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Via BLM NEPA ePlanning Portal and email

May 30, 2026

Project Manager
Castle Mountain Mine Phase II
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 – Draft Environmental Impact Statement (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, 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.

BLM evaluated three alternatives in the Castle Mountain Mine Phase II Expansion Project Draft Environmental Impact Statement (DEIS) 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.

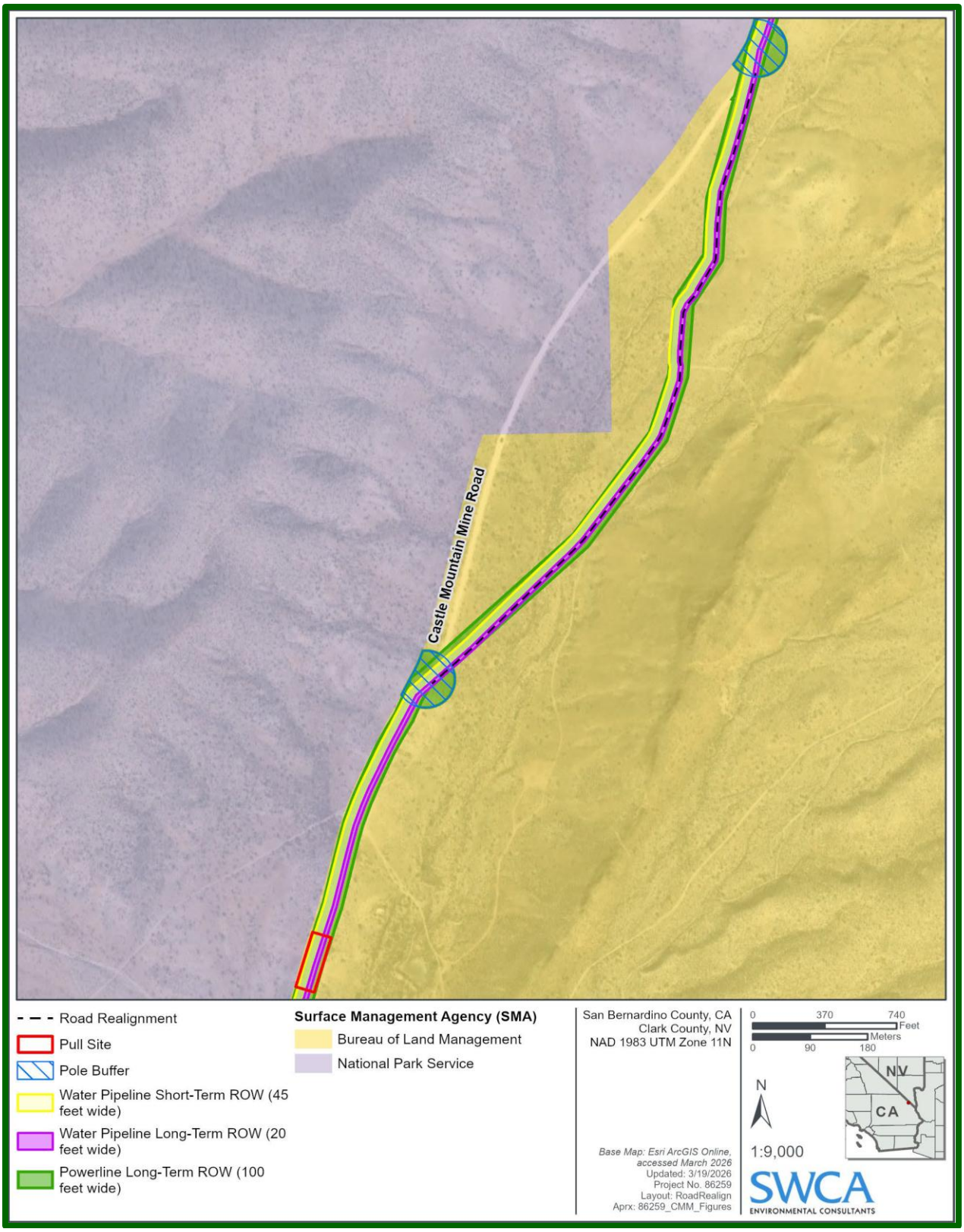


Figure 1. Proposed location of access road to avoid Mojave National Preserve, San Bernardino County, CA**.**

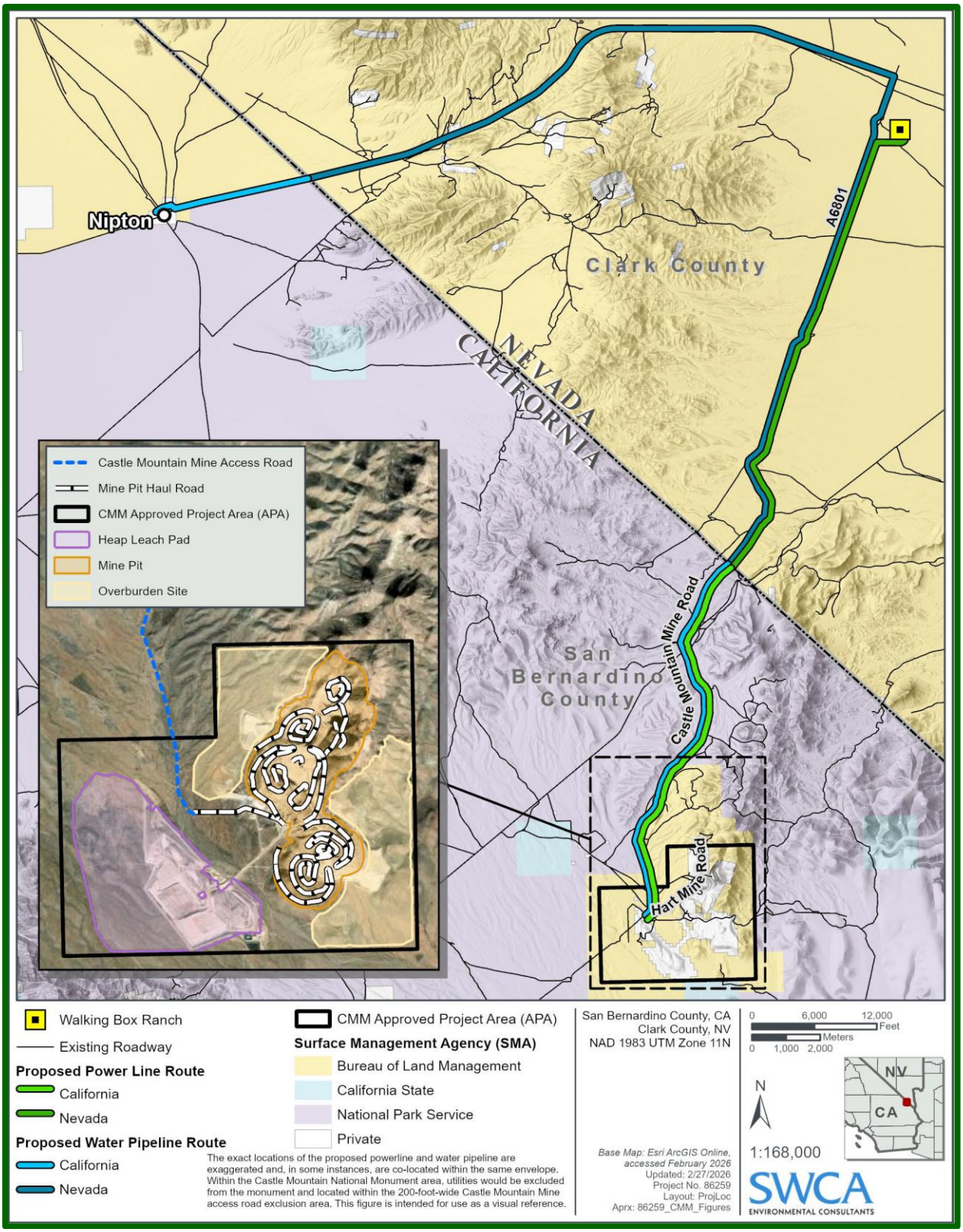


Figure 2. Map of Castle Mountain Mine site and access road with proposed pipeline from Nipton, CA and powerline from Walking Box Ranch.

Comments on the Draft Environmental Impact Statement

No Receipt of Email or Written Notification from BLM on the Availability of the DEIS
The Council did not receive notification from BLM about the availability of the DEIS for public review and comment.

On November 7, 2019 the Council sent via certified mail a written request to Mike Ahrens, Field Manager of the BLM Needles Field Office to identify the Council as an Affected Interest for proposed projects that may affect the tortoise. Subsequent to this, the Council has sent other letters to the BLM Needles Field Office commenting on BLM proposed actions/proposed projects with this same request including:

- July 5, 2023 comments on Mojave Trails National Monument Management Plan;
- July 31, 2023 comments on Cadiz MLA ROW Assignment;
- April 30, 2024 comments on Rigo Favela Access Road Right-of-Way Categorical Exclusion;
- October 28, 2025 comments on Desert Star Critical Minerals Drill Project
- November 19, 2025 comments on Castle Mountain Mine Phase II Expansion Project – Scoping.

While in 516 DM 1 – U.S. Department of the Interior Handbook of National Environmental Policy Act Implementing Procedures (2026) (DOI NEPA Procedures), DOI no longer mandates engaging the public during the NEPA process except for when publishing a Notice of Intent in the *Federal Register*, the NEPA Procedures Handbook does say that bureaus "may request the comments of the public, including by affirmatively soliciting comments in a manner designed to inform those persons or organizations who may be interested in or affected by the proposed action." We request that BLM implement this option with respect to the Council for BLM proposed actions/proposed projects that are likely to affect tortoises/tortoise habitat.

In addition, in the DOI's *Federal Register* Notice of the NEPA Regulations (91 *FR* 39: 8739), DOI states, "NEPA requires that copies of such [environmental impact statements] and the comments and views of the appropriate Federal, State, and local agencies, which are authorized to develop and enforce environmental standards, shall be made available to the President, the Council on Environmental Quality and to the public." DOI NEPA Procedures (DOI 2026) also require that "an EA or EIS must include a focused scientific and analytic comparison of the proposed action and alternatives." For analysis provided by an applicant, the bureaus must "maintain the scientific quality and integrity of the impact assessment."

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 BLM to stay current with the scientific findings on the tortoise/tortoise habitat. BLM would use the Council's comments and provided information to describe and *analyze* [emphasis added] in its NEPA 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 BLM policy in BLM Manual 6840 – Special Status Species Management (BLM 2024).

In Section 7(a)(1) of FESA, Congress stated 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. Consequently, we request that the Council be informed, preferably by email, of BLM's proposed actions/proposed projects that may affect the tortoise/tortoise habitat so we may assist BLM in complying with the science-based requirement in the NEPA Procedures Handbook and compliance with Section 7(a)(1) of FESA.

In BLM Manual 6840 – Special Status Species Management, this 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 Applicant to contribute to the recovery of the tortoise, in addition to measures that minimize impacts from the proposed Project to tortoises/tortoise 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.

Identification of Alternatives to the Applicant's Proposed Project

In our scoping letter to BLM (dated November 19, 2025), we requested that BLM 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. These alternatives were recommended to comply with BLM's directive under the Federal Land Policy and Management Act (FLPMA) to "take any action necessary to prevent unnecessary or undue degradation of the lands." In the DEIS there is an alternative that looks at using solar energy

production as a source of power for the Mine. We thank BLM for including and analyzing this alternative in the DEIS. However, we were unable to find an alternative that was analyzed or considered but not analyzed in detail (Appendix L) that avoided the use of toxic or hazardous material in the mining and processing of ore whenever possible. More reasons for our recommendation to develop this alternative are included on page 15 of our scoping comment letter, which is attached.

