November 12, 2012

Battle Mountain District Office
ATTN: Gloria Tibbetts, Mount Hope Project
U.S. Bureau of Land Management
50 Bastian Road
Battle Mountain, NV 89820

Re: Comments on the Final Environmental Impact Statement Mount Hope Project

Dear Ms Tibbetts,

Great Basin Resource Watch (GBRW) appreciates the work of staff to develop an Environmental Impact Statement (EIS), and the attention to comments made by the public. In general, the organization of the comment response document, Volume III of the Final EIS, was effective and convenient to use. We have reviewed the Bureau of Land Management's (BLM) response to our comments and others. While it is clear that while BLM did attempt to address our concerns and comments we still do not think that our comments have been adequately addressed. Additionally, we also respectfully disagree with some of BLM’s analysis and conclusions in the response document. Therefore, we resubmit our comments from the DEIS (draft EIS) with some modifications, which are in boldface.

ECONOMIC FACTORS

Clearly the economic affects of the project will be very great in the region. The mining company should provide to the public estimates of how molybdenum prices will impact the nature of the mining operation. Currently, molybdenum is hovering at around $14/lb, but what are production costs? There needs to be an analysis of what market conditions would result in a partial or total temporary shutdown of operations. If molybdenum prices swing as significantly as in the past at some points in the future Eureka Moly LLC (EML) may cease mining at least on a temporary basis until the market recovers, if it does. This is particularly important for a relative low-grade ore deposit as exists for Mt. Hope. Certainly, the deposit is large; however, lower grade deposits will have greater production costs for the amount of salable product. The people and local economy will be affected by these changes in operations. The DEIS tends to present mining operation changes as occurring in a smooth manner, and hopefully if the project does go forward this will be the case. However, it is important to prepare for a more volatile production schedule. If there is a sense of the bottom line production cost, then if market prices drop the region (city and county government) can better anticipate possible ceases in operations and the associated impacts.
LONG-TERM FUNDING MECHANISM/RECLAMATION BOND
The final EIS (FEIS) contains additional language regarding the Long-Term Funding Mechanism (LTFM). It is seems clear that the LTFM is a recognition that the Mt. Hope site is likely to be more complex than currently supposed, and that additional mitigation and long-term management may be needed. The FEIS states, “There is a potential for additional monitoring and maintenance tasks to be required beyond the 30-year post-closure timeline that is currently not included in the reclamation cost estimate. Financial assurance for these tasks would be provided outside of the reclamation financial guarantee by means of a LTFM.” (pg. 2-77). GBRW is concerned that the additional costs are not in the reclamation bond. The bond should be a very conservative document that will cover costs under the worst case scenario. It is the bond that assures that disasters like the Anaconda mine in Yerington Nevada will not happen again. BLM needs to extend the 30-year reclamation timeline and include potential costs that are being referred to in the FEIS. The FEIS needs to provide further details on the LTFM, what is it exactly and how is it as “good” as a reclamation bond, and why is the reclamation bond not being expanded to include the potential costs.

GEOCHEMICAL CHARACTERIZATION
Key to prediction of future water quality at mine site is judicious and sufficient sampling of the various rock types and alterations. The bare minimum for characterization as cited in an EPA review is 1 sample per million tons of rock, which EML approximately achieves. According to the DEIS, 1,750 million tons of waste rock is anticipated, so the minimum would be on the order of 1,750 samples, and in total EML appears to have based waste rock characterization on 1,844 samples from 1,545 “historic” pulp samples, 250 historic core samples, and 48 recent core samples (It was not clear to GBRW from the report whether kinetic testing used samples from the 1,844 or additional samples). The EPA review article cites other expert sampling opinions; 1 for every 20,000 tons (Gene Farmer, US Forest Service), 1, for every 40,000 tons (British Columbia AMD Task Force. Extrapolating in a linear fashion from these opinions EML would have needed to collect from 40,000 to 70,000 samples, roughly 20 to 40 times as many as were collected. Although, EPA does not indicate whether a linear extrapolation is appropriate, GBRW does agree with BLM that such an estimate is overly conservative. In a more recent review of predicting water quality at mine sites, Maest and Kuipers recommend the following:

