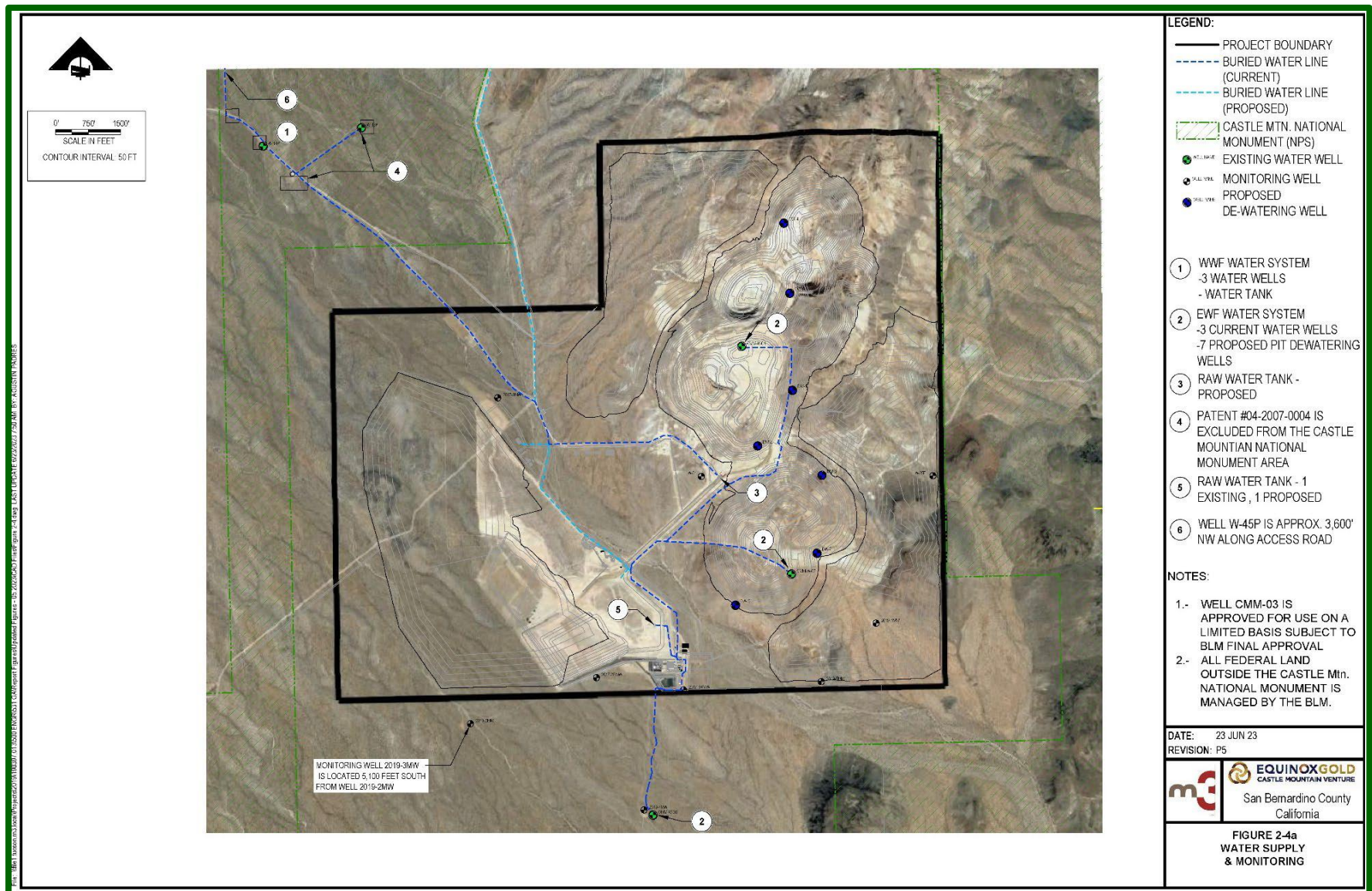


Figure 2. The Lanfair West Well Field (WWF) and East Well Field (EWF) existing water systems.