In DOI NEPA Procedures (DOI 2026), DOI says, "Bureaus have several options for addressing substantive comments, including:

- Modifying one or more alternative(s);
- Developing and evaluating suggested alternatives not previously given serious consideration by the bureau;
- Supplementing, improving, or modifying the analysis;
- Making factual corrections; or
- Explaining why the comments do not warrant further bureau response, citing sources, authorities, or reasons to support the bureau's position."

Additionally, "Whether the bureau is preparing an EA or an EIS, the bureau should explain its reasons for not evaluating alternatives, particularly when those alternatives have been recommended for consideration through scoping or other public participation, including any public comments" (DOI 2026).

Consequently, we request that in the Final EIS BLM comply with FLPMA and DOI NEPA Procedures and 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.

Page 21, Plan of Development, Underground Water Pipeline: "Prior to the issuance of a notice to proceed (NTP), the Southern Nevada BLM District would require the completion of a restoration plan template. More information on the reclamation plan can be found in Chapter 6 of the POD (Appendix K)."

We were unable to find Appendix J on the BLM NEPA webpage for the DEIS. Rather we found appendices A through I and Appendix L on this webpage. Appendices J and K were missing from the DEIS. After exiting the webpage for the DEIS we found the "Underground Water and Powerline Plan of Development" on a separate webpage.

Please explain the reason that the BLM Needles Field Office and the California Desert Conservation Area (CDCA) District Office are not included as BLM offices that would require completion of the restoration plan template or its review. Under FLPMA, the CDCA has more stringent directives with respect to management of public lands than in southern Nevada. Because the proposed Project and reclamation activities would affect desert tortoise habitat including critical habitat, the U.S. Fish and Wildlife Service (USFWS) and CDFW (the tortoise is listed as endangered under CESA) should review and approve the restoration plan template and restoration plan prior to implementation. Please revise the Underground Water and Powerline Plan of Development to include BLM in California, USFWS including the Desert Tortoise Recovery Office, and CDFW.

We ask that the information provided in the "Underground Water and Powerline Plan of Development" regarding success criteria by clarified in the Final EIS. Table 9, Success Criteria, indicates that the density (number of perennial plants per acre) would be 255 or 6% after 5 years and 895 or 21% after 10 years, which is the end of the reclamation period. Richness (total number of species on site) would be 5 different species or 4% after 5 years and 18 different species or 15% after 10 years. Are the numbers and percentages being compared to the undisturbed vegetation reference plots? If so, do these numbers mean that after 10 years, 21 percent of the perennial plant cover of an undisturbed reference plot would be present and 15 percent of the perennial plant species richness or diversity of an undisturbed reference plot would be present after reclamation efforts? If this interpretation is correct, we are concerned that BLM would accept this low standard for "success" of the reclamation effort.

Please see our comments under "Page 55, General Vegetation, Environmental Consequences, Impacts of Proposed Action" regarding the success of "reintroducing native perennial plant species" and reclamation activities that according to reports in the scientific literature should be implemented to improve the success.

Page 24, Plan of Development, 69-KV Overhead Power Line: "Reclamation success would be monitored annually using standardized transects or plots consistent with CMV's reclamation plan in the 2025 Plan Update (Appendix J), until BLM-approved success criteria are achieved."

Please see our comments under "Page 21, Plan of Development, Underground Water Pipeline." They apply with respect to comments on the reclamation plan for vegetation.

We reiterate our comment above under "Page 21, Plan of Development, Underground Water Pipeline" about not finding Appendix J on the BLM NEPA webpage.

To eliminate future confusion by the reviewing public, we recommend that BLM correct this misnaming of the documents so that they match the names in the Table of Contents of the NEPA document, the narrative, and BLM's list of documents on the NEPA webpage for the proposed project.

Page 25, 2.2.2.3 Staging Areas: "Staging areas would be used to store equipment, materials, and supplies associated with construction of both the water pipeline and the overhead power line."

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 Final EIS, the decision document, and authorizations for the Project.

Page 33, Affected Environment and Environmental Consequences, Table 3.1-3.1-1. Resources Analyzed in Detail: This table lists the resource topics and issues analyzed in detail in the DEIS. For every resource topic, the issues analyzed are limited to direct disturbance.

According to DOI's National Environmental Policy Act Implementing Regulations Final Rule (91 *FR* (36) 8753) "DOI bureaus were and are required to consider effects that are both reasonably foreseeable and have a reasonably close causal relationship to their proposed actions." This table does not indicate that there is a description and analysis of indirect or cumulative effects for any resource topic or the areal extent of these effects.

When researching the definition of "environmental consequence," the partial title of this chapter, we found that it is defined as "the direct and indirect outcomes of human activities that affect the environment." When looking up the definition of "environmental effect" in NEPA, we found that Congress did not define it in this statute. The dictionary defines "environmental effect" as the effect that the activities of people and businesses have on the environment." In DOI's "National Environmental Policy Act Implementing Regulations" (91 *FR* (36) 8738-8762), DOI states that "NEPA does not contain any provisions addressing any specific type of environmental impact." "Direction from within the executive branch may in the past have pushed agencies to articulate environmental analysis according to artificial distinctions between 'direct,' 'indirect,' and 'cumulative' types of effects, . . . but that direction has now been rescinded" (91 *FR* (36) 8753).

While that direction may have been rescinded, we found no information that gives the executive branch the authority to narrow the meaning of a term used in a statute (i.e., "environmental impact" in NEPA) without documentation that this was the intent of Congress. In other words, DOI and BLM should not declare that they know what Congress meant when it used the term "environmental effect" and assume it was limited to direct actions or to the location of direct environmental effects/direct disturbance.

In addition, in a recent court decision regarding the USFWS's wording of the regulations to narrow the meaning of "adverse modification" of critical habitat, the court found that the regulatory wording imposed "a significant restriction on the statutory language" (Center for Biological Diversity, et al. v, Department of the Interior, et al. Case No. 24-cv-04651-JST, March 20, 2026). We contend that DOI's regulations narrow the meaning of "environmental effects" from what is presented in the NEPA statute for environmental impacts.

It appears that BLM decided to limit the issues analyzed and areas affected in the Environmental Consequences chapter of the DEIS to the area of effects from direct disturbance plus a 500-foot buffer. However, we found no information to explain what authority in NEPA they used to limit this analysis. Without such authority from Congress, we contend that BLM should have analyzed in the DEIS the identified resource issues and all environmental effects (i.e., direct, indirect, synergistic, interactive, and cumulative effects) from implementation of the alternatives in the DEIS including the areal extent of the indirect effects. The analysis of all environmental effects is especially crucial for the tortoise for several reasons — the Mine expansion will result in multiple threats resulting in multiple impacts/effects to the tortoise/tortoise habitat, the tortoise population in the Mine area and nearby faces a suite of threats simultaneously from other human activities in the area in addition to the Mine expansion, and many of these threats interact with one another making their impacts greater than adding the impacts together (Tracy et al. 2004).

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 Final EIS comply with NEPA and analyze environmental effects for all actions associated with the Project, not a subset of these effects, especially for the tortoise and other listed and special status species and their habitats. This analysis would mean that the buffer area of 500 feet from the location of direct impacts would need to be enlarged to include the area of indirect impacts as well as synergistic, interactive, and cumulative impacts.

Page 36, Long-term Productivity: BLM states that there will be an "estimated 10-year reclamation period" and "reclamation efforts are designed to restore landforms and support native plant and wildlife habitat."

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 BLM gives for monitoring reclamation is unsupported by references from the scientific literature in the DEIS. The reclamation period for vegetation would be much longer with the Applicant implementing the vegetation methods the Applicant described in the DEIS. We conclude that BLM arbitrarily selected this reclamation time period and request that BLM 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 comply with FLPMA's mandate to prevent unnecessary or undue degradation of the lands.

Page 54, General Vegetation, Environmental Consequences, Analysis Method: "It is assumed that a 50-foot buffer surrounding the Project Area encompasses all areas that may be impacted."

As mentioned above, DOI requires a focused scientific and analytic comparison of the proposed action and alternatives (DOI 2026). In this section of the DEIS we found no scientific or analytic comparison. Rather 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 (e.g., "It is assumed that a 50-foot buffer surrounding the Project Area encompasses all areas that may be impacted"). We ask why a 50-foot buffer is assumed to encompass all areas that may be impacted. Why not a 25-foot or 100-foot buffer? Thus, the designation of a 50-foot buffer by BLM 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 does not appear to comply with DOI NEPA Procedures. Nor does it appear to comply with the DOI's NEPA Regulations (91 FR (36) 8738 – 8761) that provide much of the reasoning/explanation for the development of the DOI NEPA Procedures (e.g., "NEPA further mandates that Federal agencies ensure the professional and scientific integrity of environmental documents; [and] use reliable data and resources when carrying out NEPA" (91 FR (36) 8738).

In addition, making an assumption about an analysis of impacts to vegetation, which in the Mojave Desert are long-term impacts (several decades to more than a century; Abella 2010) does not appear to comply with BLM's policy on "Advancing Science in the BLM: An Implementation Strategy" (BLM 2015). For this resource issue and all others in the DEIS, BLM should provide references from the scientific literature that support the assumptions used in making their analyses.

Because NEPA does not limit environmental effects to direct effects/impacts (see our comments under "Page 33, Affected Environment and Environmental Consequences, Table 3.1-3.1-1. Resources Analyzed in Detail"), the assumption that a "50-foot buffer surrounding the Project Area encompasses all areas that may be impacted" would not likely be adequate when analyzing the indirect impacts from Mine activities to the tortoise.

Please review the assumptions that were made in the environmental consequences sections for each resource issue and provide reasons with supporting references from the scientific literature regarding why these assumptions are likely accurate statements.

Page 55, General Vegetation, Environmental Consequences, Impacts of Proposed Action: "These native vegetation communities may be impacted through the following: altered surface hydrology through change in surface topography related to ground disturbance; dust accumulation, possibly reducing photosynthetic rate, and soil compaction reducing plant's ability to germinate and/or inhibiting root growth, introduction and competition of nonnative plant species through Project construction and activities, which could compete against native plant species, may alter the seedbank, or alter the physical structure of the local vegetation community."

This is an example of how the DEIS contains a list of impacts but no analysis of how those named impacts would affect the vegetation communities especially for the duration of the Project. In addition, 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. Please see our comments under "Page 54, General Vegetation, Environmental Consequences, Analysis Method" for reasons why we believe this analysis does not comply with the DOI NEPA Procedures or BLM policy regarding the use of science.

In this section of the DEIS, we found no *analysis* [emphasis added] of the deposition of anthropogenic dust on native vegetation, its areal extent under past mining operations, or its likely areal 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 settling (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 turbulence (http://www.epa.gov/ttnchie1/ap42/ch13/final/c13s02.pdf). 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" according to the DEIS 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 areal 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.

Under the "Impacts to Wildlife" section of the DEIS, BLM should have analyzed 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 Final EIS. The impacts to critical habitat for the tortoise from dust deposition should also be analyzed in the Final EIS.

"Implementation of ACEPMs [applicant-committed environmental protection measures] would reduce impacts related to loss of vegetation communities by minimizing impacts related to fugitive dust and erosion and sediment (AQ-47 and REC-27); maintaining native seedbank through topsoil salvage (PLANTS-1, REC-4); reintroducing native plant species through reseeding and revegetation (plant salvage) (REC-5, REC-6, REC-7, REC-8, REC-9, REC-11, REC-13); and reducing introduction and spread of nonnative plant materials by pressure washing vehicles before and after site visits, conducting vehicle/equipment checks (WEED-1), using certified weed-free products (REC-39), and conducting annual monitoring (REC-40) (Appendix E)."

We found no references from the scientific literature in the DEIS that support this statement. 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, 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).

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 BLM desires to have a high level of success in rehabilitating the Mine site, accelerate the natural revegetation process, and demonstrate that it is taking "any action necessary to prevent unnecessary or undue degradation of the lands" as mandated by FLPMA, BLM 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.