<table>
<thead>
<tr>
<th>Mass of Each Separate Rock Type (tonnes)</th>
<th>Minimum Number of Samples</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;10,000</td>
<td>3</td>
</tr>
<tr>
<td>&lt;100,000</td>
<td>8</td>
</tr>
<tr>
<td>&lt;1,000,000</td>
<td>26</td>
</tr>
<tr>
<td>1,000,000</td>
<td>80</td>
</tr>
</tbody>
</table>

Using this prescription adapted from Price and Errington 1994, yields a similar sampling rate as indicated from Farmer and the BC AMD task force. In view of these reviews and our opinion of the potential for acid drainage and poor water quality that has occurred at other mines in Nevada GBRW does not see the sampling rate for the Mt. Hope Project (Project) to be sufficient. The most glaring example of this is that paucity of potential pit wall samples that were used for the pit lake water quality analysis, “There were little sampling data from some of the pit wall areas because of the

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1 BLM misinterpreted our statement in the DEIS regarding 40,000 to 70,000 samples, which is rewritten here for clarity.
relatively cylindrical nature of the orebody,” (DEIS, pg. 3-197). Regardless of whether the approach to the pit lake model is justified, this statement clearly indicates how incompletely the sampling was done. EML was relying on samples that were taken 30-40 years earlier, where the mine plan was likely to have been much different that the current plan. These “pulp” samples appear to have been largely from the periphery of the ore body as part of those early explorations when resource evaluation was the primary goal. GBRW recognizes that these samples are useful; however, we are skeptical that they and the additional recent samples have been sufficient to fully understand long-term water quality at the site.

BLM in response to GBRW DEIS comments refers to the BCATF recommendations and stated that, “According to this method, the recommended minimum number of samples should be 25 for a 1 million ton geologic unit and the maximum number of samples recommended by the BCATF is 500.” (FEIS, Vol. III, pg. 331). A more current, 2009, analysis\textsuperscript{a} to which the BCATF refers, cites same table that GBRW used in the DEIS comments (Table I) as the recommended starting point for sampling rate. It is also recommended that, “…the final sampling frequency be determined site specifically based on the variability of critical parameters, prediction objectives and required.” (pg. 8-8).

There is no mention of a 500 maximum number of samples; perhaps that was the previous thinking.

In addition to the overall number of samples is the matter of sufficient samplings of rock types and alterations. In Table 2 below GBRW has compared the sampling for the primary alterations of rock types (based on Table 3.3-3 of the DEIS, pg. 3-195) deduced from Table 4.1 of Waste Rock and Pit Wall Rock Characterization Report, 2008 with recommended sampling for the same tonnage based on Table 1 above. We have provided two methods of estimating the number of samples needed shown in the two columns under the column heading, “Approximate Number of Samples required based on Maest and Kuipersi.” The left and right columns use a linear and non-linear respectively interpolation and extrapolation from Table I. It is likely the best reasonable conservative estimate of the sampling rate lies in between these two estimates, with the non-linear approach underestimating, and the linear approach overestimating for large tonnages. Note that some rock types are on the order of hundreds of millions of tons, so extrapolation needs to be cautiously done, since it extends well beyond the basis for the model. In general, based on this analysis the overall sampling should be from ~3,600 - ~14,000 (non-linear to linear) compared to the 1,844 samples actually used, and sampling under each rock type/primary alteration with a few exceptions is also fewer than recommended. GBRW also notes that as rock strata is subdivided further into various alterations, etc, the number of samples recommended increases.

GBRW does not expect that EML would match the “generic” sampling rate that we have discussed here, and we recognize variation from such recommendations based on field mineralogy with other quick and simple tests, but the deviation sufficiently wide and typically leans towards fewer than recommended sampling. In our view, the number of samples used for geochemical characterization probably should have been 2-4 times what was actually used. GBRW is concerned that this is a symptom of cutting costs at the expense of proper assessment of environmental impacts.

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GBRW obtained background documents to determine the sampling of various rock/types and alterations, unlike the general public, who might be intimidated enough by the DEIS let alone reviewing background technical documents. The DEIS should include maps showing the locations of where samples were taken, so that it is clear which areas were sampled and though with were not. These maps would also reveal the distribution of sampling. As presented in the DEIS the geochemical characterization aspect is quite opaque. Only after many hours reviewing technical background documents does a somewhat clear picture of sampling take shape. GBRW appreciates that these background documents are publically available, which we obtained, few in the general public will, and so it is vital for transparency that good visual and supporting discussion is provided in the EIS.