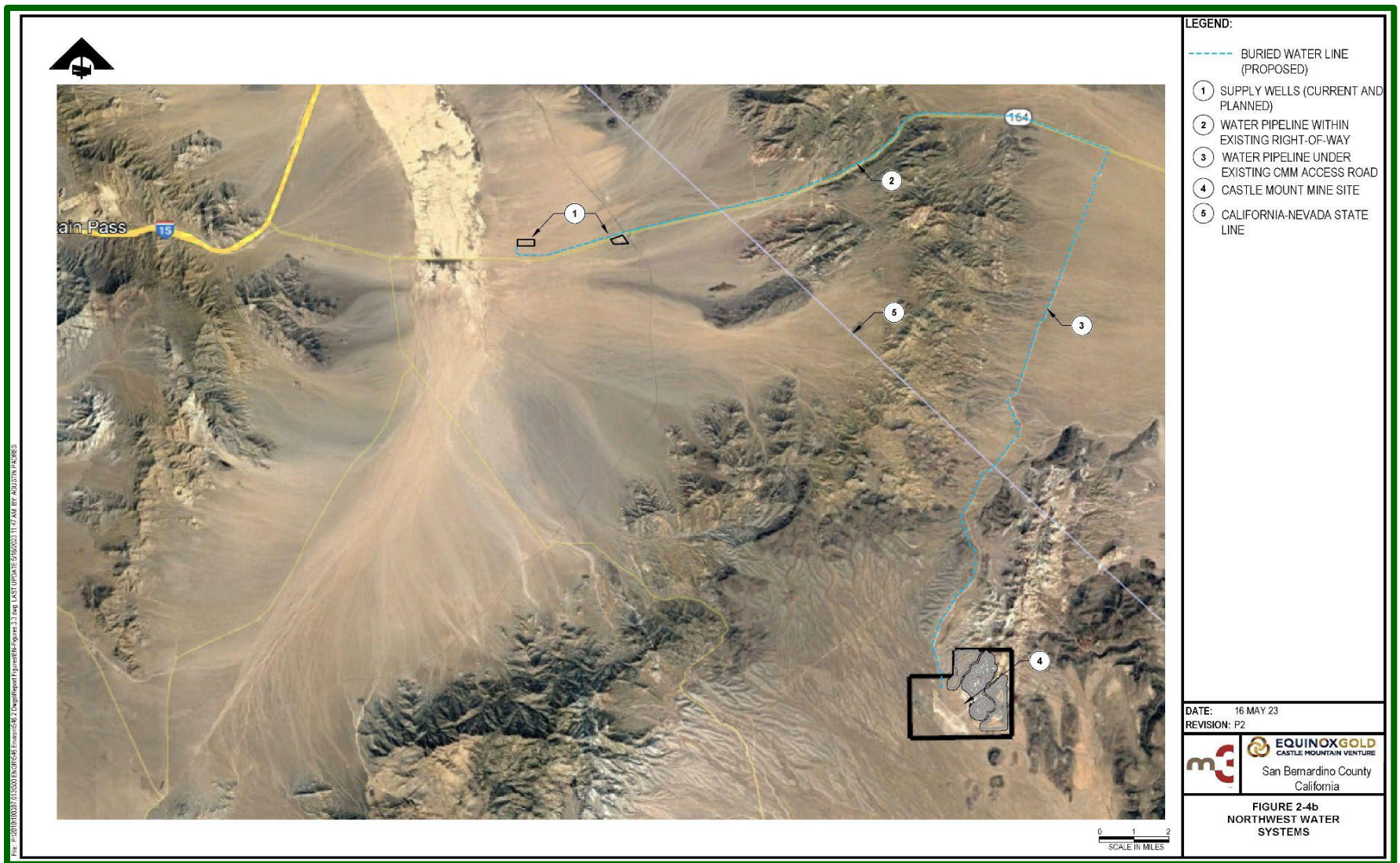


Figure 3. Ivanpah – Northwest Water System (NWS).

Demonstrate Compliance with the Federal Land Policy and Management Act: In the draft environmental impact statement (DEIS), BLM should demonstrate that all action alternatives fully comply with BLM’s mandate under the Federal Land Policy and Management Act (FLPMA): (1) “to provide for the immediate and future protection and administration of the public lands in the California desert within the framework of a program of multiple use and sustained yield, and the maintenance of environmental quality,” and (2) “to take any action necessary to prevent unnecessary or undue degradation of the lands.” Below we provide information on impacts to the human environment identified from other gold mining operations in the California desert. We request that in the DEIS BLM analyze these impacts to the tortoise, tortoise habitat and other special status species and their habitats, and how BLM proposes to mitigate these impacts to comply with FLPMA’s requirements of maintenance of environmental quality and to prevent unnecessary and undue degradation of the lands.

Compliance with the Current BLM Resource Management Plan Amendments for the California Desert District and the Las Vegas District: In the DEIS, BLM should describe how the proposed Project would comply with the Desert Renewable Energy and Conservation Plan (BLM 2016) (DRECP), including monitoring and mitigation and the Las Vegas Resource Management Plan (BLM 1998). For example, how will BLM ensure that the proposed Mine expansion in size and operation including the Proponent’s increased use of access roads will not adversely affect public access to public land and Castle Mountains National Monument? For example, is BLM requiring and will it enforce a traffic safety plan for the visiting public to avoid hazards such as large mine vehicles on the access roads?

Compliance with BLM Policies and Manuals: In the DEIS, we request that BLM demonstrate how it is complying with BLM’s Manual on Special Status Species Management – 6840 (BLM 2024). This updated policy establishes an agency-wide emphasis on proactive, landscape- and ecosystem-level, scientifically informed conservation and recovery of special status species and their habitats. It directs BLM to:

- Comply with FESA Section 7(a)(2) consultation regulations and incorporate proactive recovery efforts into proposed actions;
- promote healthy species populations and biodiversity through landscape- and ecosystem-level management; and
- use science and adaptive management to advance conservation and recovery.

We request that BLM describe the proactive conservation efforts it is requiring of the Proponent to contribute to the recovery of the tortoise, in addition to the mitigation BLM is requiring to replace the loss and degradation of tortoise habitat, including the temporal loss of habitat, demonstrate how it is promoting healthy populations of tortoises in the Eastern Mojave Recovery Unit, and how it is using science to advance the conservation and recovery of the tortoise in this recovery unit.

In addition, we request that the DEIS include information on the results of surveys for rare plants in this area on both BLM and NPS lands. BLM should require that all proposed location for surface disturbance have rare plant surveys completed and appropriate mitigation required, beginning with avoidance. Please include these requirements and information in the DEIS.

BLM should demonstrate how it is implementing its policies with respect to the conservation of the tortoise, specifically:

- Bureau of Land Management. 2015. Advancing Science in the BLM: An Implementation Strategy IB 2015-040.

Toxic Elements and Compounds: The EIS should analyze the impacts to surface water quality, soils, and vegetation located down-gradient and down-wind from CMM from the transport of toxic elements and compounds via wind and precipitation that are released during mining activities. This is especially crucial regarding National Park Service (NPS) land because Castle Mountain National Monument surrounds CMM and Mojave National Preserve is located a few miles west of the Mine. For example, in the Plan of Operation, CMV says, “Surface water flowing from the mine site could reach Sacramento Wash during the rare extreme precipitation events. Sacramento Wash drains the northeastern portion of Lanfair Valley and covers approximately 240 square miles.” Thus, during the life of the proposed mining and reclamation activities, if toxic elements/compounds are released from the Mine site, even indirectly, these toxic elements/components have the potential to adversely impact surface water quality, flora, and fauna in this area. Impacts of toxic elements and compounds released during the mining and processing phases that are spread down-gradient and down-wind are known to be hazardous to tortoises (Chaffee and Berry 2006, Seltzer and Berry 2005) and are likely hazardous to other species.

Please identify the toxic elements and compounds associated with gold mining, both naturally occurring and human introduced; analyze their impacts to surface water quality, soils, vegetation, and wildlife in this 240 square mile area of the Lanfair Valley and other areas affected by surface flow and aeolian transport from the Mine; describe the monitoring that would be implemented to ensure that these toxic elements and compounds do not impact areas outside the designated Mine site, especially tortoise habitat (including designated critical habitat) and NPS-managed lands (i.e., Castle Mountains National Monument and Mojave National Preserve); and describe the likely actions BLM would take to ensure that the occurrence of toxic elements or compounds on and/or off Mine-site lands does not reach a level that is harmful to the environment (i.e., water, soil, vegetation, and wildlife including the tortoise). These indirect impacts from the Mine should focus on monitoring the soils and vegetation that the tortoise consumes (plants and soils), sniffs (plants and soils), and lives in (soils) as well as tortoises.

