



Great Basin Resource Watch



Western
Watersheds
Project



Basin and Range Watch

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Via Email, with Personal (or Overnight Federal Express) Delivery of Documents

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RE: Final EIS and Proposed Record of Decision, Thacker Pass Lithium Mine Project

Dear U.S. Bureau of Land Management (“BLM”):

This letter regards the Thacker Pass Lithium Mine Project (“Mine/mine” or “Project/project”), and is submitted by the following organizations: **Western Watersheds Project, Great Basin Resource Watch, and Basin and Range Watch** (collectively the “Commenting Groups”) for BLM’s consideration prior to issuance of the Record of Decision for the project. All previous comments submitted regarding the Project to the BLM by the Commenting Groups or its members are hereby reiterated and incorporated into the administrative record for BLM’s consideration of the Project. The Commenting Groups also include the issues regarding BLM’s failure to comply with NEPA, FLPMA, the ESA, and the other laws raised by the affected community as articulated in the comment letter to BLM by Edward Bartell on September 14, 2020, including BLM’s failure to properly respond to that letter, and to the comment letters of the Commenting Groups.

As shown herein, due to significant information, including that which has arisen since the issuance of the BLM’s Draft EIS (“DEIS”) for the project, a revised Draft EIS (or in the alternative, a Supplemental Draft EIS), must be prepared and subject to full public review under the National Environmental Policy Act (“NEPA”), the Federal Land Policy and Management Act (“FLPMA”) and other applicable federal law. BLM issued the Final EIS for the project on or about December 3, 2020 (*see* “Dear Interested Party” letter:

https://eplanning.blm.gov/public_projects/1503166/200352542/20030668/250036867/FEIS_DIP_letter_with_signature_indicated_2020-12-01_FINAL.pdf

Under NEPA, the agencies have a continuing obligation after issuance of an EIS to take “a ‘hard look’ at the new information and assess whether supplementation might be necessary.” Norton v. Southern Utah Wilderness Alliance, 542 U.S. 55, 73 (2004). “When new information comes to light [even after issuance of an EIS] the agency must consider it, evaluate it, and make a reasoned determination whether it is of such significance as to require [an SEIS].” Friends of the Clearwater v. Dombeck, 222 F. 3d 552, 558 (9th Cir. 2000). NEPA imposes an ongoing duty to “supplement” an EIS when “significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.” 40 C.F.R. § 1502.9(c)(1)(ii)(2019).¹ An agency “must be alert to new information that may alter the results of its original environmental analysis.” Friends of the Clearwater, 222 F.3d at 557-58.

As explained by the Supreme Court, “[i]t would be incongruous with [NEPA’s] . . . manifest concern with preventing uninformed action, for the blinders to adverse environmental effects, once unequivocally removed, to be restored *prior to completion of agency action* simply because the relevant proposal has received *initial approval*.” Marsh v. ONRC, 490 U.S. 360, 371 (1989) (emphasis added). “When new information comes to light the agency must consider it, evaluate it, and make a reasoned determination whether it is of such significance as to require [a Supplemental EIS].” Warm Springs Dam Task Force v. Gribble, 621 F.2d 1017, 1024 (9th Cir. 1980). *See also* Stop H-3 Association v. Dole, 740 F.2d 1442, 1463-64 (9th Cir. 1984). The decision whether to prepare a supplemental EIS “is similar to the decision whether to prepare an EIS in the first instance.” Marsh, 490 U.S. at 374.

If a “new environmental picture from that previously studied” emerges from subsequent information or circumstances, then a new formal in depth look at the environmental consequences of the proposed action is required. Hodges v. Abraham, 300 F.3d 432, 448-49 (4th Cir. 2002); Wisconsin v. Weinberger, 745 F.2d 412, 418 (7th Cir. 1984). In other words, if the agency action will “affect the quality of the human environment in a significant manner or to a significant extent not already considered, a supplemental [NEPA document] must be prepared.” Marsh, 490 U.S. at 374.

As shown herein, the significant information submitted to BLM with these comments must be fully considered by BLM before it can consider issuing a ROD for the project. This significant information must be fully reviewed in a revised/supplemental Draft EIS, subject to full public review under NEPA, FLPMA, and other applicable federal laws.

A number of the attached/submitted documents have already been provided/quoted/cited to BLM in the previous submittals by the Commenting Groups (and should already be part of the administrative record), but are re-submitted/attached herein to reiterate their inclusion into the record for BLM consideration prior to issuance of the ROD.

¹ Although the CEQ NEPA regulations were revised in 2020, the FEIS is based on the previous regulations, which govern BLM’s review of the project. In any event, the revised regulations, at 40 C.F.R. §1502.9(d)(1)(ii) contain the identical language.

In addition to providing critical and significant new information that must be fully analyzed, these materials highlight how the Draft and Final EIS failed to adequately analyze all direct, indirect, and cumulative impacts from the project, as well as the baseline conditions of the lands, waters, air, wildlife, and other resources that may be affected by the mine project and related Golden Eagle take permit. For example, as shown in these documents, as well as in previous submittals, BLM failed to adequately analyze the baseline conditions for all Sensitive Species, Migratory Birds, and other wildlife species that may be affected by the Project and related Golden Eagle take permit, as well as the direct, indirect, and cumulative impacts to these species.

This includes the failure to fully analyze the mitigation, and its effectiveness, for the Sensitive Species, Migratory Birds, and other wildlife species discussed in Chapter 4.5, and Appendices G and H of the FEIS, as well as BLM's failure to respond in the FEIS to one of Western Watersheds Project's two timely submitted DEIS comment letters. Also, BLM failed to consult with the U.S. FWS on impacts to Lahontan Cutthroat Trout (LCT), as the project's direct, indirect, and cumulative impacts "may affect" LCT in Crowley Creek, Pole Creek, and related habitat.

As shown by these materials, and by the previously-submitted comments by the Commenting Groups and others, the BLM cannot approve a Record of Decision at this time. Only after issuance of a revised/supplemental Draft EIS, subject to full public review and in compliance with NEPA and federal law, can the agencies attempt to comply with its duties under NEPA, FLPMA, the ESA, the 1872 Mining Law, and other applicable federal laws, regulations, and policies.