<table>
<thead>
<tr>
<th>Rock type</th>
<th>Primary alteration (over 25% PAG highlighted)</th>
<th>Percentage of Total Waste Based on Mine Model</th>
<th>Waste Rock Tonnage x 10^6</th>
<th>Approximate Number of Samples required based on Maest and Kuipers^\text{ii}</th>
<th>Number of Samples used^\text{ii}</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undefined</td>
<td>Undefined</td>
<td>0.6</td>
<td>10.5</td>
<td>80</td>
<td>82</td>
</tr>
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<tr>
<td></td>
<td>Potassic</td>
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<td>19.3</td>
<td>160</td>
<td>110</td>
</tr>
<tr>
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<td>Biotite</td>
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<td>1.75</td>
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<td>34</td>
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<tr>
<td></td>
<td>Silicic</td>
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<td>19.3</td>
<td>160</td>
<td>110</td>
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<tr>
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<td>1.75</td>
<td>40</td>
<td>34</td>
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<tr>
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<td>222</td>
<td>1770</td>
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<td>115</td>
</tr>
<tr>
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<td>Potassic</td>
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<td>61.3</td>
<td>490</td>
<td>195</td>
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<td>28</td>
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<tr>
<td></td>
<td>Potassic</td>
<td>12.1</td>
<td>212</td>
<td>1690</td>
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<tr>
<td></td>
<td>Silicic</td>
<td>0.1</td>
<td>1.75</td>
<td>40</td>
<td>34</td>
</tr>
</tbody>
</table>

^\text{i} Estimated from Table 4-1 Waste Rock and Pit Wall Rock Characterization Report, 2008. It was unclear to GBRW how this category translated to categories that appeared in Table 4-1 of the Waste Rock and Pit Wall Rock Characterization Report, 2008.

^\text{ii} The left column is the DEIS estimate determined by linear interpolation extrapolation from Table I, and the right column used a linear fit to a power function based on the table values:

\[
\text{Number of samples} = 25.94 \cdot (\text{millions of tons})^{0.49}, \quad r^2 = 0.9986
\]

GBRW obtained background documents to determine the sampling of various rock/types and alterations, unlike the general public, who might be intimidated enough by the DEIS let alone reviewing background technical documents. The DEIS should include maps showing the locations of where samples were taken, so that it is clear which areas were sampled and though with were not. These maps would also reveal the distribution of sampling. As presented in the DEIS the geochemical characterization aspect is quite opaque. Only after many hours reviewing technical background documents does a somewhat clear picture of sampling take shape. GBRW appreciates that these background documents are publically available, which we obtained, few in the general public will, and so it is vital for transparency that good visual and supporting discussion is provided in the EIS.
According to the waste rock analysis from other static and kinetic testing 27 percent of the waste rock has been classified as potentially acid generating (PAG). According to the DEIS and supporting documents the Mt. Hope deposit and surrounding waste rock is low sulfide and poor in neutralizing capacity. GBRW has noted that many of the rock types/alterations were listed as giving variable result from humidity cell tests (HCT). The discussion of the humidity cell tests (HCT) describes this variability, which typically involves a discrepancy between 2 or 3 test runs. This again underscores the need for additional sampling and analysis to get more of a statistical sense of what to expect from the various rock types/alterations. Overall, GBRW does not trust that EML has captured the correct breakdown of PAG versus Non-PAG for this site. We are concerned that as the mine develops more PAG material could be determined, and thus the current analysis would underestimate the impacts.

The low sulfide statement in the DEIS pertains to an average content in the pit volume, and there were tests that indicated very high sulfide content. Thus, there will be portions of the waste rock that are likely to be very acid generating, and even low sulfide portions could produce acid drainage in exceedence of Nevada regulations. For example, samples from the Duluth Complex in northeastern Minnesota with low sulfur content, 0.41 to 0.71%, and low buffering capacity were shown to produce pH values from 4.8-5.3. GBRW is concerned that the belief of low sulfide (on the average) has created a false sense of security within the BLM and the general public that there is little concern over water quality at the Mt. Hope site. Even at the Lone Tree mine site in Nevada, where there exists significant carbonate deposits, and thus significantly greater neutralizing capacity the pit lake has become very acidic with no end in sight.