Changes in Groundwater Elevations, Groundwater Quality, and Impacts to Mohave Tui Chubs: The Proponent proposes to construct and operate “a new Ivanpah Valley water system, the Northwest Water System (NWS), to supply CMM with between 840 and 1,340 AFY of water.” “This Plan proposes a range and combined maximum water use from each basin; the range is proposed at 830 to 1,340 AFY (from each basin) and a combined maximum (permit limit) of 2,250 AFY.”

We are concerned about likely impacts to ground water in this groundwater basin. This concern includes information of a recent drop in the water elevation of Morningstar Mine Pond in Mojave National Preserve in the nearby Ivanpah Mountains. This Pond was formed when a mining operation in an open pit mine encountered ground water. This Pond supports a population of the federally and State endangered/fully protected Mohave tui chub (*Siphateles bicolor mohavensis* = *Gila bicolor mohavensis*). The water level in the Pond has dropped 5 feet in the last few years indicating the groundwater level has dropped.

Since the Mine was established in 1991, other uses of ground water in the Ivanpah groundwater basin have been developed (e.g., Silver State South Solar (BLM 2013), ISEGS (BLM 2010), the Mine's existing Ivanpah well installed in 2021) and groundwater use in the continually developing Las Vegas Valley also is a source of groundwater use and lowering of the groundwater table from this basin. We are concerned that the combination of additional human activities that extract ground water, long-term drought, and the proposed increase in the Mine's use of ground water may contribute to a drop in the elevation of groundwater levels at Morningstar Mine Pond and ground water in the Ivanpah basin. This would affect water quality and may result in a dewatering of the Pond resulting in the loss of this population of Mohave tui chubs. Please provide an analysis of this impact in the DEIS including how it would impact special status species. Then demonstrate how BLM would comply with FLPMA's mandate for the maintenance of environmental quality and to prevent unnecessary or undue degradation of the lands.

Impacts to Quality and Quantity of Surface Water: On page 4-53, the Proponent says "The open pits are located at or near the crest of their respective watersheds and are not expected to impact any substantial ephemeral features." We presume this statement refers to the impacts to the quantity of water in ephemeral drainages. However, "the main processing facilities are located on the alluvial fan portions of the mine site" indicating that they are upgradient from larger areas of desert vegetation and wildlife habitat. The surface water quality in ephemeral drainages and sheet flow across alluvial fans should also be analyzed in the environmental impact statement especially with respect to its transport and down-gradient deposition of toxic elements and compounds associated with gold mining and the. Kim et al. (2012). reported that "water-transported heavy metals can be transported several miles down washes" from mining operations.

"Stormwater falling on areas underlain by synthetic liners at the heap leach pad and Process Plant is directed to the emergency solution storage and stormwater basins (i.e., the Event Ponds). These basins are between 20 and 25 feet deep." What is the water quality of these waters in stormwater basins and how would this water quality affect wildlife particularly birds that are able to access these water-filled basins? Are special status species such as desert bighorn sheep (*Ovis canadensis nelsoni*) and mountain lion (*Felis concolor*) able to access these basins, and what is the impact of this water quality on these protected species? Because these basins are 20 to 25 feet deep, if wildlife have access to them, are they able to easily exit these basins or are the sides steep or slippery from the lining and would impede/prevent wildlife from escaping these basins resulting in death? Please analyze these impacts in the DEIS.

Fate of Pumped Ground Water: In the Mining Plan of Operation, the Proponent says that the East Well Field (EWF), is used to dewater the mine pits. Three wells, two on private land and one BLM land, comprise the EWF. Water from these wells "balance make-up water for the heap leach pad process" and is used "as dust control." We believe the volume of water pumped is about 2000 acre-feet/year (af/yr). How is this much water used annually in the heap leach process because it is a closed system? We know that evaporation occurs when water is used for dust control, however, evaporation of 2000 af/yr is a sizeable quantity of water. Does some of it re-infiltrate? If yes how will infiltration be monitored to protect the quality of ground water? Please explain the ultimate fate of this large volume of pumped ground water.

New Subsidies for Tortoise Predators: Constructing a new overhead powerline and communication line would provide new nest, roost, and perch site subsidies for the common raven (*Corvus corax*), a predator of the tortoise. These human-provided subsidies inadvertently increase the number of ravens in the area and predation on the tortoise. Increased traffic on access roads to the mine site increases the likelihood of roadkill that provides food subsidies for tortoise predators (e.g., coyote (*Canis latrans*) and common raven). This subsidy increases the number of these animals in the area and predation on the tortoise. Water used for dust suppression is also a human-provided subsidy that attracts tortoise predators to the area. This subsidy increases the number of these animals in the area and predation on the tortoise.

Please analyze these impacts to the tortoise and other wildlife species regarding how they affect the survival and recovery of the tortoise and other species.

Direct, Indirect, and Cumulative Impacts to Special Status Species and Their Habitats: In the EIS, BLM should describe and analyze the direct, indirect, and cumulative impacts from the Project (i.e., operations at the mine site; modification, use, and maintenance of access roads; construction, use, and maintenance of pipelines, wells, and transmission lines; etc.) to special status species and their habitats including the tortoise, Monarch butterfly (*Danaus plexippus*), a proposed threatened species under FESA, burrowing owl (*Athene cunicularia*), a candidate species under the California Endangered Species Act (CESA), western Joshua tree (protected from take under the Western Joshua Tree Conservation Act of 2023), mountain lion (a fully protected species by CDFW), Le Conte's Thrasher (*Toxostoma lecontei*) (petition submitted to USFWS to list under FESA in 2025), desert kit fox (*Vulpes macrotis arsipus*), a protected furbearing mammal under California Fish and Game Code, and species of special concern including loggerhead shrike (*Lanius ludovicianus*) and American badger (*Taxidea taxus*). This description and analysis would include impacts to designated critical habitat for the tortoise. The likely occurrence of and impacts to special status plant species should also be described and analyzed in the DEIS with respect to their survival and recovery.

For the tortoise, indirect impacts from mining activities include increased opportunities for unauthorized collection for pets and vandalism; increased predation from new human subsidies of food, water, garbage, and nest sites (Boarman 2003); surface disturbance and introduction/proliferation of non-native invasive plant species via construction equipment, vehicles, and other sources; increased competition or non-native plant species with native plants species; replacement of native forbs that contain high nutritional and water values needed by hatchling, juvenile, and adult tortoises for survival, reproduction, and growth with non-native invasive grasses that contain low nutritional and low water values (Drake et al. 2016); increased occurrence of size, intensity, and frequency of human-caused and lightning-caused wildfires from fuels provided by non-native invasive plant species (Brooks and Esque 2002); increased traffic on roads to and in the project area expanding the "road effect zone" and associated mortality, and adverse effects to tortoise behavior and physiology (Harju et al. 2024, Hromada et al. 2020, Hromada et al. 2023, Peaden et al. 2017); and others.