In addition to showing how the FEIS and any proposed ROD would violate BLM's procedural requirements to fully review, and provide adequate public comment on, the project under NEPA and FLPMA, the previous submittals by the Commenting Groups, and the materials attached to this letter show how any BLM ROD authorizing the project would violate the substantive environmental, wildlife, and public land protection mandates of FLPMA, the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), the 1872 Mining Law, the Endangered Species Act, and Interior Department and BLM regulations and policies.

At a minimum, these documents show how any issuance of a ROD for the project would not be consistent with, and would violate, the Record of Decision and Resource Management Plan (RMP) (ROD/RMP) for the Winnemucca District, the Nevada and Northeastern California Greater Sage-Grouse Approved RMP Amendment (September 2015)(and associated approvals and implementations), and any legally-valid and applicable amendments to those documents. As such, any ROD would violate FLPMA, BLM regulations and policies, and public land and environmental law as stated in previous comments and herein.

Additional Inadequacies in Water Quality Analysis

Antimony in the backfill will exceed water quality standards, in violation of FLPMA

The FEIS indicates that the pit backfill will be a source of elevated antimony to groundwater. Specifically, the concentration of antimony in the groundwater within the pit backfill would exceed the applicable Nevada water quality standard.

- GRBW comment P566: “. . . the antimony concentration in the pore water of the backfilled pits will exceed the MCL until it has been flushed with at least 10 to 20 pore volumes of through flowing groundwater.”
- BLM response to comment P566: “Geochemical modeling results indicate that pore water in backfill will exceed MCLs for longer than 20 pore volumes (Water Quantity and Water Quality Impacts report, Appendix P of this EIS).”

Because saturated groundwater that would flow into the backfill would be waters of the State of Nevada, mitigation would be required to prevent the saturated waste-rock backfill from exceeding the drinking water standard. Under FLPMA and the Part 3809 regulations, BLM cannot approve an operation that is predicted to violate water quality standards at any time. The fact that future mitigation may potentially reduce the pollution levels in the future does not excuse the fact that water quality standards will be violated.

The backfilled pits are expected to have through flowing groundwater when they fill, and would thus be long-term sources of pollutants to down-gradient groundwater:

- GBRW Comment P570: “The groundwater model used to support the DEIS does recognize the backfilled pits as long-term pollution sources, and include an estimate for the extent of the antimony plume that will exceed the 0.006 mg/L MCL out to 300 years beyond closure.”

This comment notes what is shown in Figure 6.10. “Antimony 0.006 mg/L isopleth through time (proposed action),” Piteau Associates 2020, FEIS Thacker Pass Lithium Mine Project Appendix P Part 4). As with the groundwater in the waste-rock backfill itself, the groundwater down gradient from the Thacker Pass pits is waters of the State of Nevada, and thus cannot be allowed to receive a plume of water that exceeds the drinking water standards.

Groundwater in the backfill will exceed MCLs for antimony and possibly other solutes, and should be treated in place avoid the need for perpetual treatment and prevent groundwater degradation. The FEIS and any ROD must prevent any generation of pollution levels that exceed water quality requirements at all times.

The FEIS and its supporting technical appendices do not prevent the degradation of Waters of the State in the backfilled pits, as they rely on future plans not subject to public NEPA and FLPMA review:

- GBRW Comment P572: “Present a model for an alternative closure option for the backfilled pits that prevents the release of pollutants in a groundwater plume, such as a period of active pumping and treating of pore water until the discharge from the waste-rock backfill is below the groundwater MCLs.”
- BLM Response to P572: “Potential impacts to groundwater water quality downgradient from the backfilled pit would be addressed as outlined in Mitigation WR-3 provided in Section 4.3.2 of EIS.”

The “Mitigation WR-3” cited in the BLM response is “Groundwater Quality Monitoring and Groundwater Quality Management Plans,” which states that “in the event that constituent concentrations exceed established regulatory thresholds at one or more established compliance monitoring points, and the exceedance is attributable to contamination originating from mine facilities or operations, LNC would provide the BLM and NDEP with a groundwater quality management plan for review and approval” (FEIS pg. 4-26, Section 4.3.2 “Recommended Mitigation and Monitoring”). Yet since the FEIS predicts the exceedances of acceptable water quality levels, this reliance on future, as-yet-unreviewed plans violates NEPA and FLPMA.

Failure to consider sulfide oxidation in backfilled waste rock

Further, the FEIS still did not adequately calculate the effect of pollutants released by the oxidation of sulfide-sulfur minerals in the waste rock proposed for backfilling into the pit.

- GBRW Comment P555: “DEIS Does Not Completely Address Sulfide Oxidation that Could Cause UUD . . . Estimate the cumulative amount of sulfide S mineral oxidation that will occur in the pit backfill, and use this in the groundwater model to indicate the amount of sulfate that will be released to groundwater when the backfill is flooded.”
- BLM Response to P557: “A static calculation on total sulfur production is complicated by the fact that pit lake recovery occurs faster than oxygen diffusion through pore space. Applying the Davis-Ritchie equation provides an estimate for the time it would take for the reaction front to propagate through the backfill. Under the given backfill parameters, the reaction front would require over 500 years propagate through backfill. Whereas water levels in the backfill are 90% recovered after 30 years post-closure. . . . Thus, the flushing term applied in the geochemical model is appropriate to represent the release of sulfates, and other constituents.”

The GBRW comment was asking that the model of solute concentrations in backfill include an estimate for the amount of sulfide-sulfur minerals that would oxidize in the waste rock during its storage on the surface, before it was backfilled and flooded in the pit. We accept the BLM’s response - that once the sulfide waste rock has been backfilled to the pits, the rate of oxidation, presumably limited by the rate of oxygen diffusion down from the surface, will be slow enough that it can be neglected. But sulfide minerals in mine waste rock begin oxidizing as soon as it is oxygenated by blasting and excavation; and it will continue oxidizing until it is buried in a

manner that restricts oxidation, such as when it is backfilled to a pit. This concept - that the cumulative amount of sulfide mineral oxidation in waste rock depends on the duration over which the rock is stored in an aerated facility - is a fundamental component of mine-waste management, and is widely described in studies of mine-waste management. (See for example the recent presentation by Pearce et al., 2020.² This PDF file is attached to our comments so that it may be included in the public record.)