Overall, GBRW recommends that BLM require EML to conduct further sampling and analysis especially for those portions of the pit that are not well represented by the existing sampling such as much of the pit wall vicinity. This is needed so that impacts can be optimally determined and mitigation and best management practices can be developed.

WASTE ROCK FACILITIES

Although the data is sparse given the available information such as Figures 3.3.4 to 3.3.8 in the DEIS indicate a significant potential for acid generation, but with very little neutralizing capacity. For example Figure 3.3.5, Net Acid Generation Versus Net Acid Generation pH, shows that 29% of the samples to be net acid generating and another 16% in the questionable category, so the conservative approach would be to assume that 45% or almost half could be acid forming to various extents. Thus, GBRW foresees significant acid drainage from the PAG waste rock Facility (PAGWRF), and a potentially larger footprint for the PAGWRF. A larger footprint could be very problematic, since the existing footprint is dangerously close to two springs, SP-4 and SP-3. Clearly, EML is also anticipating some acid drainage by installing a drainage system at the bottom of the PAGWRF to collect substandard water. What is not in the management plan is a discussion of the possibility of long-term treatment (possibly in perpetuity) of acidic drainage. This scenario needs to be addressed in the EIS. The implications of this scenario are far reaching. What would be the cost? The current bonding model does not include this possibility to our knowledge.

The Mt. Hope area receives significant precipitation for Nevada, and needs to look a bit north and west to see how much acid drainage is produced at the Rain Mine site. At the Rain Mine precipitation levels are comparable to the Mt. Hope area and the problematic waste rock dump at Rain is much smaller than the PAGWRF proposed for Mt. Hope. Thus, the PAGWRF is likely to capture much more water. In terms of reclamation, the two-foot cover is probably not sufficient to
prevent infiltration and acid drainage. GBRW strongly recommends a thicker cover to decrease infiltration further.

We also note that there is discussion in the waste rock management plan to encapsulate PAG material with neutralizing material or develop layers of neutralizing rock between PAG rock. This would seem a reasonable best practice. The EIS needs to discuss this as a mitigation measure and EML should develop a plan for how this kind of procedure would be achieved. Again, GBRW wonders if there is a false confidence – overly optimistic perspective on how the site will behave. Once the waste rock facility is built the region is stuck with it, and adaptive management will be limited as to how to handle unexpected consequences. It is better to implement best practices when there is a luxury of options than after the fact.

The PAGWRF is very close to two springs on the north side and another on the west side. Clearly there are not a lot of options for waste rock placement, but EML should ways to avoid these springs to a much greater extent. Most likely the springs will be impacted by dewatering (unless they are from perched aquifers), and could become dry for a number of years, which is an impact of and to itself. In general GBRW us very concerned about the proximity of the PAGWRF to these water sources.

GBRW does not support the covering of the spring on the southwest corner of the site with the non-PAG waste rock facility. Even though an engineered conduit is to be arranged to channel spring seepage away from the facility it still represents a loss of the nature outlet of the spring. In general, covering a spring can have bad consequences in the future. After mining as stopped and EML walks away the conduit could collapse and then the spring is lost or worst the non-PAG is not so non-PAG after all and an acid drainage situation develops. The EIS should analyze the possibility of the conduit collapse and resulting impacts.

The DEIS does not appear to clarify the depth to groundwater under the PAGWRF, but it can be surmised by examination of groundwater contours and surface level contours. Based on this analysis the groundwater level is roughly 100 to 120 feet below the surface where the PAGWRF is planned, and that difference will widen some as dewatering occurs. Even so, GBRW is concerned that the one foot compacted layer base is not a sufficient barrier especially since acid drainage is likely (in our view). Over the long-term the drainage system may partially fail and acidic drainage would find its way into the unsaturated zone and eventually the groundwater.

Overall we recommend that BLM require EML reevaluate the design of the PAGWRF to include neutralizing aspects and the sufficiency of the base layer as a barrier, and judicious groundwater monitoring around the waste rock and tailings facilities.