For impacts specific to gold mining, gold is frequently found associated with other heavy metals/rare earth elements (REE) including arsenic, chromium, lithium, nickel, antimony, and mercury. The mining process unearths and exposes these buried heavy metals and REE materials.

This exposure makes these previously buried heavy metals and REE materials subject to transport downgradient by precipitation and downwind by aeolian activity and deposited on/near the soil's surface. At another gold mining area in the Mojave Desert, soil anomalies for arsenic, gold, cadmium, mercury, antimony, and tungsten extend as far as 15 km (9.3 miles) outward from the present area of mining. Soils containing anomalous Hg were found at least 6 km (3.7 miles) away from tailings. Elevated levels of these heavy metals were found in herbaceous plants growing in the area that tortoise and other wildlife are known to consume. Chaffee and Berry (2006) attributed the source of these elevated levels of metals to mining activities that produced dust contaminated with these heavy metals. This contaminated dust was/continues to be distributed by wind, vehicles, and rainfall including flash flooding. The anomalous concentrations of arsenic and mercury may be the source of elevated levels of these elements found in ill tortoises from the region (Chaffee and Berry 2006). Thus, the proposed project may release heavy metals and REE into the environment where plants, animals, and people would be exposed to them, ingest them, and be harmed by them.

In the DEIS, please include an analysis of these impacts to the tortoise from projects with surface disturbance and impacts to the tortoise/tortoise habitat specific to mining activities that unearth, spread, and expose tortoises/tortoise habitat to environmental contaminants/REE/heavy metals including arsenic, from inhalation, ingestion (lithophagy and geophagy), surface contact, foraging on contaminated plants, etc. This analysis should include other special status species in areas surrounding the Mine up to 9.3 miles away.

Because the Mine will operate 24 hours a day/7 days a week, BLM should explain how it will require the Proponent to manage for lighting so it does not impact night skies on adjacent NPS land. How will lighting be controlled to avoid light pollution and its adverse impacts to many species of flora and fauna?

Compliance with the Federal Endangered Species Act (FESA) and California Endangered Species Act: BLM should describe and analyze how it is complying with Section 7(a)(1) of the FESA for all listed, proposed, and candidate species. Under Section 7(a)(1), Congress states that all federal agencies "...shall... utilize their authorities in furtherance of the purposes of this Act by carrying out programs for the conservation of endangered species and threatened species listed pursuant to Section 4 of this Act." In Section 3 of the FESA, "conserve," "conserving," and "conservation" mean "to use and the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary. Such methods and procedures include, but are not limited to, all activities associated with scientific resources management such as research, census, law enforcement, habitat acquisition..." "[A]t which the measures provided pursuant to this Act are no longer necessary" means recovery of the species.

BLM should describe and analyze how it is complying with Section 7(a)(2) of the FESA such that the proposed Project would or would not be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species," and "destruction or adverse modification" as "a direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species." We are providing BLM with information on the demographic status of the tortoise including the Eastern Mojave Recovery Unit (Attachment:

Appendix A. Demographic Status and Trend of the Mojave Desert Tortoise (*Gopherus agassizii*) including the Eastern Mojave Recovery Unit), which is where the proposed Project is located. The tortoises in this Recovery Unit have experienced the greatest decline in population density and abundance such that all populations in this Recovery Unit are below the density needed for population viability (USFWS 1994a). This information is especially important because if one of the five recovery units for the tortoise does not meet recovery criteria or is extirpated, the tortoise would not meet recovery criteria and could not be recovered.

BLM should describe and analyze how it or the Proponent is complying with CESA for state-listed and candidate species including actions occurring on private lands in California.

Relocation of the Access Road Away from Mojave National Preserve: “[T]he road intersects a corner section of the Mojave National Preserve (see Figure 2-5a) and crosses less than 1,000 feet through the Preserve. The road will be modified around the eastern corner section, avoiding the Preserve entirely, see Figure 2-5b.”

Will the removal of the road include restoration of slope surface hydrology, soils, and vegetation, the removal of non-native plants, and monitoring funded by Proponent until restoration meets NPS approval? Will it also include cultural resources compliance including archaeological clearance to avoid rock art and artifacts? Please include this information in the DEIS.

Acute and Chronic Impacts of Blasting, Noise, and Vibrations: On pages 4-21 and 4-22 of the Mining Plan of Operation, the Proponent reports that “an average of about 65,000 blast holes will be drilled per year, or about 137 to 240 drill holes per day of peak drilling activity.” “Blasting would occur as often as 6 days per week, averaging 210 blast holes per blast; note than the actual number of blasts per week and holes per blast is highly variable . . .” “No offsite problems have been encountered due to blasting, as the closest residences are approximately five miles from the pit areas.”

We remind the Proponent and BLM that people should not be the only concern from blasting activities. Noise, vibration, and materials released into the air may have adverse impacts on natural and cultural resources. With respect to the tortoise, noise pollution is an invisible source of habitat degradation. Tortoises have well-developed inner ears and respond to ground vibrations (Miles 1953). Adverse impacts from recurring sources of noise pollution (e.g., blasting, heavy equipment operations, etc.) may include collapsed burrows, alterations in behavior (Ruby et al. 1994), and short-term and long-term auditory damage (Bowles et al. 1999) that leave tortoises more susceptible to predation. In addition, outbreaks of disease are caused/contributed to by increased chronic environmental stress from increased amplitude, frequency, and/or duration of noise levels.

In the DEIS, please analyze this impact to the tortoise with respect to its survival and recovery and this impact to other wildlife species in/near the Mine area.

Impacts on Air Quality and Resulting Impacts on Native Vegetation and Wildlife: One of the most significant and visible air pollution problems associated with mining is dust generation. This occurs at every stage of the mining process, from the initial clearing of land to the crushing and transportation of ore. Activities contributing to dust (which may include heavy metals and other elements hazardous to the environment) include:

- Drilling and blasting: Explosives used to break up rock release significant amounts of dust and other harmful gases.
- Excavation and loading: Moving large volumes of earth and ore inevitably creates airborne particles.
- Crushing and grinding: Processing ore into smaller sizes generates fine dust that is easily dispersed by wind.
- Hauling and transportation: Unpaved roads and open-bed trucks carrying materials contribute significantly to dust pollution.
- Wind erosion from stockpiles: Exposed stockpiles of ore and tailings are vulnerable to wind erosion, releasing dust over extended periods.