In addition, we reiterate our concerns identified in our November 19, 2025 Scoping letter to BLM (attached) on "Effectiveness of Reclamation in Meeting the FLPMA's Requirements of Maintenance of Environmental Quality and Preventing Unnecessary or Undue Degradation of the Lands." Please respond to these substantive issues in the Final EIS.

Page 56, Noxious Weeds and Invasive Species, Environmental Consequences, Impacts of Proposed Action: "The analysis area for noxious and invasive weed species includes the Project Area and an additional 50-foot buffer."

We found no information on how BLM determined that the analysis area for this resource issue should be the Project Area and an additional 50-foot buffer. Please see our comments under "Page 54, General Vegetation, Environmental Consequences, Analysis Method" because they apply to BLM's statement about the analysis area.

Page 57, Noxious Weeds and Invasive Species, Environmental Consequences, Impacts of Proposed Action: "Construction activities such as ground disturbance, vegetation removal, and equipment travel cause soil disturbance, which can increase the likelihood of noxious and invasive species spread."

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 also be analyzed in the Final EIS.

Page 58, Noxious Weeds and Invasive Species, Environmental Consequences, Impacts of Proposed Action: "The suggested methods of nonnative control are manual clearing or the use of approved herbicides, depending on the species and the extent of the infestation."

BLM 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 NEPA document to include the use of other effective methods such as directed energy to control invasive plants and noxious weeds.

BLM should add to this NEPA document 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 58, Noxious Weeds and Invasive Species, Environmental Consequences, Impacts of Proposed Action: "Reintroduction of native plant species through reseeding and revegetation (plant salvage) would increase competition, limiting available cover for nonnative plants."

Please see our comments under "Page 55, General Vegetation, Environmental Consequences, Impacts of Proposed Action" expressing our concern that no references from the scientific literature were provided to support this statement. Our comments provide information and references from the scientific literature on why reseeding is not an effective method to establish native perennial plant species in the Mojave Desert and why the appropriate biological components of the soil are crucial to have a high survival for outplantings.

Page 58, Special Status Species – Plants: "The analysis area for special-status plant species includes the Project Area and an additional 50-foot buffer, which includes the proposed expansion of the mine pits, overburden sites, and heap leach pad, and installation of the associated underground water pipeline and 69-kV overhead power line."

We found no information on how BLM determined that the analysis area for this resource issue should be the Project Area and an additional 50-foot buffer. Please see our comments under "Page 54, General Vegetation, Environmental Consequences, Analysis Method" because they apply to BLM's statement about the analysis area.

Page 61, Special Status Species – Plants, Environmental Consequences, Impacts of Proposed Action: "Implementation of these ACEPMs would reduce impacts related to fugitive dust and erosion and sediment (DF-1 and DF-2); maintain native seedbank through topsoil salvage (RECL-3); reintroduce native plant species through reseeding and revegetation (plant salvage) (RECL-4, RECL-5, RECL-6, and RECL-7); and reduce introduction and spread of nonnative plant materials by pressure washing vehicles before and after Project site visits, conducting vehicle/equipment checks (WEED-1), removing invasives during reclamation (RECL-8), and using certified weed-free products (RECL-7) annual monitoring (RECL-9) (Appendix E)."

Please see our comments under "Page 55, General Vegetation, Environmental Consequences, Impacts of Proposed Action" that identified that no references from the scientific literature were provided to support this statement. Our comments provide information and references from the scientific literature on why reseeding is not an effective method to establish native perennial plant species in the Mojave Desert and why the appropriate biological components of the soil are crucial to have a high survival for outplantings.

Page 61, Cactus and Yucca Species: "The analysis area for cactus and yucca species includes the Project Area and an additional 50-foot buffer totaling approximately 4,749 acres."

We found no information on how BLM determined that the analysis area for this resource issue should be the Project Area and an additional 50-foot buffer. Please see our comments under "Page 54, General Vegetation, Environmental Consequences, Analysis Method" because they apply to BLM's statement about the analysis area.

Page 65 and 66, Special-Status Species – Wildlife, Environmental Consequences, Analysis Method: BLM provided nine assumptions that were used when analyzing the environmental consequences of the alternatives. We found no references from the scientific literature in the DEIS that support these nine assumptions. This absence of information to demonstrate that science was used in determining the relevancy of these assumptions does not appear to comply with DOI NEPA Procedures. Nor does it appear to comply with the DOI's NEPA Regulations (91 *FR* (36) 8738 – 8761) that provide much of the reasoning/explanation for the development of the DOI NEPA Procedures (e.g., "NEPA further mandates that Federal agencies ensure the professional and scientific integrity of environmental documents; [and] use reliable data and resources when carrying out NEPA" [91 *FR* (36) 8738]. Please see our comments under "Page 54, General Vegetation, Environmental Consequences, Analysis Method" on how BLM should develop and support their assumptions using information from the scientific literature and referencing this literature in the NEPA document.

Page 67, Special-Status Species – Wildlife, Environmental Consequences, Impacts of Proposed Action, Nelson's Bighorn Sheep: "Two wildlife guzzlers are currently present at the mine site and have documented sheep use (ECORP 2021a); however, the pit lake may provide an additional water source, as well as foraging habitat once vegetation grows around the perimeter of the lake."

A similar pit lake from a former gold mine is present nearby in Mojave National Preserve. Communication with Mojave National Preserve staff reveals that vegetation that grows around the perimeter of the pit lake is limited because of the rocky substrate and is dominated by tamarisk (*Tamarix ramosissima*). According to a presentation by Joseph DiTomosa, Professor Emeritus of Plant Sciences at University of California, Davis at the Western Society of Weed Science, no native mammals are known to feed on mature *Tamarix*. In addition, feral burros frequently use the pit lake in Mojave National Preserve as a watering site.

Pages 67-70, Special-Status Species – Wildlife, Environmental Consequences, Impacts of Proposed Action: In these sections the impacts of the action alternatives are described, but we found no *analysis* [emphasis added] of the effects or impacts. In addition, we found no references from the scientific literature to support the description of impacts that BLM made in the DEIS. This absence of information to demonstrate that science was used in identifying and analyzing these impacts does not appear to comply with DOI NEPA Procedures. Nor does it appear to comply with the DOI's NEPA Regulations (91 *FR* (36) 8738 – 8761) that provide much of the reasoning/explanation for the development of the DOI NEPA Procedures (e.g., "NEPA further mandates that Federal agencies ensure the professional and scientific integrity of environmental documents; [and] use reliable data and resources when carrying out NEPA" [91 *FR* (36) 8738]. Please see our comments under "Page 54, General Vegetation, Environmental Consequences, Analysis Method" on how BLM should develop and support their assumptions using information from the scientific literature and referencing this literature in the NEPA document.

Page 70, Threatened or Endangered Species – Wildlife: "The only federally threatened or endangered wildlife species with the potential to occur within the Project Area is desert tortoise (*Gopherus agassizii*). The analysis area consists of the proposed disturbance footprint plus a 500-foot buffer to account for potential effects that may extend beyond the immediate disturbance footprint."

Page 71, Threatened or Endangered Species – Wildlife, Environmental Consequences, Analysis Method: "The analysis method is the same as discussed for special-status wildlife species, see Section 3.6.6.2.1, Analysis Method." "The analysis area includes the disturbance footprint plus specific spatial buffers that vary by species to account for their unique movement patterns and habitat requirements."

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 DEIS 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. Again, we are unsure how BLM determined that a 500-foot buffer would be appropriate for the tortoise. No references from the scientific literature were provided to support this 500-foot buffer 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 Final EIS 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. Please see our comments below under "Appendix C Referenced Figures, Figure C.3.6-1. Special Status Wildlife Species in the Biological Resources Analysis Area" that provide information why the 500-foot buffer is inadequate to encompass the adverse effects to the tortoise/tortoise habitat from implementation of the action alternatives.

Pages 71-72, Threatened or Endangered Species – Wildlife, Environmental Consequences, Impacts of Proposed Action: In this section of the DEIS we found a narrative listing and description of the impacts to the tortoise/tortoise habitat. For example, BLM says, "during ground-disturbing activities, desert tortoise or their burrows may be crushed by vehicles or equipment during all phases of the Proposed Action or fall in open trenches and holes associated with construction of the utilities, resulting in injury or mortality to tortoise individuals and eggs. Vehicular collisions could also occur due to increased vehicular traffic during construction and operation."

We did not find an *analysis* [emphasis added] of how these impacts would affect the *survival and recovery* [emphasis added] of the tortoise in the Ivanpah Valley TCA, El Dorado Valley TCA, the Eastern Mojave Recovery Unit, or rangewide. For example, if BLM had conducted an 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. In the Final EIS, BLM 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 in response to the publication of a Notice of Intent by BLM for the proposed Project, 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 Final EIS the BLM 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 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.

According to DOI's National Environmental Policy Act Implementing Regulations Final Rule (91 *FR* (36)8753) "DOI bureaus were and are required to consider effects that are both reasonably foreseeable and have a reasonably close causal relationship to their proposed actions." We consider the impacts initially identified in our November 19, 2025 letter and again herein to be reasonably foreseeable and have a close causal relationship to the proposed Project.

In DOI NEPA Procedures (DOI 2026), bureaus are directed to address substantive comments from the public. These include:

- Supplementing, improving, or modifying the analysis;
- Making factual corrections; or
- Explaining why the comments do not warrant further bureau response, citing sources, authorities, or reasons to support the bureau's position.

In addition, "If a bureau solicits public comments, it should document how those comments were addressed" (DOI 2026).

BLM solicited public comment through publication of a Notice of Intent for the proposed Project. We conclude that BLM must agree with our identified impacts or effects to the tortoise, because we were unable to find in the DEIS an explanation of why our comments did not warrant further BLM response, citing sources, authorities, or reasons to support the BLM's position. We did not find many of these impacts or effects identified in our November 19 letter to be discussed in the DEIS and found no information on BLM's analysis of effects with respect to the survival and recovery of the tortoise. We conclude that the DEIS does not comply with DOI NEPA Procedures or DOI's NEPA Implementing Regulations Final Rule. Consequently, we request that BLM include in the Final EIS an analysis of impacts or effects to the tortoise/tortoise habitat identified in our November 19, 2025 letter and address the other comments in our November 19 letter that are not addressed in the DEIS.

Page 72, Threatened or Endangered Species – Wildlife, Environmental Consequences, Impacts of Proposed Action: "BLM will initiate formal consultation (50 CFR 402.14) with the Service and based on recommendations by the Service, the BLM may implement mitigation with the goal of offsetting effects of the proposed action on the desert tortoise."

We remind BLM 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. They must - not may - be implemented. BLM is required to include them in the document authorizing the expanded mining activities and for the Applicant to receive coverage for incidental take.

Page 72, Threatened or Endangered Species – Wildlife, Environmental Consequences, Impacts of Proposed Action: "The Proposed Action would impact approximately 1,753 acres of suitable desert tortoise habitat (i.e., Mojavean desert scrub, grasslands, and associated habitats) and 118 acres of USFWS-designated critical habitat within the analysis area." The CDCA Plan as amended requires compensatory mitigation for projects that result in the loss of tortoise habitat. This compensation should be listed as an ACEPM in the DEIS. Please add this requirement in the Final EIS.

Page 72, Threatened or Endangered Species – Wildlife, Environmental Consequences, Impacts of Proposed Action: "Impacts to desert tortoise would also be reduced through implementation of ACEPMs described for general reptile species."

We were unable to find in the ACEPMs in the DEIS 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.

Pages 71-72, Threatened or Endangered Species – Wildlife, Environmental Consequences, Impacts of Proposed Action: In the Council's November 19, 2025 letter to BLM, we requested that impacts to the habitat of the Mohave tui chub (*Siphateles bicolor mohavensis* = *Gila bicolor mohavensis*) be analyzed with respect to changes in groundwater elevation and groundwater quality for this species. In the DEIS, BLM provided the results of modeling groundwater elevation changes from implementation of the proposed Project, but we did not find an analysis of these declines added to ongoing declines from existing water uses for Mohave tui chub habitat. In fact, we did not find any mention of the Mohave tui chub in the DEIS.