This cumulative solute release from waste rock by oxidation before backfilling is an important model source parameter, an initial condition, that is required to simulate solute release and transport from the backfill. However, the FEIS not contain a mandatory plan to prevent these pollutant releases. In addition, because the total load of soluble pollutants in the backfill has been ignored, the FEIS has failed to properly analyze treatment needs and the associated costs.. These failures violate BLM's duties under FLPMA and NEPA.

The FEIS does not clarify the extent of long-term water treatment

Both the waste rock dump and the tailing facility are potential sources of long-term pollution. The FEIS failed to present information and analysis as to how long it is anticipated that drainage from both of these facilities will need to be captured and treated. This is especially important for the tailings facility which based on the mobility test results contained in appendix P the leachate from the clay tailings will be highly contaminated including very low pH and significant uranium and alpha and beta activity. Drainage from the tailings facility must be treated. The question is for how long? This question is not addressed in the FEIS, but must be analyzed to ensure that water and environmental resources are protected and unnecessary and undue degradation does not occur.

Under FLPMA, BLM cannot approve an operation that is predicted to need such long-term/perpetual treatment. At a minimum, all costs for the construction, operation, and maintenance of this should be included in the reclamation/closure financial guarantee/bond in the ROD, as required by FLPMA and the part 3809 regulations.

Inadequate Air Quality Analysis

The FEIS still does not address the inconsistency and incomplete analysis of emissions from the facility. In particular is the confusing discussion of the emission from the acid plant.

- GBRW Comment P588 and P589: Sulfur Dioxide Emissions Analysis is Inadequate. The DEIS cites very low sulfur dioxide (SO₂) emissions from the facility as shown in Table 4.10. For Phase I SO₂ the table shows 75.8 tons per year (TPY) for the production of 337,895 tons of sulfuric acid (H₂SO₄) per year. This is a very low emission rate that currently does not exist in the United States for sulfuric acid production. Furthermore, Phase II of the mine

²Pearce, Steven, "Practically achieving zero oxygen concentrations in waste storage facilities: Martabe mine as a case study," BC MEND ML/ARD Annual Workshop, 2020. <http://bc-mlard.ca/files/presentations/2020-18-PEARCE-ETAL-practically-achieving-zero-oxygen.pdf>. Attached to these comments for BLM consideration prior to issuance of the ROD.

plan will involve doubling the acid production; however, SO₂ emissions are still only 76.1 TPY. Phase II would be a truly impressive emission capture rate. The DEIS does not justify these emission numbers. Appendix K of the DEIS provides only the following statement;

“In order to minimize the emissions from the sulfuric acid plant, LNC has committed to installing a state-of-the-art scrubbing control, which is above customary industry standard. As a result, the sulfur dioxide and acid mist emissions from the sulfuric acid plant will be well below the emission standards (4 pounds SO₂ per ton of acid produced and 0.15 pounds H₂SO₄ per ton of acid produced) in the Code of Federal Regulations, Title 40, Part 60 (40 CFR 60), Subpart H, Standards of Performance for Sulfuric Acid Plants. While the exact scrubbing system has not yet been determined, LNC has committed to installing a control that, at the minimum, meets the emission levels used in this analysis.”
(DEIS, App. K, pp 6-7)

Indeed, the scrubbing technology would have to be state-of-the-art or beyond. But, the DEIS does not discuss any specifics, it only mentions a yet to be determined technology. Thus, there is no way for there to be an analysis of the effectiveness on this technology as a mitigation for sulfur dioxide emissions in violation of NEPA. There must be evidence of the effectiveness of the scrubbing technology.

- BLM Response to P588 and 589: The NEPA Air Quality Impact Analysis was completed based on guidance and specifications from a sulfuric acid plant manufacturer, which included manufacturer guaranteed emission levels for Phase 2. (These guaranteed emission levels were conservatively used for Phase 1 as well) [DEIS Appendix K, Sections 2.3.5 & 2.3.7]. Since completing the NEPA Air Quality Impact Analysis, LNC has concluded that the sulfuric acid plant tail gas scrubber will utilize a sodium sulfate scrubbing solution containing sodium hydroxide. The scrubber pH and sulfate concentration will be maintained to optimize the scrubber control efficiency. The emission limits for the sulfuric acid plant, starting with Phase 1, will be enforced through the Nevada Division of Environmental Protection Air Quality Operating Permit for the Thacker Pass Project. Furthermore, as discussed in the Thacker Pass Project NEPA Air Quality Impact Analysis Report, the sulfuric acid plant emissions must be maintained below the Federal standards in 40 CFR Part 60, Subpart H [DEIS Appendix K, Section 2.3.5].

There has been no change in the analysis and the response to comments hardly explains the process and the technology for scrubbing the SO₂ emissions; it merely provides a few chemicals to be used. How can the effectiveness be determined from such little information? Under NEPA and FLPMA, BLM must fully analyze, detail, and confirm the effectiveness of such purported mitigation measures.

GBRW requested “specifics” to be able to analyze whether the acid plant emissions is likely to meet the goals listed in the FEIS. Yet the FEIS adds no specific data or analysis on the scrubbing technology, such as its application in another operational acid plant or reasonably scalable laboratory test data.

GBRW also notes that the emissions for the acid plant for all constituents (PM, PM₁₀, PM_{2.5}, CO, NO_x, SO₂, VOC, H₂S) are identical for both phase I and phase 2 (appendix K, FEIS). The FEIS failed to show why this is the case and clearly show that how the production of acid can double in phase 2 without changing the emissions.

In a discussion between GBRW and LNC on August 28, 2020 company representatives stated that “SO₂ emissions from phase 1 of acid plant are to be ~15 ppm and for phase 2 ~7.5 ppm.” These stack emission concentrations will achieve the 75.8 TYP and 76.1 TPY for phases 1 and 2 respectively facility wide as stated in the FEIS. Again, the FEIS does not provide the public sufficient data and analysis that these very low emissions is achievable.