According to the Mining Plan of Operation, annual emissions of dust/ fine particulate matter (PM) (PM₁₀ and PM_{2.5}) for the proposed Mine expansion are estimated to be 237 tons per year and 38 tons per year, respectively. These fine particles pose a severe threat to human health and likely a similar threat to wildlife including the tortoise. For plants dust can disrupt physical and physiological processes in desert shrubs. Beatley (1965, as cited in Sharifi et al. 1997) found that dust deposition in the Mojave Desert of Nevada caused plant defoliation and shoot death in creosote bush (*Larrea tridentata*). Dust can interfere with plant growth by clogging pores and reducing light interception (Ferguson et al. 1999). Other effects reported include a reduction in photosynthesis and increase in leaf temperature (Eller 1977, Thompson et al. 1984, Farmer 1993).

Please analyze this impact to the tortoise, other special status species, and native perennial and annual vegetation in areas downwind of the mining operation and report it in the DEIS.

Use of Large Amounts of Hazardous Materials: On page 4-70 of the Mining Plan of Operation, the Proponent says, “The heap leach [cyanide] solution storage system is sized to RWQCB [Lahontan Regional Water Quality Control Board] specifications to accommodate precipitation run-off from a 100-year, 24-hour design storm.” Our concern is that with climate change and more intense precipitation events, the former estimates of a 100-year, 24-hour design storm event are inadequate. Because of climate change, many storm events are now more severe and longer in duration. Contributing to this change is that more of these storms have subtropical origins and contain “atmospheric rivers” that deposit much larger amounts of precipitation than previous historic records of storms, many of which were from colder origins. Please provide information that shows that the RWQCB used recent data and models on climate change and storm events in calculating the heap leach solution storage system, increased the storage system size with an appropriate buffer, and that the Mine has increased the capacity of the system to accommodate this change.

Alternatives to Cyanide – On page 4-50 of the Mining Plan of Operation, the Proponent says, “The mechanical and chemical processes used at CMM are substantially unchanged from those activities already approved and included in the 1998 Plan.”

We contend that the Proponent is using old methods that are outdated and do not comply with FLPMA’s mandates including “the maintenance of environmental quality;” that “the public lands be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values;” and “will provide

food and habitat for fish and wildlife;” and that BLM will “take any action necessary to prevent unnecessary or undue degradation of the lands.” Many gold mining companies are moving away from the harmful chemicals traditionally used in gold extraction, such as cyanide and mercury, opting for safer, eco-friendly alternatives. For example, companies have begun using thiosulfate, a non-toxic alternative to cyanide, in their gold extraction processes.

In addition, we are concerned that a scenario that occurred at Morningstar Mine, an open pit gold mine under BLM’s authorization in the nearby Ivanpah Mountains, not happen here. At Morningstar Mine, the operating company used cyanide on site to extract the gold. However, the mining company abandoned the mining operation including the cyanide left at the mine site and left the cleanup of the mine site including the toxic chemicals to the taxpayer. We recommend that alternative methods to using cyanide to separate the gold from other materials be explored and required to substantially reduce the adverse impacts from cyanide exposure to the environment.

Alternatives to the Proposed Transmission Line: BLM should explore other sources of supplying electricity to the Mine site such as solar energy with battery storage with potential locations of photovoltaic panels on the roofs of buildings, over parking areas, and other locations at the Mine site.

Effectiveness of Reclamation in Meeting the FLPMA’s Requirements of Maintenance of Environmental Quality and Preventing Unnecessary or Undue Degradation of the Lands: The last stage of Phase II mining is the reclamation stage that is identified as occurring from 2051 to 2058 (page 4-25). It is also limited in area to the “planned pit and stockpile boundaries” (page 5-1).

The 9 years identified for reclamation implementation concerns the Council because we know that reclamation of desert ecosystems requires a much longer time. Restoration of native vegetation in the Mojave Desert is likely to take much longer. Abella (2010) reported that the regeneration times to restore cover of vegetation in the Mojave Desert takes on average 76 years while return to species composition is an estimated 215 years. We expect that this time would be reduced somewhat because of activities conducted by the Proponent to assist the restoration process (i.e., reseeding). However, it would not be reduced to the 9 years that is indicated in the Mining Plan of Operation. BLM should revise this time with one that uses other successful revegetation efforts in the eastern Mojave Desert near the project site.

According to the Mining Plan of Operation, the Proponent has posted a performance bond for the costs of site reclamation. We have several concerns with this process. First, when calculating the performance bond, BLM likely limited the area to be reclaimed to the footprint of disturbance within the Mine site. This would be inadequate because other areas outside the Mine site were disturbed, degraded, or destroyed from Mine activities. These include road construction/improvement, proposed road realignment, pipeline construction and maintenance, and power line/communication line construction and maintenance, lands away from the Mine that may have been contaminated from aeolian and water deposition of heavy metal/toxic compounds unearthed by Mine activities, and reduction in groundwater levels affecting special status species.

The performance bond should be structured such that BLM will be able to access those funds to pay for the reclamation and revegetation of the site, in the event that the project owner becomes insolvent. In calculating the amount of this bond BLM should calculate an inflation rate because the reclamation and most revegetation activities as outlined in the Mining Plan of Operation would not occur for a few decades and would take a few decades or more to implement successfully.

We are aware of situations on BLM land where applicants obtained a ROW or lease, posted a bond, conducted their work, and abandoned the site because the cost of reclamation was greater than the amount of the bond that BLM required. Consequently, these sites were not restored because the bond that was required was inadequate resulting in lack of compliance with FLPMA.

Please include this information in the reclamation/revegetation plan and assurances that the bond would be adequate to cover fully the reclamation, monitoring, and adaptive management costs if the Proponent is unable to implement this plan.

A reclamation plan is usually limited to the short-term establishment of perennial woody vegetation. We presume this from an objective listed in the Mining Plan of Operation of “providing cover and nesting opportunities for desert vertebrates” and the time allotted to implementing the reclamation plan. Establishing perennial woody vegetation does not reclaim the area to its pre-project conditions. Focusing on nesting opportunities implies that the Proponent and BLM are interested only in demonstrating that birds can use the reclaimed area.