In the DEIS, we did not find that BLM addressed our comments regarding an analysis of impacts to the Mohave tui chub and its habitats. We request that in the Final EIS BLM follows DOI NEPA Procedures and addresses the substantive comments the Council submitted in response to the NOI during the scoping public comment period and during the public comment period for the DEIS.

Appendix B Referenced Tables

Page B-21, Table B-1.3.6-4: In this table, BLM says that for the desert tortoise "Disturbance footprint intersecting suitable and/or critical habitats tortoise habitat plus a 150-meter (500-foot buffer) to account for edge effects (Desert Tortoise Council 2017)." In the DEIS, the citation "Desert Tortoise Council 2017" is "A Compilation of Frequently Implemented Best Management Practices to Protect Mojave Desert Tortoise during Implementation of Federal Actions," which is located on the Council's website (https://deserttortoise.org/wp-content/uploads/dtc_construction_BMPs_090517.pdf). In reading this document, the only mention of "500" is for the impact of blasting. In the document the Council says, "A 200-foot radius buffer area around the blasting site shall be surveyed, and all desert tortoises above ground within this 200 foot buffer shall be moved at least 500 feet from the blasting site, placed in unoccupied burrows, and temporarily penned to prevent from returning to the site." Consequently, we are unsure how BLM used this information to determine that a 500-foot buffer was suitable for edge effects for all threats to tortoises/tortoise habitat.

BLM is correct that any development within tortoise habitat or adjacent to/near tortoises has an edge effect (i.e., indirect impact) that extends beyond the boundary of the development and into adjacent habitat including linkage habitat. This edge effect narrows or impedes the use/effectiveness of tortoise habitat including linkage habitat needed to connect tortoise populations depending on the extent of the edge effect (Averill-Murray et al. 2021). However, the distance that the edge effect extends into adjacent tortoise habitat varies by the type of development. As presented under our comment on "Appendix C Referenced Figures Figure C.3.6-

1. Special Status Wildlife Species in the Biological Resources Analysis Area," the edge effect from a lightly-used road ranges from 1.1 to 1.4 km (3,620 to 4,608 feet = 0.68 to 0.87 mile) and this effect increases in distance with increased road use (Von Seckendorff Hoff and Marlow 2002). Consequently, this edge effect is greater than the 500 feet that BLM applied to all threats to the tortoise from the proposed Project wherever vehicle use on a road occurs. We request that BLM revise the buffer for edge effect distance that it used in the DEIS so the appropriate distance is applied for the type of threat (i.e., 1.1 to 1.4 km for a lightly-traveled road, etc.).

Appendix E Applicant-Committed Environmental Protection Measures

Fire Prevention and Control: Fire Measures – 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 CMM or along access roads used by Mine vehicles or equipment that were the source of the fire.

We found few measures that would prevent fires from occurring along the access routes. Rather, the focus of the Fire Prevention and Control Measures is at the Mine Site, only. We remind BLM and 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.

Air Quality: "AQ-4b. Speed restrictions shall be enforced on mine roads to minimize surface disturbance of the roadways**.**" "A maximum speed limit of 35 miles per hour will be posted."

We ask under what authority the Applicant has to enforce the speed limit on access roads that are not within the Mine site. If the Applicant has this authority, we found no information on how the Applicant would enforce the speed limit along roads used to access the Mine site. For example, the Applicant is contracting with a waste management company to remove regularly solid waste during all phases of the Project. Please ensure the definition of "mine roads" includes access roads and how the Applicant will enforce the speed limits.

Typical speed limits for projects in tortoise habitat including access roads are either 15 or 25 mph. This speed limit is to ensure that the driver of a vehicle will have time to see a small tortoise on the road and not strike it causing injury or death. Any tortoises injured, killed, or collected by the Applicant or a contractor would be "take" under the FESA and CESA, and would apply to the take limits that USFWS allows in the biological opinion for the Project and CDFW allows in the Section 2081 incidental take permit for the Project. Please explain why the speed limit is greater than that usually implemented for projects in tortoise habitat. In the Final EIS, recommend that speed limits for all Mine personnel be posted at 15 mph.

Air Quality: "AQ-11. As required by the MDAQMD, PM10 concentrations shall be monitored at several locations near the project boundaries."

This monitoring 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 (see our comments under "Page 55, General Vegetation, Environmental Consequences, Impacts of Proposed Action").

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. Again, we remind BLM of their directive under FLPMA to "take any action necessary to prevent unnecessary or undue degradation of the lands." 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 would comply with this requirement in FLPMA.

Biology (Wildlife): Covered under BLM ROD (1998), Reasonable and Prudent Measures set forth in the California Department of Fish and Wildlife's (CDFW's) Incidental Take Permit (ITP) for desert tortoise,# US FWS BO," BLM DR (2020)††, and pending MPO (Appendix J) and POD (Appendix K)"

This heading is incomplete or unclear. The dates of issuance for the CDFW's Incidental Take Permit and USFWS's biological opinion were not provided in this section of the ACEPMs. Because the dates for the other documents mentioned were either provided or have the word "pending" before them, this absence of information for the ITP and biological opinion is confusing.

Later under ACEPM, "WILD-18 Desert Tortoise," states "the Applicant shall implement the terms and conditions to comply with the reasonable and prudent measures set forth in the USFWS Biological Opinion (BO)," and "Wild-19 Desert Tortoise" that says, "the Applicant shall implement the terms and conditions to comply with the reasonable and prudent measures set forth in the CDFW ITP." This is followed by several reasonable and prudent measures and terms and conditions listed as "Wild 20" through "Wild 42." This information suggests that the CDFW's ITP and USFWS's biological opinion have been issued for the Project but were not made available to the public.

Please clarify whether the USFWS's biological opinion and the CDFW's ITP for the Project have been issued, and if so, why the reasonable and prudent measures and terms and conditions that the Applicant is required to implement under FESA and CESA are not included in this section. In addition, we suggest including copies of these documents as an appendix to the Final EIS per DOI (2026) procedures under NEPA.

In reviewing the Biology (Wildlife) section of the ACEPMs, we were unable to find a commitment by the Applicant to monitor the structures and facilities named in this section. Monitoring is essential to ensure that their design is effective in avoiding impacts to wildlife, including the tortoise. For example, any fencing that is constructed to prevent access by wildlife should be

monitored throughout the life of the Project and damage repaired/replaced within a day or two of discovery. For tortoise exclusion fencing, a breach may be caused by vandalism, ineffective construction to exclude tortoises (e.g., in rocky substrates), a rainfall event (e.g., erosion or deposition of soil material), or failure of materials because of environmental extremes (especially when plastic fencing is used). Therefore, it is important to monitor exclusion fencing several times throughout the year and immediately after rainfall events. Monitoring is crucial for the facilities and to ensure that their design and implementation are operating to avoid impacts to wildlife including the tortoise for the life of the Project.

WILD-10 Cyanide-related animal mortalities must be reported monthly to the BLM Needles Field Office no later than the 10th of each month. "The report shall include the following information: The number and kind of each mortality attributed to cyanide. 'Kind' will be reported under one of the following categories: raptors, songbirds, upland game birds, waterfowl, shorebirds, mammals, and other; location where the dead animal was found; and other information requested by the BLM."

The USFWS and CDFW should also receive these reports because of their responsibilities under the Migratory Bird Treaty Act and applicable California Fish and Game Codes.

WILD-12 "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.

Appendix C Referenced Figures

Figure C.3.6-1. Special Status Wildlife Species in the Biological Resources Analysis Area: As indicated by this figure, the analysis area for the desert tortoise did not include the action area. The "action area" is defined in 50 Code of Federal Regulations 402.2 and the USFWS Desert Tortoise Field Manual (USFWS 2009) as "all areas to be affected directly or indirectly by proposed development and not merely the immediate area involved in the action." Thus, the 100% coverage survey area is larger than the project footprint/project site. CDFW has adopted the USFWS's 100% coverage survey as the methodology to use (https://wildlife.ca.gov/Conservation/Survey-Protocols#377281283-reptiles) to determine tortoise presence/use of the action area.

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).

In reviewing the figure indicating the analysis area for the tortoise, the area appears to be substantially smaller than the action area based on the likely impacts of the proposed Project to the tortoise/tortoise habitat. Thus, the impacts to the tortoise described and analyzed in the DEIS would be less than those that are likely to occur.

In addition, BLM's decision to identify a smaller analysis in the DEIS than the action area required for analysis in a biological assessment does not comply with the DOI NEPA Procedures (DOI 2026). In Section 3.8, Integrating NEPA with other environmental requirements, DOI (2026) directs its agencies to "combine an environmental document [e.g., environmental assessment or environmental impacts statement] or other document prepared in compliance with NEPA with any other agency document to reduce duplication and paperwork."

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

Page 24, Preliminary Reclamation Plan, Reclamation Methods: "The occurrence of invasive species onsite after revegetation shall be monitored by visual inspection annually during the annual monitoring. The goal is to prevent invasive species from becoming established and depositing seeds in revegetated areas."

Our experience is that monitoring for the occurrence of invasive plants once a year would not meet the goal of preventing them from becoming established and depositing seeds in revegetated areas. An annual monitoring requirement makes several assumptions that are not realistic including that the seeds are already in place and are not transported to the site late in the growing season, and all seeds of invasive plants germinate at the same time. Monitoring and plant removal should occur throughout the growing season so that invasive plants are removed before they are able to produce seeds.

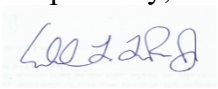
Please see our comments under "Page 58, Noxious Weeds and Invasive Species, Environmental Consequences, Impacts of Proposed Action" about methods used to control invasive non-native plants.

Page 25, Preliminary Reclamation Plan, Monitoring & Success Criteria, Table 9 Success Criteria: Please see our comments under "Page 21, Plan of Development, Underground Water Pipeline" regarding success criteria for reintroduction of vegetation/reclamation.

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 BLM fully considers the scientific information on the species and implements actions to conserve these tortoises as part of its directive under FESA and "Special Status Species Management – Manual 6840" (BLM 2024).

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

Cc: Ron Nuckles, Field Manager, Needles Field Office, Bureau of Land Management, rnuckels@blm.gov
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Literature Cited

Abella, S.R. 2010. Disturbance and plant succession in the Mojave and Sonoran Deserts of the American Southwest. International Journal of Environmental Research and Public Health 7.4 (2010): 1248-1284. https://www.mdpi.com/1660-4601/7/4/1248

Abella, S.R., D.J. Craig, and A.A. Suazo. 2012. Outplanting but not seeding establishes native desert perennials. Native Plants Journal 13:81–89. https://oasis.library.unlv.edu/cgi/viewcontent.cgi?referer=&httpsredir=1&article=1513&context=sls_fac_articles

Abella S.R. and K.H. Berry. 2016. Enhancing and restoring habitat for the desert tortoise (*Gopherus agassizii*). Journal of Fish and Wildlife Management 7(1):255–279. https://doi.org/10.3996/052015-JFWM-046.

Abella, S.R., K.H. Berry, and S. Ferrazzano. 2023. Techniques for restoring damaged Mojave and western Sonoran habitats, including those for threatened desert tortoises and Joshua trees. Desert Plants 38:4-52. https://deserttortoise.org/wp-content/uploads/Abella-et-al-2023-Restoration-in-the-Mojave-Western-Sonoran-Desert-Vegetation.pdf

Allison L.J. and A.M. McLuckie. 2018. Population trends in Mojave desert tortoises (*Gopherus agassizii*). Herpetological Conservation and Biology. 2018 Aug 1;13(2):433-52. http://www.herpconbio.org/Volume_13/Issue_2/Allison_McLuckie_2018.pdf

Averill-Murray, R.C., T.C. Esque, L.J. Allison, S. Bassett, S.K. Carter, K.E. Dutcher, S.J. Hromada, K.E. Nussear, and K. Shoemaker. 2021. Connectivity of Mojave Desert tortoise populations—Management implications for maintaining a viable recovery network. U.S. Geological Survey Open-File Report 2021–1033, 23 p., https://doi.org/ 10.3133/ ofr20211033. https://pubs.usgs.gov/of/2021/1033/ofr20211033.pdf

Belnap, J. 2006. The potential roles of biological soil crust in dryland hydrologic cycles. Hydrological Processes 20:3159–3178.