WATER ISSUES

Pit Lake Model
The pit lake water quality model used to predict pit lake water quality follows the physical model of previous pit lake estimates in that it assumes that the contributions to pit lake water quality will reflect the rain/snow runoff from the pit walls as well as oxidation of the pit wall surface, plus reactions in the pit lake and evaporative processes. This model has sometimes been referred to as the “rind” model and has been commonly used in Nevada for predicting of pit lake water quality. The key component in question for this physical model is the depth of reaction of air with the oxidizable components in the pit walls. This physical model has failed for the two recent pit lakes...
formed in Nevada, Cove and Lone Tree pit lakes, in that it has underpredicted the primary indicator of oxidation (sulfate) by at least a factor of 5, and probably a much higher underprediction in the case of Lone Tree. Neither pit lake was expected to exceed the solubility product of gypsum, and both have exceeded that solubility product.

The problem with the rind model is that it fails to recognize that the amount of surface exposed to air is very much larger than the thin layer of the surface of the pit lake, which is what is generally assumed in this model. Quite simply, when water is removed from an aquifer, and the water table is lowered by 2250 ft (and recovers in 200 years by 1800 ft), (DEIS pg. 3-131), water is replaced with air in the cone of depression. That air contains 20% oxygen, and it is reasonable to assume that all of the oxygen that comes in contact with oxidizable surfaces will react. Thus, it is legitimate (using conservative estimates) to calculate the amount of pyrite oxidation to form sulfuric acid simply by determining the amount of air that is drawn into the aquifer, and assuming that this oxygen reacts with pyrite to form sulfuric acid. Not all of it will contact with pyrite, but even making an assumption that half of the oxygen is available for production of sulfate, the amount of oxidation will show that much higher concentrations of sulfate are ultimately rinsed into the pit lake.

In the extreme case, that all of the water pumped from the surrounding aquifers (about 500,000 acre-feet) is replaced with air, and when those surfaces are drain into the pit, the amount of sulfate delivered is about 7-10 gm/L of sulfate in the water rinsed into the pit lake (assuming 100,000 acre-feet in the pit lake). At a minimum, the pit lake will receive at least 100,000 acre-ft of water, and thus 100,000 acre ft of air, and this equates to approximately 1.4-2.0 gm/L of sulfate in the pit lake, not even taking into account the meteoric water rinsing the pit walls. This very simple analysis has at least (and probably much more) validity than the complex assumptions in the Mt. Hope pit lake model, which have not been verified. This is in addition to the amount of sulfate predicted in the pit lake model, where the sulfate concentration is 200 mg/L at 200 years, and 142 mg/L at 20 years. Under any circumstances, the physical aspects of this rind model fail with the realization that air is not diffusively transported into the wall rock; it is advectively transported when water is removed, creating a partial vacuum that is relieved by drawing in air.

Models for both Lone Tree and Cove pit lakes predicted low amounts of sulfate, but both are gypsum saturated as of 5 years ago, and Lone Tree pit lake has gone acidic twice, and required large amounts of lime to bring the pH to circumneutral status. Thus, the rind models of these two pit lakes have failed to predict water quality in the pit lake by a large margin. If the model cannot predict the sulfate concentrations, it is not predicting the amount of oxidation that occurs do to removal of the water.

The critical component is sulfate, and provides a lower estimate of the amount of oxidation that will occur. To our knowledge, there is no example of a pit lake in Nevada that contains pyrite, low neutralization ability, underground filling of the pit and a sulfate concentration that is less than 1000 mg/L. Thus, the Mt. Hope pit lake model is probably of no value in predicting if this water will present a risk to avian or terrestrial wildlife. It should be entirely redone, with more realistic assumptions, and discussions on why the “rind” model failed at Cove and Lone Tree. The discussion in the pit lake modeling report refers to previous work on pit lake modeling, but the critical component to determine is why both Lone Tree and Cove have much greater amounts of sulfate in the pit lakes than predicted.

Additionally, the rock in the walls does not appear to have much carbonate/neutralization ability, and a clear question exists as to whether the sulfuric acid formed will be neutralized; whatever neutralization capability exists may become covered with iron/manganese precipitates, which can reduce the buffering capacity in the that rock, and allow the acidic water to drain into the pit lake.
is difficult, if not impossible, to accurately predict how much acidity will drain into the pit lake, but there are compelling reasons to believe that the current pit lake model is not a reflection of what will happen. The core issue, however, is that air will be convectively transported wherever water has been removed. Those oxidation products will be rinsed into the lake, and the places where pyrite exists, the amount of acidity generated could potentially be very high.