With respect to the tortoise, the objectives of the reclamation plan do not provide the physical and biological features the tortoise needs for survival and recovery as listed in the designation of critical habitat or tortoise habitat outside of designated critical habitat areas. The needs of the tortoise include “sufficient quantity and quality of forage species and the proper soil conditions to provide for the growth of such species” (USFWS 1994b). Thus, one essential objective missing from the reclamation plan is the presence of native annual and perennial forbs with the nutritional values and water content tortoises need, especially forbs in the Fabaceae family. Because of FLPMA’s mandate regarding undue degradation of the land, the criteria for measuring success should be high and should include plant and animal biodiversity including the needs of tortoises for adequate nutrition (i.e., annual and perennial forbs) as well as protection from thermal extremes and predators (perennial woody plants for cover) and absence of toxic elements and compounds. The reclamation plan should include the requirement for restoration of tortoise habitat including successful establishment of forage species needed by tortoises for survival, reproduction, and growth from hatchlings to adults. To assist BLM and the Proponent in accomplishing this objective, we are providing two references – Enhancing and Restoring Habitat for the Desert Tortoise (*Gopherus agassizii*) by Abella and Berry and Techniques for Restoring Damaged Mojave and Western Sonoran Desert Habitat, including Those for Threatened Desert Tortoise and Joshua Trees by Abella, Berry, and Ferrazzano. The full citations for these references are provided in the Literature Cited section below.

Please revise the reclamation plan to include this information and provide it in the DEIS for the public to review its effectiveness in restoring the habitat for special status species.

In addition, BLM should ensure that the standard for restoration of soil and vegetation conditions be the conditions that occurred prior to the initiation of mining activities at the mine site, associated facilities, and adjacent areas that were impacted directly or indirectly by mining operations.

The reclamation plan should include a plant palette of annual and perennial forbs that the tortoise needs for survival, production, and growth, and perennial shrubs that provide cover from predators, temperature extremes, and microhabitats for native forbs to grow.

We are concerned that indirect impacts that adversely affect locations offsite from the approved Mine boundary are not included in the reclamation plan. Some of these indirect impacts are listed above with requests that monitoring be required for nearby lands for issues such as deposition of toxic elements/compounds conveyed by aeolian processes and surface water flow, and impacts to groundwater levels with respect to special status species, etc. We request that BLM require the Proponent to fund the monitoring but have BLM contract with a third party to conduct the monitoring. We recommend coordinating with USGS, the Department of the Interior's science bureau, to determine what and how monitoring should occur for these impacts and include this information in BLM's request for proposals.

To summarize, the Council is concerned about:

- direct impacts to the tortoise/tortoise habitat and other special status species from construction and maintenance of the new powerline, well, and water pipeline; construction, increased use, and maintenance of improved/modified roads
- indirect impacts to the tortoise/tortoise critical habitat/tortoise habitat, Mohave tui chub/Mohave tui chub habitat, and other special status species/habitats; changes to groundwater levels, surface flow alteration, and water quality; impacts to air quality from contaminants and dust and how that affects the tortoise and special status species; dust/contaminants deposition on plants and how that affects the tortoise; increased surface disturbance resulting in transport, establishment, and proliferation of non-native invasive plants; alteration of tortoise movements and behavior and those of other special status species; increased subsidies of food, water, and nest sites for tortoise predators; acute and chronic impacts of blasting, noise, and vibrations to the tortoise and other special status species; adequacy of the success criteria, plant palette, and time frame for reclamation of the entire project area (9 years); impacts to adjacent NPS lands when NPS manages these lands for the tortoise/tortoise habitat and other purposes under their Organic Act
- cumulative impacts from all the above especially as they impact the survival and recovery of the tortoise and the quality and connectivity of tortoise habitat
- alternatives to the proposed project including on-site solar instead of powerline installation and alternatives to the use of cyanide.

We appreciate this opportunity to provide the above comments and trust they will help protect tortoises during any resulting authorized activities. Herein, we reiterate that the Council wants to be identified as an Affected Interest for this and all other projects funded, authorized, or carried out by the BLM that may affect desert tortoises, and that any subsequent environmental documentation for this project is provided to us at the contact information listed above. Additionally, we ask that you notify the Council at eac@deserttortoise.org of any proposed projects that BLM may authorize, fund, or carry out in the range of any species of desert tortoise

in the southwestern United States (i.e., *Gopherus agassizii*, *G. morafkai*, *G. berlandieri*, *G. flavomarginatus*) so we may comment on them to ensure that BLM fully considers and implements actions to conserve these tortoises as part of its directive to conserve species listed under the FESA on lands managed by BLM and its directives under FLPMA.

Please respond in an email that you have received this comment letter so we can be sure our concerns have been registered with the appropriate personnel and office for this project.

Respectfully,



Edward L. LaRue, Jr., M.S.
Desert Tortoise Council, Ecosystems Advisory Committee, Chairperson

Attachment: Appendix A. Demographic Status and Trend of the Mojave Desert Tortoise (*Gopherus agassizii*) including the Eastern Mojave Recovery Unit

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Appendix A
Demographic Status and Trend of the Mojave Desert Tortoise
including the Eastern Mojave Recovery Unit

Status of the Population of the Mojave Desert Tortoise: The Council provides the following information for resource and land management agencies so that these data may be included and analyzed in their project and land management documents and aid them in making management decisions that affect the Mojave desert tortoise (tortoise).

There are 17 populations of Mojave desert tortoise described below that occur in Critical Habitat Units (CHUs) and Tortoise Conservation Areas (TCAs); 14 are on lands managed by the BLM; 8 of these are in the California Desert Conservation Area (CDCA).

As the primary land management entity in the range of the Mojave desert tortoise, the Bureau of Land Management's (BLM's) implementation of a conservation strategy for the Mojave desert tortoise in the CDCA through implementation of its Resource Management Plan and Amendments through 2014 has resulted in the following changes in the status for the tortoise throughout its range and in California from 2004 to 2014 (**Table 1, Table 2**; USFWS 2015, Allison and McLuckie 2018). The Council believes these data show that BLM and others have failed to implement an effective conservation strategy for the Mojave desert tortoise as described in the recovery plan (both USFWS 1994a and 2011), and have contributed to tortoise declines in density and abundance between 2004 to 2014 (**Table 1, Table 2**; USFWS 2015, Allison and McLuckie 2018) with declines or no improvement in population density from 2015 to 2024 (**Table 3**; USFWS 2016, 2018, 2019, 2020, 2022a, 2022b, 2025).