Belnap, J., and D. A. Gillette. 1998. Vulnerability of desert biological soil crust to wind erosion: the influences of crust development, soil texture, and disturbance. Journal of Arid Environments 39:133–142.

Belnap, J., J.H. Kaltenecker, R. Rosentreter, J. Williams, S. Leonard, and D. Eldridge. 2001. Biological Soil Crusts: Ecology and Management. Bureau of Land Management National Science and Technology Center, Information and Communications Group, Technical Reference 1730-2.

Belnap, J. 2002. Impacts of off road vehicles on nitrogen cycles in biological soil crusts—Resistance in different U.S. deserts. Journal of Arid Environments 52:155–165. https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=beefb9daf0961b5e6461f234c8152622d3b37323

Berry, K.H. 1986. Desert tortoise (*Gopherus agassizii*) relocation: Implications of social behavior and movements. Herpetologica 42:113-125. https://www.jstor.org/stable/3892242

Berry, K.H., J.L.Yee, A.A. Coble, W.M. Perry, and T.A. Shields. 2013. Multiple factors affect a population of Agassiz's desert tortoise (*Gopherus agassizii*) in the northwestern Mojave Desert. Herpetological Monographs 27: 87–109. https://bioone.org/journals/herpetological-monographs/volume-27/issue-1/HERPMONOGRAPHS-D-13-00002/Multiple-Factors-Affect-a-Population-of-Agassizs-Desert-Tortoise-Gopherus/10.1655/HERPMONOGRAPHS-D-13-00002.short

Berry, K.H., L.M. Lyren, J.L. Yee, and T.Y. Bailey. 2014. Protection benefits desert tortoise (*Gopherus agassizii*) abundance: The influence of three management strategies on a threatened species. Herpetological Monographs, 28(1):66-92. 2014. https://meridian.allenpress.com/herpetological-monographs/article-abstract/28/1/66/188924/Protection-Benefits-Desert-Tortoise-Gopherus

Berry, K.H., J.L. Yee, L.M. Lyren, and J.S. Mack. 2020. An Uncertain Future for a Population of Desert Tortoises Experiencing Human Impacts. Herpetologica, 76(1) : 1-11. https://doi.org/10.1655/Herpetologica-D-18-00033

Berry, K.H., L.J. Allison, A.M. McLuckie, M. Vaughn, and R.W. Murphy. 2021. *Gopherus agassizii*. The IUCN Red List of Threatened Species 2021: e.T97246272A3150871. https://dx.doi.org/10.2305/IUCN.UK.2021-2.RLTS.T97246272A3150871.en

[BLM] U.S. Bureau of Land Management. 2015. Advancing Science in the BLM: An Implementation Strategy IB 2015-040. March 18, 2015. https://www.blm.gov/policy/ib-2015-040

[BLM] U.S. Bureau of Land Management. 2024. Special Status Species Management. Handbook 6840. September 9, 2024. https://www.blm.gov/sites/default/files/docs/2024-11/MS%206840%2C%20Rel.%206-142_0.pdf

Boarman, W. 2003. Managing a Subsidized Predator Population: Reducing Common Raven Predation on Desert Tortoises. Environmental Management 32, 205–217 (2003). https://doi.org/10.1007/s00267-003-2982-x

Bowker, M. A. 2007. Biological soil crust rehabilitation in theory and practice: an unexploited opportunity. Restoration Ecology 15:13–23.

Brooks, M.L., and T.C. Esque. 2002. Alien plants and fire in desert tortoise (*Gopherus agassizii*) habitat of the Mojave and Colorado Deserts. Chelonian Conservation and Biology 4:330–340. https://pubs.usgs.gov/publication/1008328

Brooks, M.L. and K.H. Berry. 2006. Dominance and environmental correlates of alien annual plants in the Mojave Desert, USA. Journal of Arid Environments 67: 100–124.

Brooks, M.L. and J.R. Matchett. 2006. Spatial and temporal patterns of wildfires in the Mojave Desert, 1980–2004. Journal of Arid Environments 67 (2006): 148–164. https://cdn.greensoft.mn/uploads/users/1277/files/Greenmongolia/%D0%93%D0%B0%D0%B4%D0%B0%D0%B0%D0%B4/State%20and%20transition%20model/Brooks_Matchett_Mojave_wildfire_2006.pdf

[CDFW] California Department of Fish and Wildlife. 2024a. Status Review for Mojave Desert Tortoise (*Gopherus agassizii*) Report to the Fish and Game Commission, February 2024. https://nrm.dfg.ca.gov/documents/ContextDocs.aspx?cat=CESA-Listing

[CDFW] California Department of Fish and Wildlife. 2024b. 2022-2024 News Releases. California Fish and Game Commission Holds Hybrid Meeting, April 23, 2024. https://wildlife.ca.gov/News/Archive/california-fish-and-game-commission-holds-hybrid-meeting11

Cantón, Y., J. R. Román, S. Chamizo, and M. J. Moro. 2014. Dynamics of organic carbon losses by water erosion after biocrust removal. Journal of Hydrology and Hydromechanics 62:258–268.

Castillo-Monroy, A. P., F. T. Maestre, M. Delgado-Baquerizo, and A. Gallardo. 2010. Biological soil crusts modulate nitrogen availability in semi- arid ecosystems: insights from a Mediterranean grassland. Plant and Soil 333:21–34.

Chaudhary, V. B., M. A. Bowker, T. E. O'Dell, J. B. Grace, A. E. Redman, M. C. Rilling, and N. C. Johnson. 2009. Untangling the biological contributions to soil stability in semiarid shrublands. Ecological Applications 19:110–122.

Chavez-Gonzalez, J.D., V.M. Flores-Núñez, I.U. Merino-Espinoza, and L.P. Partida-Martínez. 2024. Desert plants, arbuscular mycorrhizal fungi and associated bacteria: Exploring the diversity and role of symbiosis under drought. Environmental Microbiology Reports. 2024;16:e13300. wileyonlinelibrary.com/journal/emi4 1 of 17
https://doi.org/10.1111/1758-2229.13300

Chiquoine, L.P., S. R. Abella, and M.A. Bowker. 2016. Rapidly restoring biological soil crusts and ecosystem functions in a severely disturbed desert ecosystem. Ecological Applications 26(4):1260-1272.
https://esajournals.onlinelibrary.wiley.com/doi/abs/10.1002/15-0973

Clark, N.M, M.C. Rillig, and R.S. Nowak. 2009. Arbuscular mycorrhizal fungal abundance in the Mojave Desert: Seasonal dynamics and impacts of elevated CO_2. Journal of Arid Environments 73(9) September 2009: 834-843.
https://www.sciencedirect.com/science/article/abs/pii/S0140196309000688

[Commission] California Fish and Game Commission. 2025. CESA, Petitions to List Species Under the California Endangered Species Act, Finalized Petitions. https://fgc.ca.gov/CESA#1089124-mojave-aka-agassizs-desert-tortoise-2025
https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=232827&inline

DeFalco, L.A., T.C. Esque, M.B. Nicklas, and J. M. Kane. 2012. Supplementing seed banks to rehabilitate disturbed Mojave Desert shrublands: Where do all the seeds go? Restoration Ecology 20(1): 85–94.
https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1526-100X.2010.00739.x

Defenders of Wildlife, Desert Tortoise Preserve Committee, and Desert Tortoise Council. 2020. A Petition to the State of California Fish And Game Commission to move the Mojave desert tortoise from listed as threatened to endangered.
https://defenders.org/sites/default/files/2020-03/Desert%20Tortoise%20Petition%203_20_2020%20Final_0.pdf

Devitt, D.A., L. Apodac, B. Bird, J.P. Dawyot, Jr., L. Fenstermaker, and M.D. Petrie. 2022. Assessing the impact of a utility scale solar photovoltaic facility on a down gradient Mojave Desert ecosystem. Land 2022, 11, 1315.
https://doi.org/10.3390/land11081315

[DOI] Department of the Interior. 2026. 516 DM 1 – U.S. Department of the Interior Handbook of National Environmental Policy Act Implementing Procedures.
https://www.doi.gov/media/document/doi-handbook-nepa-procedures

Drake, K. K., L. Bowen, K. E. Nussear, T. C. Esque, A. J. Berger, N. A. Custer, S. C. Waters, J. D. Johnson, A. K. Miles, and R. L. Lewison. 2016. Negative impacts of invasive plants on conservation of sensitive desert wildlife. Ecosphere 7(10):e01531. 10.1002/ecs2.1531. https://esajournals.onlinelibrary.wiley.com/doi/pdf/10.1002/ecs2.1531

Elbert, W., B. Weber, S. Burrows, J. Steinkamp, B. Büdel, M. O. Andreae, and U. Pöschl. 2012. Contribution of cryptogamic covers to the global cycles of carbon and nitrogen. Nature GeoScience 5:459–462.

Eller, B.M. 1977. Road dust induced increase of leaf temperature. Environmental Pollution 13:99–107.
https://www.sciencedirect.com/science/article/abs/pii/0013932777900945

Farmer, A.M. 1993. The effects of dust on vegetation – a review. Environmental Pollution 79:63–75.
https://www.sciencedirect.com/science/article/abs/pii/026974919390179RHarju et al. 2024.

Harju, S.M., S.M. Cambrin, R.C. Averill-Murray, M. Nafus, K.J. Field, and L.J. Allison. 2020. Using incidental mark-encounter data to improve survival estimation. Ecology and Evolution. 2020;10:360–370.
https://www.fws.gov/sites/default/files/documents/Harju%20et%20al%202020_Using%20incidental%20data%20to%20improve%20survival%20estimation.pdf

Harju, S., S. Cambrin, and J. Berg. 2024. Indirect impacts of a highway on movement behavioral states of a threatened tortoise and implications for landscape connectivity. Scientific Reports 14:716.
https://doi.org/10.1038/s41598-024-51378-z
https://www.nature.com/articles/s41598-024-51378-z.pdfNussear et al. 2009.

Henen, B.T. 2002. Energy and water balance, diet, and reproduction of female desert tortoises (*Gopherus agassizii*). Chelonian Conservation and Biology 4(2):319–329.

Hernández, M.J., O.A. Parra, and J.M. Valliere. 2023. Response of Mojave Desert native perennials to inoculum from invasive and native annuals. University of California Davis, Department of Plant Sciences.
https://www.cal-ipc.org/wp-content/uploads/2023/12/Cal_IPC_Symposium_2023_Mayra_Hernandez_Mojave_Desert_soil_inoculum.pdf

Hromada, S. J., T.C. Esque, A.G. Vandergast, K.K. Drake, F. Chen, B. Gottsacker, J. Swart, and K.E. Nussear. 2023. Linear and landscape disturbances alter Mojave desert tortoise movement behavior. Front. Ecol. Evol. 11, 971337.
https://www.frontiersin.org/journals/ecology-and-evolution/articles/10.3389/fevo.2023.971337/full [USFWS] 2009.

Kuske, C. R., C. M. Yeager, S. Johnson, L. O. Ticknor, and J. Belnap. 2012. Response and resilience of soil biocrust bacterial communities to chronic physical disturbance in arid shrublands. International Society for Microbial Ecology Journal 6:886–897.

LaRue, E. 1992. Distribution of desert tortoise sign adjacent to Highway 395, San Bernardino County, California. Proceedings of the 1992 Symposium of the Desert Tortoise Council.