The company’s unsupported claims contradict current science and are not supported by the record. We note that according to the national “Acid Plant Database,” Rio Tinto’s Kennecott Copper smelter in Utah is “the cleanest in the world” and “captures 99.9% of the sulfur dioxide emissions produced.” The same document from the “Acid Plant Database” listed the emissions concentration at <100 ppm in SO₂.³

Therefore, LNC is proposing an acid plant that will be on the order of 5 to 10 times cleaner in SO₂ than the current state-of-the-art industry standard and the “cleanest in the world,” yet no details are provided for public review.

Under NEPA and FLPMA, the FEIS failed to establish that this standard can be met with clear data and analysis and that emission requirements and goals as presented in the FEIS will be met for all constituents.

BLM Must Address Impacts to Endangered, Threatened, Sensitive, and Other Special Status Birds, Wildlife, and Plants

In general, the EIS fails to take a hard look at impacts from the proposed mine to Endangered, Threatened, Sensitive and other special status birds, wildlife, and plants in the Project area, including State of Nevada Species of Conservation Concern and At-Risk species. BLM must supplement the EIS in order to adequately consider impacts to these species from the proposed mine and carry out its mandate to conserve and protect these species under FLPMA. In particular, it is clear that BLM does not have adequate baseline information to understand special status and imperiled species presence in and use of the Project area and thus, to project how they will be affected by the mine development. In some cases, the biological information about the

³DKL Engineering, Inc., “Sulphuric Acid on the Web™”, <http://www.sulphuric-acid.com/sulphuric-acid-on-the-web/home.htm>, an online sulfuric acid database, last updated June 29, 2020. Kennecott Data Sheet from January 27, 2018 (viewed December 27, 2020). Attached to these comments for BLM consideration prior to issuance of the ROD.

species is so vague as to render the analysis and any proposed mitigation meaningless, as in the case of bat species, which erroneously presumes that all bats in the project area are aerial insect feeders. We have provided additional basic background information on some of these species for use in your supplemental analysis.

Even where surveys for species presence have been performed, the analysis of effects to the species is cursory and does not provide a meaningful understanding of likely impacts to their future persistence. For instance, regarding pygmy rabbits, the FEIS explains that surveys only detected inactive burrows and pygmy rabbit pellets. But this dismissal of impacts ignores the well-known difficulty of detecting pygmy rabbits and the recent research (Ellis *et al* 2017)⁴ that in many instances found pygmy rabbits with cameras at burrows that had been considered inactive, which suggests that common methods of searching for pygmy rabbits can be ineffective and under detect their presence. Perhaps to cover its bases, the FEIS then states “the potential for mortality under the Proposed Action could be a significant effect to local populations” without describing the local population or what that significant effect would be. 4-41. This acknowledgment of some effects without any real disclosure or analysis of the extent of those effects and what they mean for the species is typical of the FEIS and violates NEPA’s hard look requirement.

Greater Sage-Grouse

The Project will have serious impacts to Greater sage-grouse that BLM has failed to consider or address. The Project area is within the Lone Willow Population Management Unit (PMU) designated by the Nevada Department of Wildlife (NDOW). 4-43. Much of that PMU is categorized as “essential irreplaceable habitat,” which the FEIS ignores. *See* https://www.fws.gov/nevada/nv_species/documents/sage_grouse/392012-Maps/Printable_Greater_Sage-Grouse_Habitat_Categorization_Map.pdf. The Project would completely span the southeastern portion of the PMU, severing the southernmost portion of the PMU from the rest of the PMU. *See* Figure 4.5-1. Studies show that isolating sage-grouse populations by fragmenting habitat in this way leads to their extirpation; thus, the Project will effectively shrink the habitat and sage-grouse population in the PMU.

Although the FEIS provides little discussion of how the Project would affect sage-grouse populations in the Project area or at the PMU scale, the Lone Willow PMU has reached lows recognized to warrant management action, both in terms of sage-grouse populations and sage-grouse habitat. In 2014, before the sage-grouse Plan amendments were first adopted, the PMU had already crossed a population threshold recognized as calling for adaptive management approaches. 4-43. The 2019 Sagebrush Ecosystem Technical Team also identified the Lone Willow PMU as having tripped a habitat trigger due to habitat loss from fire that burned 48 percent of the PMU. *See* 4-43. The assumption that management changes would occur in response to triggers like these was an important premise of the 2015 Approved Resource Management Plan Amendments adopted to provide adequate regulatory mechanisms to protect the greater sage-grouse and avert listing under the Endangered Species Act. *See* MD SSS 18-23.

⁴ Attached to these comments for BLM consideration prior to issuance of the ROD.

The Project area provides important breeding, nesting, brood-rearing, and winter habitats for sage-grouse. According to the FEIS:

There is one active lek (Montana-10) within 0.96 miles of the Project area, and three active lek sites within 3.1 miles of the Project area (Figure 4.5-10, Appendix A). NDOW lek observations have documented birds displaying at this lek within 0.75 miles of the proposed Project area (NDOW 2020). GRSG have been documented within the Project area during field surveys and by NDOW, who reported 63 tracking locations generated by at least 30 radio-marked birds (NDOW 2018).

4-42. The Montana-10 lek is one of the three largest leks in the Lone Willow PMU. Mapping shows six active and two inactive sage-grouse leks within or adjacent to the Project area. *See* Figure 4.5-10. The FEIS does not disclose whether sage-grouse leks occur south of the PMU, but there are active sage-grouse leks in the southeastern portion of the PMU.

Nearly the entire Project area occurs within moderate to high quality sage-grouse winter habitat and the northwestern portion of the Project area where the pit mine will be located, is high-quality brood-rearing habitat. Figures N.2, N.3; *see also* G-18. The most high-quality sage-grouse habitat is in the north of the Project area where the open pit will be located. *See* G-18 (describing habitat).