BLM needs to require the evaluation of the following questions:

1. What happens when water is removed from an aquifer regarding the volume that it used to fill?
2. Assuming it is air, how much sulfate will be produced if a realistic assumption is made that over 44 years, all of the oxygen in that air is consumed by pyrite oxidation?
3. What will happen to those soluble products as the cone of depression recovers and water enters the pit lake?
4. Why did the models for Lone Tree and Cove fail to predict water quality in those pit lakes.

Pit Lake Water Quality
As mentioned above GBRW is not convinced that sufficient sampling was performed in the geochemical evaluation of the project. In addition to our concern regarding the underlying conceptual model of the pit lake evolution is the lack of sufficient data to extrapolate water quality in time. The DEIS states that little sampling data was available from expected pit wall material. In justification the DEIS states, “There were little sampling data from some of the pit wall areas because of the relatively cylindrical nature of the orebody (pg. 3-315). This statement leaves GBRW to question how well PAG rock areas on the final pit surface are estimated as shown in Figure 3.3.10, and to what extent these areas are expected to be acid generating. The Waste Rock and Pit Wall report clarifies the situation by stating, “… because this PAG shape is based on data from historic assay pulps from the Exxon drill holes, approximately 30% of the pit material is undefined with respect to acid generating potential. For these undefined areas, the PAG shape had to be extrapolated to the edge of the final proposed pit,” (pg. 9-12). The results are presented in Table 9.1 indicating that about 14.5% of the final pit wall is PAG rock. It appears as though the 30% “undefined” material pertains largely from material associated with the pit wall, since the historic samples were primarily to determine the nature of the resource. Therefore, GBRW suspects that characterization of material associated with final pit wall amount to very few actual samples as indicated in the DEIS. The DEIS goes on to state, “Where there was a lack of data, a nearest neighbor approach was used to conservatively assign the ABA characteristics of the pit wall. The choice of extrapolating to the pit wall from the core of the ore deposit is believed to be conservative, as the geologic work on the orebody indicates that mineralization becomes more diffuse at the fringes of the deposit, making a lower potential for acid generating material in these areas.” (pg. 3-315). As far as the extrapolation using the nearest neighbor approach from the ore body sample data as being conservative, GBRW does not agree. There is nothing more conservative than the real data. Even if the pit lake model is conceptually correct, there does not appear to be enough actual data to predict with any confidence the water quality in the pit lake.

Even given the overly optimistic analysis of the pit lake there are still expected exceedences in Nevada water quality standards, in cadmium, manganese, fluoride, and antimony with cadmium at 10 times the Nevada reference standard. The DEIS does not present sufficient detail to understand in specific terms groundwater quality. The following is stated on pp. 3-171 – 3-172:

“Similar to the surface water in the vicinity of Mount Hope, ground water is generally of good quality. Similar to the spring data, there are some elevated levels of Mn, and elevated pH over the standard of 8.5.
Near the ore deposit, reducing conditions created by the presence of sulfides in the ore result in water from wells commonly exceeding regulatory standards for Fe and Mn, with several wells also having elevated TDS and SO4. Well IGM-169 has elevated levels of fluoride, Al, and As present in its water, likely related to the abundant sulfide mineralization observed in the drill cuttings from the well.”

The DEIS should present tabular data on groundwater constituent analysis for sampled wells (BLM needs to correct this in the Final EIS). However, from this qualitative information it does seem as though groundwater entering the pit lake will be degraded, certainly for cadmium and possibly other constituents as well. Thus, “good quality” groundwater will become poor quality surface water.

The DEIS claims that at “all times during the simulated recovery period … , including a final equilibrium, the hydraulic gradients are inward toward the pit in all directions, indicating that the pit consistently acts as a hydraulic sink during and after mine closure” (DEIS, p 3-108). The pre-mine groundwater levels sloped several hundred feet across the proposed pit lake, which suggests the natural water levels on up- and down-gradient sides of the pit differ significantly. Because of the steep gradient in the area, it is possible that more rapid recovery in some areas may allow the pit lake to recover more quickly than the water table on all sides and at all level; simply considering the top of the water table is insufficient to predict whether the pit will always be a sink.