Lee, S., R. Klinger, M.L. Brooks, and S. Ferrenberg. 2024. Homogenization of soil seed bank communities by fire and invasive species in the Mojave Desert. Frontiers in Ecology and Evolution 12:1271824. doi: 10.3389/fevo.2024.1271824. https://www.frontiersin.org/articles/10.3389/fevo.2024.1271824/full

Lovich, J.E. and D. and Bainbridge. 1999. Anthropogenic degradation of the southern California desert ecosystem and prospects for natural recovery and restoration. Environmental Management 24(3):309–326.

Nafus, M.G., T.D. Tuberville, K.A. Buhlmann, and B.D. Todd. 2013. Relative abundance and demographic structure of Agassiz's desert tortoise (*Gopherus agassizii*) along roads of varying size and traffic volume. Biological Conservation 162 (2013) 100–106. https://www.sciencedirect.com/science/article/abs/pii/S0006320713001043

Peaden, J.M., A.J. Nowakowski, T.D. Tuberville, K.A. Buhlmann, and B.D. Todd. 2017. Effects of roads and roadside fencing on movements, space use, and carapace temperatures of a threatened tortoise. Biological Conservation 214: 13-22. https://www.sciencedirect.com/science/article/abs/pii/S0006320717301325

Richter, C.J., B.D. Todd, K.A. Buhlmann, G.R. Barnas, M.T. Kohl,, and T.D. Tuberville. 2024. Factors influencing risk of predation by subsidized predators on juvenile Mojave desert tortoises (*Gopherus agassizii*). Global Ecology and Conservation 55 (2024) e03220. https://doi.org/10.1016/j.gecco.2024.e03220

Schwinning, S.D.R. Sandquist, D.M. Miller, D.R. Bedford, S.L. Phillips, and J. Belnap. 2011. The influence of stream channels on distributions of *Larrea tridentata* and *Ambrosia dumosa* in the Mojave Desert, CA, USA: Patterns, mechanisms and effects of stream redistribution. Ecohydrology 2011(4):12–25. https://onlinelibrary.wiley.com/doi/abs/10.1002/eco.116

Sharifi, M.R., A.C. Gibson, and P.W. Rundel. 1997. Surface Dust Impacts on Gas Exchange in Mojave Desert Shrubs. Journal of Applied Ecology 34(4): 837–846. https://www.jstor.org/stable/2405275

Thompson, J.R., P.W. Mueller, W. Flückiger, and A.J. Rutter. 1984. Effect of dust on photosynthesis and its significance for roadside plants. Environmental Pollution (Series A) 34: 171–190. https://www.sciencedirect.com/science/article/abs/pii/0143147184900564

Titus, J. H., P.J. Titus, R.S. Nowak, and S.D. Smith. 2002. Arbuscular mycorrhizae of Mojave Desert plants. Western North American Naturalist, 62(3): 327-334. https://oasis.library.unlv.edu/sls_fac_articles/46

Tracy, C.R., R. Averill-Murray, W. I. Boarman, D. Delehanty, J. Heaton, E. McCoy, D. Morafka, K. Nussear, B. Hagerty, and P. Medica. 2004. Desert Tortoise Recovery Plan Assessment. Technical Report. Prepared for USFWS. January 2004. https://www.researchgate.net/publication/241835929_Desert_Tortoise_Recovery_Plan_Assessment

Tuma, M.W., C. Millington, N. Schumaker, and P. Burnett. 2016. Modeling Agassiz's Desert Tortoise Population Response to Anthropogenic Stressors. Journal of Wildlife Management 80(3):414–429. https://wildlife.onlinelibrary.wiley.com/doi/abs/10.1002/jwmg.1044

[UDWR] Utah Division of Wildlife Resources. 2024. Mojave Desert Tortoise Population Monitoring within the Red Cliffs National Conservation Area, 2023. Publication Number 24-07.

U.S. Army. 2006. Integrated Natural Resources Management Plan and Environmental Assessment, National Training Center And Fort Irwin, California.

[USFWS] U.S. Fish and Wildlife Service. 1994. Desert tortoise (Mojave population) Recovery Plan. U.S. Fish and Wildlife Service, Region 1, Portland, Oregon. 73 pages plus appendices. https://ecos.fws.gov/docs/recovery_plan/940628.pdf

[USFWS] U.S. Fish and Wildlife Service. 2009. Desert Tortoise (Mojave Population) Field Manual: (*Gopherus agassizii*). December 2009. Region 8, Sacramento, California. https://www.fws.gov/sites/default/files/documents/Desert-Tortoise-Field-Manual.pdf

[USFWS] U.S. Fish and Wildlife Service. 2010. Common raven predation on the desert tortoise. USFWS, Ventura Fish and Wildlife Office, Ventura, CA.

[USFWS] U.S. Fish and Wildlife Service. 2011. Revised Recovery Plan for the Mojave Population of the Desert Tortoise (*Gopherus agassizii*). U.S. Fish and Wildlife Service, California and Nevada Region, Sacramento, California. https://www.fws.gov/sites/default/files/documents/USFWS.2011.RRP%20for%20the%20Mojave%20Desert%20Tortoise.pdf

[USFWS] U.S. Fish and Wildlife Service. 2015. Range-wide Monitoring of the Mojave Desert Tortoise (*Gopherus agassizii*): 2013 and 2014 Annual Reports. Report by the Desert Tortoise Recovery Office, U.S. Fish and Wildlife Service, Reno, Nevada. https://www.fws.gov/sites/default/files/documents/USFWS.2015%20report.%20Rangewide%20monitoring%20report%202013-14.pdf

[USFWS] U.S. Fish and Wildlife Service. 2016. Range-wide Monitoring of the Mojave Desert Tortoise (*Gopherus agassizii*): 2015 and 2016 Annual Reporting. Report by the Desert Tortoise Recovery Office, U.S. Fish and Wildlife Service, Reno, Nevada. https://www.fws.gov/sites/default/files/documents/USFWS.2016%20report.%20Rangewide%20monitoring%20report%202015-16.pdf

[USFWS] U.S. Fish and Wildlife Service. 2018. Range-wide Monitoring of the Mojave Desert Tortoise (*Gopherus agassizii*): 2017 Annual Reporting. Report by the Desert Tortoise Recovery Office, U.S. Fish and Wildlife Service, Reno, Nevada. https://www.fws.gov/sites/default/files/documents/USFWS.2018%20report.%20Rangewide%20monitoring%20report%202017.pdf

[USFWS] U.S. Fish and Wildlife Service. 2019. Range-wide Monitoring of the Mojave Desert Tortoise (*Gopherus agassizii*): 2018 Annual Reporting. Report by the Desert Tortoise Recovery Office, U.S. Fish and Wildlife Service, Reno, Nevada. https://www.fws.gov/sites/default/files/documents/USFWS.2019%20report.%20Rangewide%20monitoring%20report%202018.pdf

[USFWS] U.S. Fish and Wildlife Service. 2020. Range-wide Monitoring of the Mojave Desert Tortoise (*Gopherus agassizii*): 2019 Annual Reporting. Report by the Desert Tortoise Recovery Office, U.S. Fish and Wildlife Service, Reno, Nevada. 42 pages. https://www.fws.gov/sites/default/files/documents/2019_Rangewide%20Mojave%20Desert%20Tortoise%20Monitoring.pdf

[USFWS] U.S. Fish and Wildlife Service. 2022a. Range-wide Monitoring of the Mojave Desert Tortoise (*Gopherus agassizii*): 2020 Annual Reporting. Report by the Desert Tortoise Recovery Office, U.S. Fish and Wildlife Service, Reno, Nevada. https://www.fws.gov/sites/default/files/documents/USFWS.2022%20report.%20Rangewide%20monitoring%20report%202020.pdf

[USFWS] U.S. Fish and Wildlife Service. 2022b. Range-wide Monitoring of the Mojave Desert Tortoise (*Gopherus agassizii*): 2021 Annual Reporting. Report by the Desert Tortoise Recovery Office, U.S. Fish and Wildlife Service, Reno, Nevada. https://www.fws.gov/sites/default/files/documents/USFWS.2022%20report.%20Rangewide%20monitoring%20report%202021.pdf

[USFWS] U.S. Fish and Wildlife Service. 2025. Range-wide Monitoring of the Mojave Desert Tortoise (*Gopherus agassizii*): 2024 Annual Reporting. Report by the Desert Tortoise Recovery Office, U.S. Fish and Wildlife Service, Las Vegas, Nevada. https://www.fws.gov/sites/default/files/documents/2025-08/2024-range-wide-mojave-desert-tortoise-monitoring-report.pdf

von Seckendorff Hoff, K. and R. Marlow. 2002. Impacts of vehicle road traffic on desert tortoise populations with consideration of conservation of tortoise habitat in southern Nevada. Chelonian Conservation and Biology 4: 449–456.

Warren, S. D. 2003. Synopsis: influence of biological soil crusts on arid land hydrology and soil stability. Biological soil crusts: structure, function and management. Pages 349–360 in J. Belnap, and O. L. Lange, editors. Ecological studies, 150. Springer-Verlag, Berlin, Germany.

Wijayratne, U.C., S.J. Scoles-Sciulla, and L.A. DeFalco. 2009. Dust deposition effects on growth and physiology of the endangered *Astragalus jaegerianus* (Fabaceae). Madroño 56(2):81–88.

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).

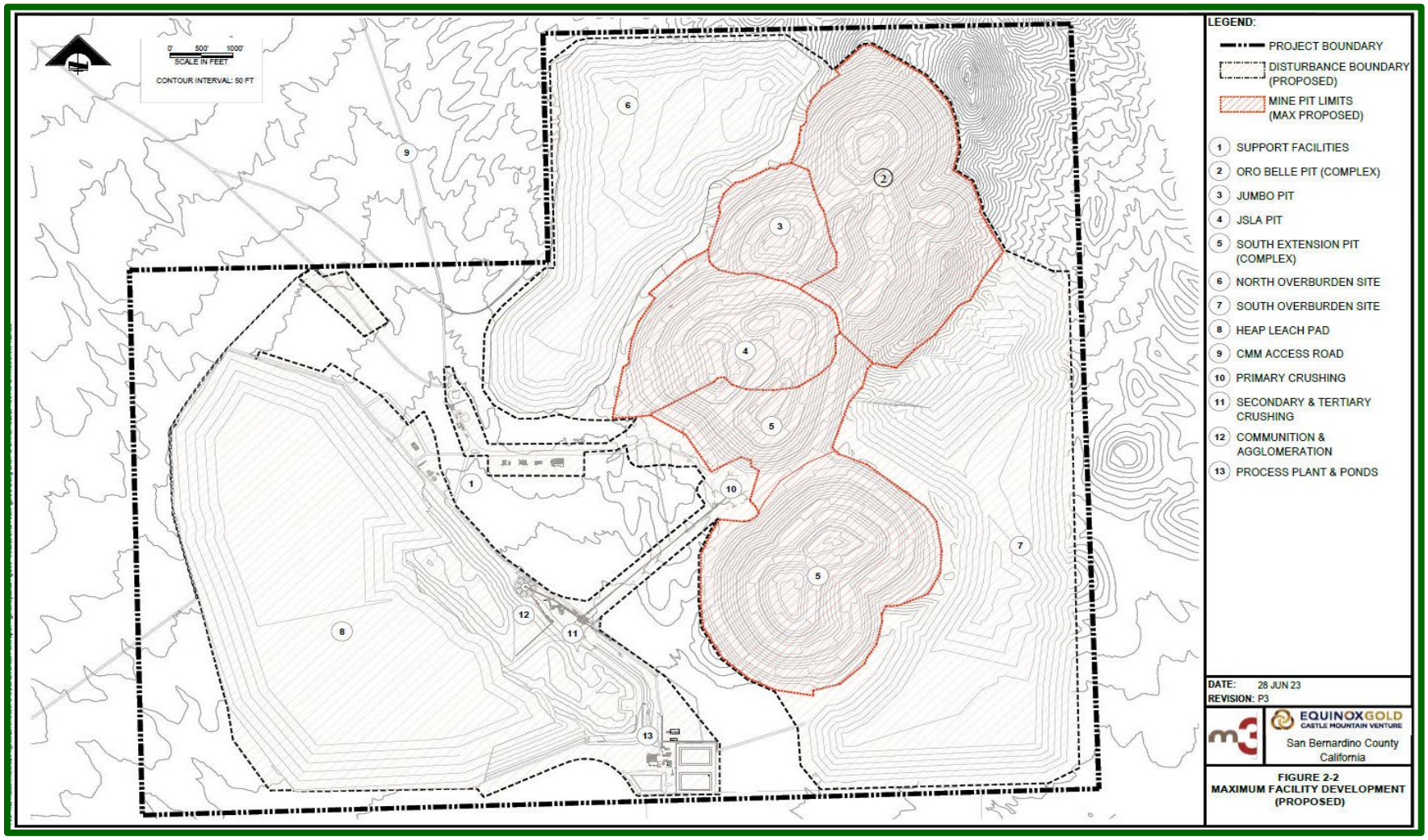


Figure 1. Location of existing and proposed expansion (Phase II) of mining operations at the mine site for the Castle Mountains Mine.