Important points from these tables include the following:

Change in Status for the Mojave Desert Tortoise Range-wide

- Ten of 17 populations of the Mojave desert tortoise declined from 2004 to 2014.
- Eleven of 17 populations of the Mojave desert tortoise are below the population viability threshold. These 11 populations represent 89.7 percent of the range-wide habitat in CHUs/TCAs.

Change in Status for the Eastern Mojave Recovery Unit – California

- This recovery unit had a 671 percent decline in tortoise density from 2004 to 2014.
- Tortoise populations in all TCAs in this recovery unit have densities that are below viability(USFWS 1994a). .

Change in Status for the El Dorado VallTortoise Population in the Eastern Mojave Recovery Unit.

- The population in this recovery unit experienced declines in densities of 61 percent from 2004 to 2014.

Change in Status for the Ivanpah Valley Tortoise Population in the Eastern Mojave Recovery Unit

- The population in this recovery unit experienced declines in densities of 56 percent from 2004 to 2014.

Table 1. Summary of 10-year trend data for the 5 Recovery Units and 17 CHUs/TCAs for Mojave desert tortoise. The table includes the area of each Recovery Unit and CHU/TCA, percent of total habitat for each Recovery Unit and CHU/TCA, density (number of breeding adults/km² and standard errors = SE), and the percent change in population density between 2004 and 2014. Populations below the viable level of 3.9 breeding individuals/km² (10 breeding individuals per mi²) (assumes a 1:1 sex ratio) or showing a decline from 2004 to 2014 are in red.

Recovery Unit: Designated Critical Habitat Unit ¹ /Tortoise Conservation Area	Surveyed area (km ²)	% of total habitat area in Recovery Unit & CHU/TCA	2014 density/km ² (SE)	% 10-year change (2004–2014)
Western Mojave, CA	6,294	24.51	2.8 (1.0)	-50.7 decline
Fremont-Kramer	2,347	9.14	2.6 (1.0)	-50.6 decline
Ord-Rodman	852	3.32	3.6 (1.4)	-56.5 decline
Superior-Cronese	3,094	12.05	2.4 (0.9)	-61.5 decline
Colorado Desert, CA	11,663	45.42	4.0 (1.4)	-36.25 decline
Chocolate Mtn AGR, CA	713	2.78	7.2 (2.8)	-29.77 decline
Chuckwalla, CA	2,818	10.97	3.3 (1.3)	-37.43 decline
Chemehuevi, CA	3,763	14.65	2.8 (1.1)	-64.70 decline
Fenner, CA	1,782	6.94	4.8 (1.9)	-52.86 decline
Joshua Tree, CA	1,152	4.49	3.7 (1.5)	+178.62 increase
Pinto Mtn, CA	508	1.98	2.4 (1.0)	-60.30 decline
Piute Valley, NV	927	3.61	5.3 (2.1)	+162.36 increase
Northeastern Mojave	4,160	16.2	4.5 (1.9)	+325.62 increase
Beaver Dam Slope, NV, UT, AZ	750	2.92	6.2 (2.4)	+370.33 increase
Coyote Spring, NV	960	3.74	4.0 (1.6)	+ 265.06 increase
Gold Butte, NV & AZ	1,607	6.26	2.7 (1.0)	+ 384.37 increase
Mormon Mesa, NV	844	3.29	6.4 (2.5)	+ 217.80 increase
Eastern Mojave, NV & CA	3,446	13.42	1.9 (0.7)	-67.26 decline
El Dorado Valley, NV	999	3.89	1.5 (0.6)	-61.14 decline
Ivanpah Valley, CA	2,447	9.53	2.3 (0.9)	-56.05 decline
Upper Virgin River	115	0.45	15.3 (6.0)	-26.57 decline
Red Cliffs Desert	115	0.45	15.3 (6.0)	-26.57 decline
Range-wide Area of CHUs - TCAs/Range-wide Change in Population Status	25,678	100.00		-32.18 decline

¹ U.S. Fish and Wildlife Service. 1994b. Endangered and threatened wildlife and plants; determination of critical habitat for the Mojave population of the desert tortoise. Federal Register 55(26):5820-5866. Washington, D.C.

Table 2. Estimated change in abundance of adult Mojave desert tortoises in each recovery unit between 2004 and 2014 (Allison and McLuckie 2018). Decreases in abundance are in red.

Recovery Unit	Modeled Habitat (km ²)	2004 Abundance	2014 Abundance	Change in Abundance	Percent Change in Abundance
Western Mojave	23,139	131,540	64,871	-66,668	-51%
Colorado Desert	18,024	103,675	66,097	-37,578	-36%
Northeastern Mojave	10,664	12,610	46,701	34,091	270%
Eastern Mojave	16,061	75,342	24,664	-50,679	-67%
Upper Virgin River	613	13,226	10,010	-3,216	-24%
Total	68,501	336,393	212,343	-124,050	-37%

Table 3. Summary of data for Agassiz’s desert tortoise, *Gopherus agassizii* (=Mojave desert tortoise) from 2004 to 2024 for the 5 Recovery Units and 17 Critical Habitat Units (CHUs)/Tortoise Conservation Areas (TCAs). The table includes the area of each Recovery Unit and CHU/TCA, percent of total habitat for each Recovery Unit and CHU/TCA, density (number of breeding adults/km² and standard errors = SE), and percent change in population density between 2004-2014 (USFWS 2015). Populations below the viable level of 3.9 breeding individuals/km² (10 breeding individuals per mi²) (assumes a 1:1 sex ratio) (USFWS 1994a, 2015) or showing a decline from 2004 to 2014 are in **red**.