The groundwater inflow portion of the pit lake volume is initially small although the pit lake level recovers almost 550 feet in the first 50 years (DEIS Figure 3.3.12). Most of the simulated pit lake recovery is due to the pit wall runoff rate exceeding the groundwater inflow rate for the first 400 years (DEIS Figure 3.2.21). This could only occur if the groundwater levels around the pit recover slowly. It is therefore reasonable that the pit lake is above the groundwater level on one or more sides of the pit.

To better prove the consistent “sink” nature of the pit, Montgomery et al should add simulated monitoring wells around the pit to monitor the water levels in each model layer both at and at a small distance from the pit lake wall. Detailed consideration of the monitoring well hydrographs should provide evidence that the pit will be a sink or show that it is not. Additionally, it is essential to consider that fractures and preferential flow paths not currently known or simulated in the model could affect the hydraulic gradients around the pit, especially on a local basis.

GBRW submits that the hydrological analysis does not preclude the potential that the pit lake in the earlier years of tilling will be flow through. If in fact flow-through is possible then there is also the possibility of degrading groundwater, which is a violation of Nevada law.

In general, GBRW sees the real potential of degrading groundwater in two ways: 1) entering the pit and becoming degraded (surface water at that point), and 2) flowing out of the pit in the short term and degrading groundwater.

Recharge

The DEIS presents the recharge by basin, referenced to Montgomery et al (2010)9, but describes it incorrectly. Specifically, the DEIS states that recharge had been calculated using the Maxey-Eakin method10 (Maxey and Eakin 1949), but with updated precipitation estimates (DEIS, p 3-53). This would be wrong because the original Maxey-Eakin method established recharge efficiencies based on precipitation zones published originally in 1936 and updated in the early 1960s. It is inappropriate to use Maxey-Eakin recharge efficiencies with any precipitation estimates other than those determined with the
Maxey-Eakin recharge calculations for the project area basins were completed in the reconnaissance reports for the basins, including Rush and Everett (1964) for Kobeh and Antelope Valleys and Eakin (1962) for Diamond Valley (Table 3). The DEIS used updated Maxey-Eakin estimates. Harrill (1968) used the Maxey-Eakin method to estimate recharge in Diamond Valley equals 21,000af/y. The difference is that Harrill used the 1965 Hardman map, which showed a shift in precipitation zones from north to south within Diamond Valley. The higher DEIS estimate for Kobeh Valley (Table 3) reflects Montgomery et al’s (2010) calculation that the USGS had made an area determination error when determining recharge.

Table 3: Comparison of recharge determined in the reconnaissance reports (Eakin 1962; Rush and Everett 1964), the Mt. Hope DEIS, and the BCM method (Flint et al 2004).

<table>
<thead>
<tr>
<th>Valley</th>
<th>Recharge Recon Rep</th>
<th>Recharge DEIS</th>
<th>BCM Method (average year estimate)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diamond</td>
<td>16,000</td>
<td>21,400</td>
<td>15,124</td>
</tr>
<tr>
<td>Kobeh</td>
<td>11,000</td>
<td>13,200</td>
<td>8378</td>
</tr>
<tr>
<td>Antelope</td>
<td>4,100</td>
<td>4,100</td>
<td>4988</td>
</tr>
<tr>
<td>Stevens Basin</td>
<td>200</td>
<td>N/A</td>
<td>1391</td>
</tr>
</tbody>
</table>

A common criticism of the Maxey-Eakin method is that it does not consider geology; if precipitation is the same, estimated recharge would not vary between basins underlain with siliclastic rock or carbonate rock. The basin characteristics method (Flint et al 2004) accounts for geology by considering the modeling the soil system water balance to estimate recharge. Table 3 also presents results using the BCM method; it shows that BCM-estimated recharge for Diamond and Kobeh Valley is much less than either the recon reports or the DEIS. Antelope Valley is an exception which may be due to that valley having a much higher proportion of carbonate rock than does the other valleys (DEIS Figure 3.2.6).