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.

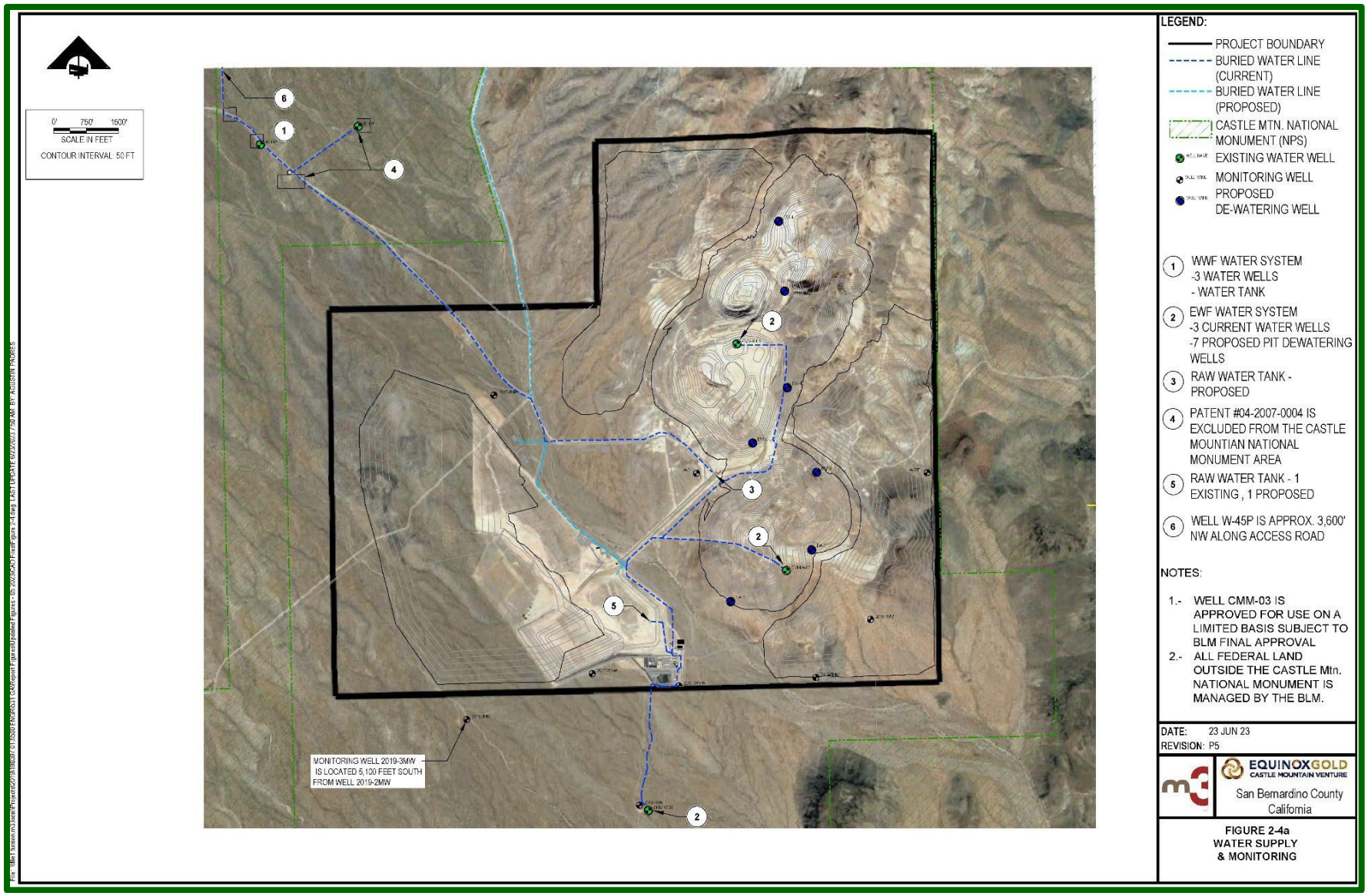


Figure 2. The Lanfair West Well Field (WWF) and East Well Field (EWF) existing water systems.

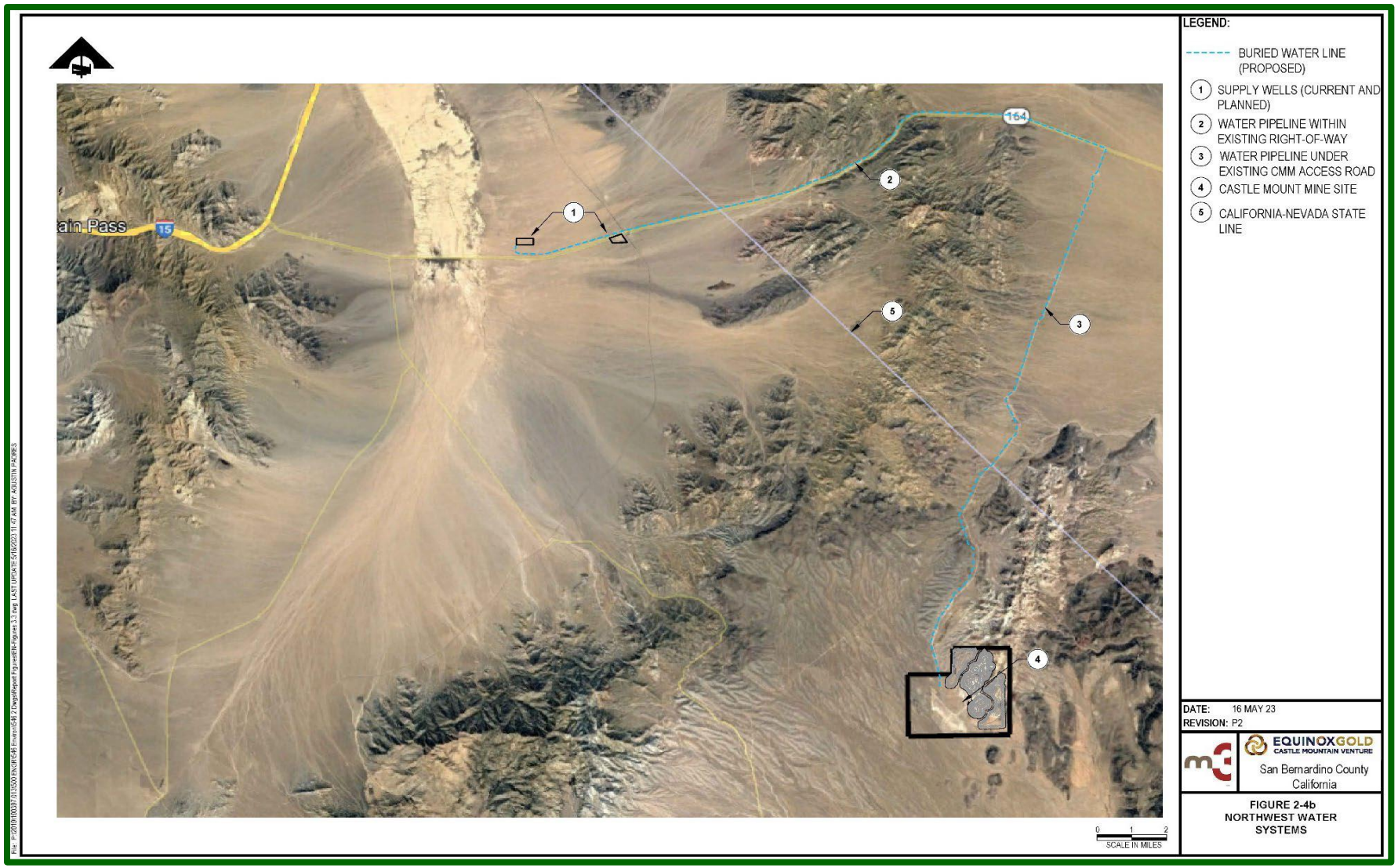


Figure 3. Ivanpah – Northwest Water System (NWS).

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 an 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 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 specials 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 leconti*) (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 impacts 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 at 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) (PM_{10} 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:

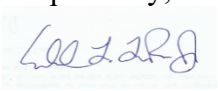
- direct impacts to the tortoise/tortoise habitat and other special status species from construction and maintenance of the new powerline, well, and water pipeline; construction, increased use, and maintenance of improved/modified roads
- indirect impacts to the tortoise/tortoise critical habitat/tortoise 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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Literature Cited

Abella, S.R. 2010. Disturbance and plant succession in the Mojave and Sonoran Deserts of the American Southwest. International Journal of Environmental Research and Public Health 7.4 (2010): 1248-1284. https://www.mdpi.com/1660-4601/7/4/1248

Abella S.R. and K.H. Berry. 2016. Enhancing and restoring habitat for the desert tortoise (*Gopherus agassizii*). Journal of Fish and Wildlife Management 7(1):255–279. https://doi.org/10.3996/052015-JFWM-046.

Abella, S.R., K.H. Berry, and S. Ferrazzano. 2023. Techniques for restoring damaged Mojave and western Sonoran habitats, including those for threatened desert tortoises and Joshua trees. Desert Plants 38:4-52. https://deserttortoise.org/wp-content/uploads/Abella-et-al-2023-Restoration-in-the-Mojave-Western-Sonoran-Desert-Vegetation.pdf

Berry, K.H., L.J. Allison, A.M. McLuckie, M. Vaughn, and R.W. Murphy. 2021. *Gopherus agassizii*. The IUCN Red List of Threatened Species 2021: e.T97246272A3150871. https://dx.doi.org/10.2305/IUCN.UK.2021-2.RLTS.T97246272A3150871.en

[BLM] U.S. Bureau of Land Management. 1998. Record of Decision for the Approved Las Vegas Resource Management Plan and Final Environmental Impact Statement. BLM/LV/PL-99/002+1610. Las Vegas Field Office, October 1998.

[BLM] U.S. Bureau of Land Management. 2010. California Desert Conservation Area Plan Amendment / Final Environmental Impact Statement for Ivanpah Solar Electric Generating System FEIS-10-31. July 2010. https://eplanning.blm.gov/public_projects/nepa/65894/79903/92663/1-CDCA-Ivanpah-Final-EIS.pdf

[BLM] U.S. Bureau of Land Management. 2013. Final Supplemental Environmental Impact Statement for the Silver State Solar South Project and Proposed Las Vegas Field Office Resource Management Plan Amendment DOI-BLM-NV-S010-2012-0067-EIS. September 2013.

[BLM] U.S. Bureau of Land Management. 2015. Advancing Science in the BLM: An Implementation Strategy IB 2015-040. March 18, 2015. https://www.blm.gov/policy/ib-2015-040

[BLM] U.S. Bureau of Land Management. 2016. Record of Decision for the Land Use Plan Amendment to the California Desert Conservation Plan, Bishop Resource Management Plan, and Bakersfield Resource Management Plan for the Desert Renewable Energy Conservation Plan (DRECP). Dated September 2016. Sacramento, CA.