While the Winnemucca RMP, as amended, caps disturbance in high-value sage-grouse Priority Habitat Management Areas (PHMAs) at 3 percent and the project and PMU scale, disturbance in the Project area already surpasses that threshold. The Project will disturb 1.2 percent of PHMAs within the PMU and will raise disturbance in the Project area from 4.4 percent to 12 percent. Although the Project area already exceeds the 3 percent project-level disturbance cap, BLM seems to believe it may disregard that cap because the Project involves lithium mining.⁵ BLM has also elected not to apply several Required Design Features (RDFs), including measures to address noise from the Project, because it claims that those measures do not apply to locatable mineral developments. Indeed, BLM appears to contend that it cannot constrain the manner of development at Thacker Pass at all to protect sage-grouse because the Project involves a locatable mineral—yet it has not provided analysis to support the assertion that the entire Project area is subject to “valid existing rights” or otherwise show that the company has statutory rights to use/occupy all of its mining claims without evidence to support such rights under federal mining and public land law. BLM’s failure to apply conservation measures needed to mitigate impacts to this imperiled species from the proposed lithium mine is violates FLPMA, will cause unnecessary and undue degradation, and will likely cause irreparable harm to the species.

⁵ The NV/NE CA ARMPA claims that the disturbance cap may not apply to mining activities, but that details about those activities will be fully analyzed and disclosed in the NEPA process: “Although locatable mine sites are included in the degradation calculation, mining activities under the 1872 mining law may not be subject to the 3% disturbance cap. Details about locatable mining activities will be fully disclosed and analyzed in the NEPA process to assess impacts to sage-grouse and their habitat as well as to BLM goals and objectives, and other BLM programs and activities.” NV/NE CA ARMPA at E-2.

While the FEIS does disclose that effects to sage-grouse are anticipated, it fails to provide basic information necessary to determine what those effects will be. It does not disclose baseline sage-grouse populations in the project area and in the PMU or describe how they use seasonal habitats in the Project area. The FEIS does not even disclose which Priority Area for Conservation (PAC) the PMU is in, although it is within the Western Great Basin PAC, which extends into Oregon and California. Without this “big picture” (or small picture) baseline information, the FEIS fails to provide sufficient information to assess impacts to the bird from likely destruction of the populations at Thacker Pass and the southeastern portion of the Lone Willow PMU. And, because there is no adequate baseline, monitoring to discern changes to sage-grouse populations in the Project area would be meaningless. We have provided several resources concerning the need to consider effects to sage-grouse seasonal habitats at both landscape and local level scales to adequately discern impacts to the birds.

The FEIS also does not disclose where leks are located relative to different types of development and how they may be impacted. For instance, as the Nevada Department of Wildlife pointed out in comments: “Based on average lek attendance, the Montana-10 lek is one of the three largest leks in the Lone Willow PMU and the loss of this lek would likely be of high consequence to greater sage-grouse populations.” R-184. But the FEIS does not disclose how the impacts from the development of the open pit mine within a mile of this critical lek will likely affect sage-grouse populations in the Project area, the PMU, or the PAC. Indeed, even though the FEIS discloses that, according to projections by the Nevada Department of Wildlife, noise from the Project will likely exceed levels known to have negative effects on lek attendance on two leks in the Project area, the FEIS does not disclose what those impacts will be. *See* 4-53. We have attached numerous studies showing drastic sage-grouse population declines and lek abandonment in response to disturbance from energy development. Will the lek likely be abandoned? How will abandonment of this significant lek affect sage-grouse populations in the PMU, PAC, or rangewide?

The area where the pit mine will be located will be subject to long-term, virtually permanent dewatering post-mine, which will likely affect wet meadows used by sage-grouse during the brood-rearing season, but the compensatory mitigation planned contains no permanent credits to offset those impacts. *See* 4-45. The lack of permanent mitigation credits means that long-lasting, persistent impacts to sage-grouse from the open pit mine are unaddressed. Thus, many statements in the FEIS and in the Response to comments claiming the effects of the project on sage-grouse will be fully mitigated through conservation credits are false. For example, the FEIS states in response to comments: “The [Conservation Credit System] provides a regulatory mechanism for GRS habitat protection that ensures habitat effects from anthropogenic disturbances (debits) are *fully compensated* by long-term enhancement and protection of habitat that result in a net benefit for the species.” R-106, R-135. The analysis in the FEIS and response to comments is thus inaccurate and misleading and understates the impacts to sage-grouse from the mine.

The FEIS also fails to consider reasonably foreseeable effects to sage-grouse from the Project. For instance, it does not consider effects to sage-grouse from cutting off the southeastern part of the PMU from the rest of the PMU, either to sage-grouse populations in the PMU or to sage-grouse population in the PAC of which the PMU is part. The FEIS does not consider effects of

Project in light of the effects of wildfire that eliminated 48 percent of the sagebrush habitat in the western portion of the PMU. How much viable sage-grouse habitat remains in this PMU post-fire, and factoring in the impacts from the mine? Nor does the FEIS disclose effects to sage-grouse from permanent destruction of nesting and brood-rearing habitat from mine-caused groundwater drawdown—effects that are not offset in any way by the planned mitigation. Indeed, the FEIS does not disclose how impacts to any sage-grouse seasonal habitats in the Project area are likely to affect the species. We have included references regarding sage-grouse habitat needs, including their use of seasonal habitats, for use in your supplemental analysis.

Golden Eagles

Golden eagles are protected under both the Bald and Golden Eagle Protection Act (BGEPA) and the Migratory Bird Treaty Act (MBTA). Both prohibit take without permits.⁶ BGEPA’s definition of take includes disturbance, defined in later regulation as “to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, injury to an eagle, a decrease in productivity, or nest abandonment.” 50 CFR 22.3. In 2009, USFWS issued regulations authorizing incidental take permits for eagles. After pressure from industries that wanted weaker permitting standards, the eagle incidental take permit regulations were revised, and reissued in 2016.

In April 2013, USFWS issued its most recent Eagle Conservation Plan Guidance (ECPG),⁷ to help project proponents obtain eagle incidental take permits. Compliance with the ECPG is voluntary, but avoiding unpermitted eagle take and, if an eagle incidental take permit is issued, complying with that permit’s requirements, is mandatory under BGEPA and the eagle take permit regulations. USFWS’s most recent ECPG recommends that “initial surveys be conducted on and within 10 miles of a project’s footprint to establish the project-area mean inter-nest distance.” ECPG at 12. The ECPG further states, “If data on nest-spacing in the project area are lacking, project proponents or operators may wish to survey up to 10 miles, as this is ½ the largest recorded spacing observed for golden eagles in the Mojave/Sonoran deserts of western Arizona (Millsap 1981).” ECPG at 12.