Recovery Unit: Designated CHU/TCA & CHU/TCA	% of total habitat area in Recovery Unit & CHU/TCA	2004 density / km ²	2014 density/ km ² (SE)	% 10-year change (2004– 2014)	2015 density / km ²	2016 density / km ²	2017 density / km ²	2018 density / km ²	2019 density / km ²	2020 density / km ²	2021 density / km ²	2024 density / km ²
Western Mojave, CA	24.51	5.7	2.8 (1.0)	-50.7 decline								
Fremont-Kramer	9.14	xxx	2.6 (1.0)	-50.6 decline	4.5	No data	4.1	No data	2.7	1.7	No data	1.8
Ord-Rodman	3.32	xxx	3.6 (1.4)	-56.5 decline	No data	No data	3.9	2.5/3.4*	2.1/2.5*	No data	1.9/2.5*	2.7
Superior-Cronese	12.05	xxx	2.4 (0.9)	-61.5 decline	2.6	3.6	1.7	No data	1.9	No data	No data	No data
Colorado Desert, CA	45.42		4.0 (1.4)	-36.25 decline								
Chocolate Mtn AGR, CA	2.78		7.2 (2.8)	-29.77 decline	10.3	8.5	9.4	7.6	7.0	7.1	3.9	7.4
Chuckwalla, CA	10.97		3.3 (1.3)	-37.43 decline	No data	No data	4.3	No data	1.8	4.6	2.6	No data
Chemehuevi, CA	14.65		2.8 (1.1)	-64.70 decline	No data	1.7	No data	2.9	No data	4.0	No data	No data
Fenner, CA	6.94		4.8 (1.9)	-52.86 decline	No data	5.5	No data	6.0	2.8	No data	5.3	No data
Joshua Tree, CA	4.49		3.7 (1.5)	+178.62 increase	No data	2.6	3.6	No data	3.1	3.9	No data	No data
Pinto Mtn, CA	1.98		2.4 (1.0)	-60.30 decline	No data	2.1	2.3	No data	1.7	2.9	No data	No data
Piute Valley, NV	3.61		5.3 (2.1)	+162.36 increase	No data	4.0	5.9	No data	No data	No data	3.9	4.0

Northeastern Mojave AZ, NV, & UT	16.2		4.5 (1.9)	+325.62 increase								
Beaver Dam Slope, NV, UT, & AZ	2.92		6.2 (2.4)	+370.33 increase	No data	5.6	1.3	5.1	2.0	No data	No data	1.7
Coyote Spring, NV	3.74		4.0 (1.6)	+ 265.06 increase	No data	4.2	No data	No data	3.2	No data	No data	2.7
Gold Butte, NV & AZ	6.26		2.7 (1.0)	+ 384.37 increase	No data	No data	1.9	2.3	No data	No data	2.4	No data
Mormon Mesa, NV	3.29		6.4 (2.5)	+ 217.80 increase	No data	2.1	No data	3.6	No data	5.2	5.2	No data
Eastern Mojave, NV & CA	13.42		1.9 (0.7)	-67.26 decline								
El Dorado Valley, NV	3.89		1.5 (0.6)	-61.14 decline	No data	2.7	5.6	No data	2.3	No data	No data	No data
Ivanpah Valley, CA	9.53		2.3 (0.9)	-56.05 decline	1.9	No data	No data	3.7	2.6	No data	1.8	No data
Upper Virgin River, UT & AZ	0.45		15.3 (6.0)	-26.57 decline								
Red Cliffs Desert**	0.45	29.1 (21.4-39.6)**	15.3 (6.0)	-26.57 decline	15.0	No data	19.1	No data	17.2	No data	No data	17.5†
Rangewide Area of CHUs - TCAs/Rangewide Change in Population Status	100.00			-32.18 decline								

*This density includes the adult tortoises translocated from the expansion of the MCAGCC, that is resident adult tortoises and translocated adult tortoises.

**Methodology for collecting density data initiated in 1999.

†Results from 2023

Change in Status for the Mojave Desert Tortoise in California

- Eight of 10 populations of the Mojave desert tortoise in California declined from 29 to 64 percent from 2004 to 2014 with implementation of tortoise conservation measures in the Bureau of Land Management's Northern and Eastern Colorado Desert (NECO), Northern and Eastern Mojave Desert (NEMO), and Western Mojave Desert (WEMO) Plans.
- Eight of 10 populations of the Mojave desert tortoise in California are below the viability threshold for density. These eight populations represent 87.45 percent of the habitat in California that is in CHU/TCAs.
- The two viable populations of the Mojave desert tortoise in California are declining. If their rates of decline from 2004 to 2014 continue, these two populations will no longer be viable by about 2030.

Change in Status for the Mojave Desert Tortoise on BLM Land in California

- Eight of eight populations of Mojave desert tortoise on lands managed by the BLM in California declined from 2004 to 2014.
- Seven of eight populations of Mojave desert tortoise on lands managed by the BLM in California are no longer viable.

Change in Status for Mojave Desert Tortoise Populations in California that Are Moving toward Meeting Recovery Criteria

- The only population of Mojave desert tortoise in California that did not decline is on land managed by the National Park Service, which increased 178 percent from 2004 to 2014.

Important points to note from the data from 2015 to 2024 in Table 3 are:

Change in Status for the Mojave Desert Tortoise in the Western Mojave Recovery Unit:

- The density of tortoises continues to decline in the Western Mojave Recovery Unit
- The density of tortoises from 2015 to 2024 continues to fall below the density needed for population viability.

Change in Status for the Mojave Desert Tortoise in the Colorado Desert Recovery Unit:

- Many of the populations in this recovery unit have densities that are near the threshold for population viability.

Change in Status for the Mojave Desert Tortoise in the Northeastern Mojave Recovery Unit:

- Two of the three population with densities greater than needed for population viability declined to level below the minimum viability threshold.
- Three of the four populations in this recovery unit have densities below the minimum density needed for population viability.

Change in Status for the Mojave Desert Tortoise in the Eastern Mojave Recovery Unit:

- Both populations in this recovery unit have densities below the minimum density needed for population viability.

Change in Status for the Mojave Desert Tortoise in the Upper Virgin River Recovery Unit:

- The one population in this recovery unit is small and appears to have stable densities.

The Endangered Mojave Desert Tortoise: The Council believes that the Mojave desert tortoise meets the definition of an endangered species. In the FESA, Congress defined an “endangered species” as “any species which is in danger of extinction throughout all or a significant portion of its range...” In the California Endangered Species Act (CESA), the California legislature defined an “endangered species” as a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant, which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes (California Fish and Game Code § 2062). Because most of the populations of the Mojave desert tortoise were non-viable in 2014, most are declining, and the threats to the Mojave desert tortoise are numerous and have not been substantially reduced throughout the species’ range, the Council believes the Mojave desert tortoise should be designated as an endangered species by the USFWS and California Fish and Game Commission. Despite claims by USFWS (Averill-Murray and Field 2023) that a large number of individuals of a listed species and an increasing population trend in part of the range of the species prohibits it from meeting the definitions of endangered, we are reminded that the tenants of conservation biology include numerous factors when determining population viability. The number of individuals present is one of a myriad of factors (e.g., species distribution and density, survival strategy, sex ratio, recruitment, genetics, threats including climate change, etc.) used to determine population viability. In addition, a review of all the available data does not show an increasing population trend (please see Tables 1 and 3).

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