[BLM] U.S. Bureau of Land Management. 2024. Special Status Species Management. Handbook 6840. September 9, 2024. https://www.blm.gov/sites/default/files/docs/2024-11/MS%206840%2C%20Rel.%206-142_0.pdf

Boarman, W. 2003. Managing a Subsidized Predator Population: Reducing Common Raven Predation on Desert Tortoises. Environmental Management 32, 205–217 (2003). https://doi.org/10.1007/s00267-003-2982-x

Bowles, A.E., S. Eckert, L. Starke, E. Berg, L. Wolski, and J. Matesic, Jr. 1999. Effects of Flight Noise from Jet Aircrafts and Sonic Booms on Hearing, Behavior, Heart Rate, and Oxygen Consumption of Desert Tortoises (*Gopherus agassizii*). 157 pp. https://apps.dtic.mil/sti/html/tr/ADA367285/

Brooks, M.L., and T.C. Esque. 2002. Alien plants and fire in desert tortoise (*Gopherus agassizii*) habitat of the Mojave and Colorado Deserts. Chelonian Conservation and Biology 4:330–340. https://pubs.usgs.gov/publication/1008328

[CDFW] California Department of Fish and Wildlife. 2024a. Status Review for Mojave Desert Tortoise (*Gopherus agassizii*) Report to the Fish and Game Commission, February 2024. https://nrm.dfg.ca.gov/documents/ContextDocs.aspx?cat=CESA-Listing

[CDFW] California Department of Fish and Wildlife. 2024b. 2022-2024 News Releases. California Fish and Game Commission Holds Hybrid Meeting, April 23, 2024. https://wildlife.ca.gov/News/Archive/california-fish-and-game-commission-holds-hybrid-meeting11

[CMV] Castle Mining Venture. 2025. Castle Mountain Mine Mining Plan of Operation and Reclamation Plan Amendment. September 2025.

Chaffee, M.A., and K.H. Berry. 2006. Abundance and distribution of selected elements in soils, stream sediments, and selected forage plants from desert tortoise habitats in the Mojave and Colorado Deserts, USA. Journal of Arid Environments 67:35–87.

[Commission] California Fish and Game Commission. 2025. CESA, Petitions to List Species Under the California Endangered Species Act, Finalized Petitions. https://fgc.ca.gov/CESA#1089124-mojave-aka-agassizs-desert-tortoise-2025 https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=232827&inline

Defenders of Wildlife, Desert Tortoise Preserve Committee, and Desert Tortoise Council. 2020. A Petition to the State of California Fish And Game Commission to move the Mojave desert tortoise from listed as threatened to endangered. https://defenders.org/sites/default/files/2020-03/Desert%20Tortoise%20Petition%203_20_2020%20Final_0.pdf

Drake, K. K., L. Bowen, K. E. Nussear, T. C. Esque, A. J. Berger, N. A. Custer, S. C. Waters, J. D. Johnson, A. K. Miles, and R. L. Lewison. 2016. Negative impacts of invasive plants on conservation of sensitive desert wildlife. Ecosphere 7(10):e01531. 10.1002/ecs2.1531. https://esajournals.onlinelibrary.wiley.com/doi/pdf/10.1002/ecs2.1531

Eller, B.M. 1977. Road dust induced increase of leaf temperature. Environmental Pollution 13:99–107.
https://www.sciencedirect.com/science/article/abs/pii/0013932777900945

Farmer, A.M. 1993. The effects of dust on vegetation – a review. Environmental Pollution 79:63–75.
https://www.sciencedirect.com/science/article/abs/pii/026974919390179R

Ferguson, J.H., H. W. Downs, and D.L. Pfost. 1999. Fugitive Dust: Nonpoint Sources**.** University of Missouri, Columbia. 4 pages.

Harju, S., S. Cambrin, and J. Berg. 2024. Indirect impacts of a highway on movement behavioral states of a threatened tortoise and implications for landscape connectivity. Scientific Reports 14:716.
https://doi.org/10.1038/s41598-024-51378-z
https://www.nature.com/articles/s41598-024-51378-z.pdf

Hromada, S.J., T.C. Esque, A.G. Vandergast K.E. Dutcher, C.I Mitchell, M.E Gray, T. Chang, B.G. Dickson, and K.E. Nussear. 2020. Using movement to inform conservation corridor design for Mojave desert tortoise. Movement Ecology 2020 8/38 doi: 10.1186/s40462-020-00224-8
https://pubmed.ncbi.nlm.nih.gov/33042548/

Hromada, S. J., T.C. Esque, A.G. Vandergast, K.K. Drake, F. Chen, B. Gottsacker, J. Swart, and K.E. Nussear. 2023. Linear and landscape disturbances alter Mojave desert tortoise movement behavior. Front. Ecol. Evol. 11, 971337.
https://www.frontiersin.org/journals/ecology-and-evolution/articles/10.3389/fevo.2023.971337/full

Kim, C.S., T.L. Anthony, D. Goldstein, and J.J. Rytuba. 2014. Windborne transport and surface enrichment of arsenic in semi-arid mining regions—Examples form the Mojave Desert, California. Aeolian Research 14:85–96.
https://www.sciencedirect.com/science/article/abs/pii/S1875963714000184

Miles, L. E. 1953. The desert tortoise. Audubon Magazine. 55(4): 172-175.

Peaden, J.M., A.J. Nowakowski, T.D. Tuberville, K.A. Buhlmann, and B.D. Todd. 2017. Effects of roads and roadside fencing on movements, space use, and carapace temperatures of a threatened tortoise. Biological Conservation 214: 13-22.
https://www.sciencedirect.com/science/article/abs/pii/S0006320717301325

Ruby, D.E., J.R. Spotila, S.K. Martin, and S.J. Kemp. 1994, Behavioral responses to barriers by desert tortoises—Implications for wildlife management. Herpetological Monographs 8: 144–160.
https://www.jstor.org/stable/1467078

Seltzer, M.D., and K.H. Berry. 2005, Laser ablation ICP-MS profiling and semiquantitative determination of trace element concentrations in desert tortoise shells—Documenting the uptake of elemental toxicants. Science of the Total Environment 339:253–265.

Sharifi, M.R., A.C. Gibson, and P.W. Rundel. 1997. Surface Dust Impacts on Gas Exchange in Mojave Desert Shrubs. Journal of Applied Ecology 34(4): 837–846. https://www.jstor.org/stable/2405275

Thompson, J.R., P.W. Mueller, W. Flückiger, and A.J. Rutter. 1984. Effect of dust on photosynthesis and its significance for roadside plants. Environmental Pollution (Series A) 34: 171–190. https://www.sciencedirect.com/science/article/abs/pii/0143147184900564

[USFWS] U.S. Fish and Wildlife Service. 1994a. Desert tortoise (Mojave population) Recovery Plan. U.S. Fish and Wildlife Service, Region 1, Portland, Oregon. 73 pages plus appendices. https://ecos.fws.gov/docs/recovery_plan/940628.pdf

[USFWS] 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 59(26):5820-5866. Washington, D.C. https://www.govinfo.gov/content/pkg/FR-1994-02-08/html/94-2694.htm

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/km^2 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/km^2 (10 breeding individuals per mi^2) (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/km^2 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/km^2 (10 breeding individuals per mi^2) (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 &	% 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).

Literature Cited in Appendix on Status and Trend of the Mojave Desert Tortoise

Allison L.J. and A.M. McLuckie. 2018. Population trends in Mojave desert tortoises (*Gopherus agassizii*). Herpetological Conservation and Biology. 2018 Aug 1. 13(2):433–452. http://www.herpconbio.org/Volume_13/Issue_2/Allison_McLuckie_2018.pdf
or
https://www.fws.gov/media/allison-and-mcluckie2018mojave-desert-tortoise-population-trends

[USFWS] U.S. Fish and Wildlife Service. 1994a. Desert tortoise (Mojave population) Recovery Plan. U.S. Fish and Wildlife Service, Region 1, Portland, Oregon. 73 pages plus appendices. https://ecos.fws.gov/docs/recovery_plan/940628.pdf

[USFWS] 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.

[USFWS] U.S. Fish and Wildlife Service. 2011. Revised Recovery Plan for the Mojave Population of the Desert Tortoise (*Gopherus agassizii*). U.S. Fish and Wildlife Service, California and Nevada Region, Sacramento, California.

https://www.fws.gov/sites/default/files/documents/USFWS.2011.RRP%20for%20the%20Mojave%20Desert%20Tortoise.pdf

[USFWS] U.S. Fish and Wildlife Service. 2015. Range-wide Monitoring of the Mojave Desert Tortoise (*Gopherus agassizii*): 2013 and 2014 Annual Reports. Report by the Desert Tortoise Recovery Office, U.S. Fish and Wildlife Service, Reno, Nevada. https://www.fws.gov/sites/default/files/documents/USFWS.2015%20report.%20Rangewide%20monitoring%20report%202013-14.pdf

[USFWS] U.S. Fish and Wildlife Service. 2016. Range-wide Monitoring of the Mojave Desert Tortoise (*Gopherus agassizii*): 2015 and 2016 Annual Reporting. Report by the Desert Tortoise Recovery Office, U.S. Fish and Wildlife Service, Reno, Nevada. https://www.fws.gov/sites/default/files/documents/USFWS.2016%20report.%20Rangewide%20monitoring%20report%202015-16.pdf

[USFWS] U.S. Fish and Wildlife Service. 2018. Range-wide Monitoring of the Mojave Desert Tortoise (*Gopherus agassizii*): 2017 Annual Reporting. Report by the Desert Tortoise Recovery Office, U.S. Fish and Wildlife Service, Reno, Nevada. https://www.fws.gov/sites/default/files/documents/USFWS.2018%20report.%20Rangewide%20monitoring%20report%202017.pdf

[USFWS] U.S. Fish and Wildlife Service. 2019. Range-wide Monitoring of the Mojave Desert Tortoise (*Gopherus agassizii*): 2018 Annual Reporting. Report by the Desert Tortoise Recovery Office, U.S. Fish and Wildlife Service, Reno, Nevada. https://www.fws.gov/sites/default/files/documents/USFWS.2019%20report.%20Rangewide%20monitoring%20report%202018.pdf

[USFWS] U.S. Fish and Wildlife Service. 2020. Range-wide Monitoring of the Mojave Desert Tortoise (*Gopherus agassizii*): 2019 Annual Reporting. Report by the Desert Tortoise Recovery Office, U.S. Fish and Wildlife Service, Reno, Nevada. 42 pages. https://www.fws.gov/sites/default/files/documents/2019_Rangewide%20Mojave%20Desert%20Tortoise%20Monitoring.pdf

[USFWS] U.S. Fish and Wildlife Service. 2022a. Range-wide Monitoring of the Mojave Desert Tortoise (*Gopherus agassizii*): 2020 Annual Reporting. Report by the Desert Tortoise Recovery Office, U.S. Fish and Wildlife Service, Reno, Nevada. https://www.fws.gov/sites/default/files/documents/USFWS.2022%20report.%20Rangewide%20monitoring%20report%202020.pdf

[USFWS] U.S. Fish and Wildlife Service. 2022b. Range-wide Monitoring of the Mojave Desert Tortoise (*Gopherus agassizii*): 2021 Annual Reporting. Report by the Desert Tortoise Recovery Office, U.S. Fish and Wildlife Service, Reno, Nevada. https://www.fws.gov/sites/default/files/documents/USFWS.2022%20report.%20Rangewide%20monitoring%20report%202021.pdf

[USFWS] U.S. Fish and Wildlife Service. 2025. Range-wide Monitoring of the Mojave Desert Tortoise (*Gopherus agassizii*): 2024 Annual Reporting. Report by the Desert Tortoise Recovery Office, U.S. Fish and Wildlife Service, Las Vegas, Nevada. https://www.fws.gov/sites/default/files/documents/2025-08/2024-range-wide-mojave-desert-tortoise-monitoring-report.pdf