In April 2020, UFSWS published a memo that reduced the ECPG’s recommended 10-mile area for eagle nest surveys down to two miles, a reduction of 80%. This change appears to have been made without advance public notice, without opportunity for public comment and without NEPA analysis.⁸ The agency’s rationalization for the change was “eagle nest surveys out to 2 miles

⁶ The Trump Administration’s interpretation of unlawful incidental take under MBTA contradicts at least 40 years of precedent, is currently being litigated, and is also the subject of a not-yet-completed rulemaking process.

⁷ U.S. Fish and Wildlife Service. April 2013. Eagle Conservation Plan Guidance: Module 1—Land-Based Wind Energy, Version Two. Attached. USFWS has not released additional ECPG Modules for other industries, but instead applies and on-the-fly modifies the wind energy ECPG Module for eagle take permit applications submitted by other industries. Available at <https://www.fws.gov/migratorybirds/pdf/management/eagleconservationplanguidance.pdf>.

⁸ To the extent BLM has relied on this memo in the FEIS to limit eagle nest surveys to only two miles of the Project’s footprint, that reliance is illegal, since the memo reversed prior policy without the process required by the Administrative Procedure Act.

from the boundary of the area associated with an incidental take permit will provide sufficient information to evaluate project impacts to nearby nesting eagles”; this conclusion was based on an average distance calculated by pooled data from 101 breeding golden eagles across the U.S. that were carrying satellite transmitters. USFWS eagle memo at 1 and 3. However, the memo shows that the female golden eagles in North American deserts traveled further distances from the center of their territories than the pooled averages, making the new two-mile survey buffer less representative of their travel distances. UFSWS eagle memo at 3. Furthermore, the memo did not state how many of the 101 golden eagles were tracked in each of the five ecoregions, nor did it give any rough estimate of where those tracked locations were. North America has several different deserts (Great Basin, Mojave, Sonoran, Chihuahuan), each with different characteristics beyond the shared characteristic of aridity (temperature, vegetation, prey species, etc.). The Thacker Pass mine would be located in the Great Basin desert. Therefore, it is unclear how well the new buffer distance actually represents travel distances of Great Basin golden eagles in general and the Thacker Pass local population of golden eagles in particular.

The project’s eagle nest surveys for the Thacker Pass mine were conducted in 2018 and 2019 with a 10-mile buffer and an additional surveyed area beyond that going out to about 20 miles to the south of the project. Thacker Pass Eagle Conservation Plan at 10. Additional surveys with a 2-mile buffer were proposed for 2020. Thacker Pass Eagle Conservation Plan at 10. Within the 10-mile buffer, 10 territories were considered occupied in 2018 and 10 were considered occupied in 2019. Four territories were considered occupied during the 2020 survey that used the new two-mile buffer. FEIS at 4-57. Nevertheless, the FEIS concludes that only one nest is likely to be disturbed to an extent that take is likely. FEIS at 4-57. As we have explained in previous comments, this conclusion is too low given the many nests, potential alternate nests and territories in the immediate area. We also note that FEIS Figure 4.5-16 shows three golden eagle territories overlapping the project area, and concludes that two are unoccupied based on a single year of nest data, which does not accurately reflect golden eagle research.

In addition, the FEIS significantly underestimates cumulative impacts to golden eagles due to a serious error in the way that annual unpermitted take of golden eagles in the LAP has been calculated. The FEIS estimates that annual unpermitted take of golden eagles in the LAP is 12.85 eagles. FEIS at 5-9 and Appendix Q at Q-2. However, this number is incorrectly calculated in Appendix Q, which combines 19 different datasets⁹ and calculates an annual mean average of unpermitted golden eagle take equivalent to 12.85 golden eagles by adding all the mortality in the 19 datasets together and dividing that sum by 20 (years). There are two major problems with this approach. First, the 19 datasets span a total of 26 years, not 20 (1994-2019). Second, none of the 19 datasets span the entire 26-year period; they range anywhere from one to 20 years with fully half reporting fewer than 10 years and eight reporting only a single year. This means that simply adding all the mortality together and dividing by 20 does not result in a credible annual average of unpermitted golden eagle take for a 20-year period since not all of the datasets cover 20 years.

⁹ We are using the term “dataset” to refer to each of the 19 golden eagle mortality cause entries in the chart on Q-2. Some of the mortality cause names for these 19 entries are repeated in the chart, but they are clearly different datasets because their reported years are different. No information about these datasets is presented other than what is in the chart on Q-2, which the FEIS says is derived from UFSWS.

As a result, the FEIS appears to have significantly underestimated annual unpermitted golden eagle take.

To better estimate annual unpermitted golden eagle take, we have re-estimated it from the golden eagle mortality data in FEIS Appendix Q.¹⁰ We calculated the mortality per reported year for each of the 19 datasets (all known mortality divided by number of reported years), which pertains to the 20 year data time span used as a divisor in FEIS Appendix Q and the actual 26-year data time span reported in FEIS Appendix Q. Then we multiplied mortality per reported year for each of the 19 datasets by 20 and 26 to obtain adjusted mortality for each of the 19 datasets. Then we added the adjusted mortality for each of the 19 datasets together and divided by 20 and 26. Both equations result in the same annual unpermitted take estimate of 32.18 golden eagles per year, significantly higher than Appendix Q's estimate 12.85 eagles per year.

After recalculating unpermitted golden eagle take, we also recalculated Appendix Q's figures for the total amount of take (overlapping, predicted, unpermitted) and the percentage of Local Area Population (LAP). Appendix Q's calculation that overlapping, predicted, and unpermitted take add to only 1.75% of the LAP is too low because the number it relies on for unpermitted take is too low, per the calculations described above. When we recalculated the total take percentage using our recalculated unpermitted take number, we found the overlapping, predicted, and unpermitted take is 4.121%.¹¹ This is uncomfortably close to the maximum of 5% allowed by the eagle take permit regulations. It is also significantly higher than Appendix Q's calculation of 1.75%. USFWS's 2016 Bald and Golden Eagle Population Update states that LAP golden eagle take rates of greater than 1% are of concern and 5% is the maximum allowable. That 5% maximum allowable take could come at great cost to golden eagles: "the 5% threshold could result in a decline of 80% to a new lower equilibrium." USFWS Bald and Golden Eagle Update at iv.¹²

Finally, BLM did not respond in the FEIS to the substantive comments and questions about golden eagles and the Bird and Bat Conservation Strategy that Western Watersheds Project (WWP) raised in its second DEIS comment letter, which was timely submitted.¹³ These concerns include potential disturbance take continuing after the end of the five-year take permit, potential take greater than authorized by the proposed take permit, large number of eagle nests in the area, avoidance and minimization measures, monitoring and review of monitoring, failure to include

¹⁰ Millsap, B. A., Bjerre, E. R., Otto, M. C., Zimmerman, G. S., & Zimpfer, N. L. 2016. Bald and Golden Eagles: Population Demographics and Estimation of Sustainable Take in the United States, 2016 Update. Washington, D.C.: U.S. Fish and Wildlife Service, Division of Migratory Bird Management. Available at <https://eagleruleprocess.org/files/handouts/EagleRuleRevisions-StatusReport.pdf>.

¹¹ Our LAP percentage calculation is in the Cumulative Take worksheet of the Excel spreadsheet file.

¹² We have attached our calculations in the form of an Excel spreadsheet file. *See* the Unpermitted Take worksheet.

¹³ We have attached the receipts BLM's ePlanning web portal gave WWP when it timely submitted its first and second DEIS comment letters and attachments. They clearly show that WWP timely submitted two comment letters and 29 supporting attachments and thus are in the administrative record.

the Eagle Conservation Plan and Bird and Bat Conservation Strategy as part of the FEIS, incorrect statements in the Eagle Conservation Plan and Bird and Bat Conservation Strategy that incidental take of migratory birds is not unlawful under the MBTA, research showing that golden eagle take is as likely to happen at alternate golden eagle nests as at used golden eagle nests, need to base nest risk data on multiple years of data and not just one, and need to underground new powerlines at the project site to reduce risk to eagles and greater sage-grouse. WWP Supplementary DEIS Comment Letter at 2-3.

Pronghorn

Nearly the entire project area is within pronghorn winter range. Figure 4.5-7. The FEIS discloses that potential direct effects to pronghorn under the Proposed Action include the loss of 427 acres of summer range and 4,960 acres of winter range over the life of the mine or longer, depending on the success of reclamation. Two pronghorn movement corridors lie within the Project area. These corridors facilitate access between limited use and winter range habitat to the south of the Project area and winter range, summer range, and year-round habitat to the north of the Project area. Mapped pronghorn antelope winter range distribution within the Project area constitutes approximately 1.26 percent of the total winter range mapped distribution within Hunt Unit 31. The construction of Project facilities and the associate loss of habitat is likely to prohibit or impede pronghorn movement between seasonal habitats.

The FEIS does not consider or disclose how severing these pronghorn movement corridors, or destroying nearly 5,000 acres of pronghorn winter range, will impact local pronghorn populations. The FEIS' consideration of impacts to pronghorn from the mine development appears limited to vague generalizations like the following: "Surface disturbance associated with mining activities and development of mine facilities... would directly affect wildlife through the loss of potentially suitable habitat by vegetation removal, and removal of seeps and springs and seasonal water sources for wildlife" and "Surface disturbance would also result in habitat fragmentation. Habitat fragmentation can affect species use of the area by reducing the landscape size for species that require large breeding or foraging ranges, increasing barriers to migration or movement, changing abiotic and biotic factors making the habitat less suitable, and reducing access to resources and potential mates." 4-34. But these generalizations do not address the effect of severing pronghorn migration corridors or destroying winter range on pronghorn. While the FEIS appears to attempt to minimize the impact of the habitat destruction that will occur by comparing the *amount* of habitat to the total amount of habitat in Hunt Unit 31, it does not consider the significance of this specific pronghorn habitat to the local pronghorn population. We have included relevant references addressing the effects of severing pronghorn migration corridors or destroying winter range for your consideration.

Amphibians

Although the FEIS discloses that Western toad, Columbia spotted frog, and northern leopard frog—all Sensitive species that BLM is mandated to conserve by its own policy and by FLPMA—may be present in the Project area, no amphibian surveys were conducted for the Project and no mitigation measures for amphibians were adopted. The only amphibian specifically discussed in the FEIS is the western toad, and the FEIS paradoxically claims that

impacts to the toad are unlikely while simultaneously admitting that “Western toads may be prevented from moving through disturbed upland habitats located between the limited amounts of aquatic/riparian habitat in the Project area.” See 4-48. Thus, impacts to Western toads are likely, but the FEIS ignores those impacts.

Thus, the FEIS lacks an adequate baseline upon which to project effects to amphibians from the mine development and has adopted no measures to avoid impacts to amphibians, even though the mine will lower the water table, affecting perennial and ephemeral waterbodies that these species use. The FEIS fails to even mention numerous amphibians that are likely to be present in the Project area.

Springsnails

Two species of springsnails were found in the Project area during wildlife surveys, the Kings River pyrg (*Pyrgulopsis imperialis*) a.k.a. King’s River pyrg and turban pebblesnail. See FEIS Appendix G unnumbered page 129 of 133. The Kings River pyrg is a critically imperiled endemic species at high risk of extinction (NatureServe conservation score G1, N1, S1), and the turban pebblesnail is a vulnerable species at moderate risk of extinction or elimination (NatureServe conservation score G3,S3). The Kings River pyrg is on Nevada’s At Risk List of imperiled species; the turban pebblesnail is on Nevada’s Watch List. The Kings River pyrg’s high risk of extinction is nowhere discussed in the FEIS. Instead, the two springsnail species are described thus: “None of these snails are identified as BLM special status species, though both species are NDOW species of conservation priority.” Appendix G at unnumbered page 129 of 133. The FEIS does not provide clear information as to the number of Kings River pyrg that were found, how many springs contained them, or which springs contained them, thus making it impossible for anyone, including BLM, to accurately assess risk. Instead, the FEIS merely states: “Springsnails were surveyed at 13 undeveloped springs in the survey area. During surveys for springsnails, the Kings River pyrg (*Pyrgulopsis imperialis*) was found at all springs collected.” Appendix G at unnumbered page 129 of 133. According to a very recent conservation strategy for Nevada and Utah springsnails, the Kings River pyrg is an endemic species only known from 13 locations in Humboldt County in the Thacker Pass area. See Conservation Strategy for Springsnails Summary Reports at 4. That is the same number of locations as springs that were surveyed for the Thacker Pass Project. It also means that the Thacker Pass Project area might contain the entire known population of Kings River pyrg, thereby putting the species at risk of extinction. The FEIS should discuss this issue clearly, but utterly fails to. Instead, the FEIS doesn’t mention either the Kings River pyrg or the turban pebblesnail by name in its impacts analysis and states that there will be no direct impacts to springsnails. 4-48, 4-50. As for indirect impacts, the FEIS directs the reader to section 4.5.3 (potential impacts of groundwater drawdown to wildlife) and then fails to state whether there will be indirect impacts to springsnails or that the potential indirect impacts to wildlife in the project area may include extinction. 4-53 to 4-55. Nor does the FEIS propose any mitigation specifically for springsnails, nor does it explain how the Kings River pyrg will maintain its representation, resiliency, and redundancy, which are all necessary for population integrity and species survival. These are stunning failures of the FEIS given that the Thacker Pass Project appears to pose significant risk of driving the Kings River pyrg to extinction. Failure to adequately review these issues and protect these species violates NEPA and FLPMA. We have attached several works of springsnail conservation science, and we

urge the BLM and cooperating agency UFSWS to read them and take strong action to protect the Kings River pyrg and other springsnails in the Thacker Pass Project area. Emergency listing of the Kings River pyrg as an endangered species under ESA may be warranted.

Sensitive Plants

The FEIS does not disclose the extent of efforts to detect many special status plants that are likely present in the Project area, or to impose any measures to prevent harms to these rare and delicate species. For plants known to be present, the FEIS blithely writes off the potential for impacts without any real analysis.

For instance:

- Lahontan Milkvetch (*Astragalus porrectus*) is a BLM Sensitive Species that grows in calcareous or alkaline, sandy to gravelly washes, alluvium, or gullies on clay badlands. The soils on the site would be suitable for the species. The FEIS states that the species was not found during surveys but fails to say when surveys took place and if conditions were favorable enough to spot enough individuals of the species.
- Lonesome Milkvetch (*Astragalus solitarius*) a BLM Sensitive Species that grows in washes and banks of shallow soils on volcanic flat-rock with *Artemisia arbuscula*, *A. tridentata*, *Tetradymia glabrata*, *Poa sandbergii*, *Atriplex confertifolia*, *Chrysothamnus nauseosus*, etc. The FEIS states that the species was not found during surveys, but fails to say when the surveys took place and what the conditions were.
- Crosby's buckwheat (*Eriogonum crosbyae* var. *crosbyae*) was identified within the southwest corner of the south Exploration area during field surveys in 2018. (FEIS at 4-48). Effects were discounted and the populations would supposedly be avoided. Yet, many possible impacts to these rare plants were not analyzed in the EIS. We have observed large-scale mining activities, and many associated direct and indirect effects could impact plants: vehicle traffic crushing vegetation, piling up of topsoil for remediation, open pit excavation and storage of waste rock, dust, impacts to pollinators, weedy plant invasion, and disturbance of seed beds in soils. A few plant surveys may not account for all the seed banks in the region of these plants, and differing years with rain patterns may trigger germination of annual plants or blooming of perennials to be different between years. More surveys should be undertaken to account for this inter-annual variation in the geography of rare plant phenology.
- The Tiehm milkvetch (*Astragalus tiehmii*) was not found on the site during a survey, and described as "low probability of occurrence" at FEIS H-2, yet in Appendix H-3 the EIS notes that Crosby buckwheat frequently grows with Tiehm milkvetch. Therefore surveys might have missed this rare plant which could be present and impacted by mining activities.
- Cordelia beardtongue (*Penstemon floribundus*) habitat is also present and more surveys could uncover this species during different weather years (FEIS at H-8).
- Sand-associated rare plants could be found on the project if even slight amounts of wind-blown sand deposits are found on the project site, and these should be surveyed for: Nevada dune beardtongue (*Penstemon arenarius*) requires sand (at H-5), but it may not need to be deep sand. Similarly Oryctes (*Oryctes nevadensis*), Tonopah milkvetch (*Astragalus pseudiodanthus*).

- Sand cholla (*Grusonia pulchella*) is not an obligate sand plant, as the FEIS at H-4 determines. Ingram (2008) shows that sand cholla can grow easily in open sagebrush and saltbush in valleys just north of Winnemucca NV, habitats present on the project site. In addition, the visible portion of sand cholla may die back during dry years, but it survives as a tuber. Therefore sand cholla could easily exist on the project site but be missed during survey passes. There is no mitigation measure analyzed for this unusual cactus.

Further surveys are necessary to understand baseline populations of these species as necessary to accurately project impacts as necessary for the hard look required by NEPA. Without any mitigation measures to address impacts to sensitive plants, BLM is not complying with the mandates of its Sensitive Species Policy and FLPMA, which require it to conserve the species.

List and Brief Description of Materials That Must Be Fully Considered and Included in the Administrative Record

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Conclusion

Thank you for your consideration of these materials. Due to the overall size of these materials, they are being submitted to BLM on a flashdrive, where BLM can easily download them for inclusion into the administrative record. Please contact me immediately if you are unable to open and download these documents.

Sincerely,

A handwritten signature in black ink that reads "John Hadder". The signature is written in a cursive style with a large, looping initial "J".

John Hadder
Great Basin Resource Watch
P.O. Box 207
Reno, NV 89504
(775) 348-1986

A handwritten signature in black ink that reads "Kelly Fuller". The signature is written in a cursive style with a large, looping initial "K".

Kelly Fuller
Energy and Mining Campaign Director
Western Watersheds Project

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Depoe Bay, OR 97341
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A handwritten signature in black ink, appearing to read "Kevin Emmerich". The signature is written in a cursive style with a large, prominent initial "K".

Kevin Emmerich
Co-Founder
Basin and Range Watch
P.O. Box 70
Beatty, NV 89003
775-553-2806

On behalf of Western Watersheds Project, Great Basin Resource Watch, and Basin and Range Watch