The method of distributing recharge around the model, as described by Montgomery et al (2010, p 124-126) appears acceptable, in that they used PRISM to distribute the pre-estimated recharge (rather than with Maxey-Eakin coefficients) and adjusted the results during calibration, which indirectly should account for geology. The results of that redistribution are not encouraging, though (Figure 1). There is significantly high recharge all along the Roberts Creek Mountain massif, including zones 40, 63, and 3, as shown on Figure 1. A portion of these zones coincide with carbonate outcrops (Figure 2), but the eastern half is siliclastic rock which normally has very low infiltration capacity. Typically, mountains with siliclastic rock have perennial or at least intermittent streams running off of them, as does Roberts Creek Mountain as evidenced by Henderson Creek, Vinini Creek, and others; mountains with carbonate rock outcrops have little perennial surface flow. Both SNWA (2009) and Myers (2011) found in the Snake and Schell Creek Ranges that recharge was close to zero in areas with siliclastic outcrops which correspond

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iii The use of the Maxey-Eakin recharge coefficients with any of the PRISM maps has been addressed in several recent rulings and was addressed in questioning at the hearing. In short, the State Engineer finds that the use of the Maxey-Eakin recharge coefficients with any precipitation map other than the Hardman map is inappropriate, because the recharge coefficients were computed by trial and error using the Hardman map to balance recharge with discharge. To use any other precipitation map would require recalibration of the coefficients. (NSE Ruling 5782, Granite Springs Valley, p 13, emphases added)
with the perennial streams in those mountains; those two mountain ranges have more precipitation than does the Roberts Creek Mountain, so it would be incorrect to respond that the difference this area and the Snake and Schell Creek Ranges could be climate.

Figure 1: Snapshot from Montgomery et al (2010) Figure 4.1-8. The colors call out the different recharge parameter zone with the number on the right being the calibrated recharge (in/y).

Figure 2: Snapshot from Figure 3.1-4, Montgomery et al (2010) showing hydrogeology around the proposed mine site. The red at the yellow star is intrusive granite, the grey-brown around the mine is siliclastic rock, and the blue is carbonate.
Figure 1 also shows the recharge through Henderson Creek, just north of the Roberts Creek massif, as zone 62. The rate for the small model cells is 26.7 in/y, and Montgomery et al (2010, Table 4.1-3) has two entries that include Henderson Creek (in Pine Valley and Garden Valley) equaling 4853 and 3041 af/y, respectively (Id.). The measured flow data is about 2900 gpm (DEIS, Table 3.2-2) (4600 af/y).

Henderson Creek lies in a relatively deep canyon and is underlain by Quaternary deposits, mostly alluvium (Figure 2). Simulated groundwater contours (Figure 3) show that water converges into Henderson Creek, meaning the creek is a sink for groundwater (see the discussion below on the need for simulating Henderson Creek as a drain).

Figure 3: Snapshot from Figure 4.4-3, Montgomery et al (2010).

Drawdown contours around Mt Hope and the proposed pit are instructive. Figure 4 shows the development of the drawdown around the pit during dewatering and pit lake development. A striking feature is that the drawdown extent remains steady with time for nearly 400 years. It closely parallels South Fork Henderson Creek, Henderson Creek, and Garden Pass Creek. The BLM identifies these features as being affected by the ten-foot drawdown and proposed mitigation for them if they go dry due to mine related drawdown. The recharge that occurs northwest of the mine likely limits the extent of predicted drawdown at these points.
Great Basin Resource Watch is a tax-exempt (501(c)3) organization

Figure 4: Snapshot from DEIS Figure 3.2.29 showing the ten-foot drawdown cone for various times from 100 to 400 years from the present. The black dashed line is the ultimate extent of the ten-foot drawdown. The distance from Mt Hope to the South Fork Henderson Creek (northwest) is about 2.5 miles.

These stream features are not directly modeled as a boundary that drawdown can affect, rather they are treated as specific flux boundaries with a specified recharge input along the stream channel. The amount of recharge input in Henderson Creek appears unjustified by the streamflow measurements. That the creek apparently limits the extent of that drawdown expansion verifies the concern. Drawdown under these creeks can only harm the creek if the water table intersects with the stream bottom so that there is a hydraulic connection. The BLM should model these streams as drain or stream boundaries so that changes in discharge to or from the stream can be estimated and disclosed in the DEIS.

High recharge in the SF Henderson Creek would directly support the filling pit lake and would directly limit the expansion of the drawdown. Model layer 1 is active under the headwaters of Henderson Creek. Because it is in a canyon, the model layer thickness is probably in the less than 50 foot category and the layer simulates the water table near the surface. Montgomery et al (2010) do not present information as to whether the groundwater discharges to the creek; the seepage run they present has very low flows (<0.06 cfs) which decrease in a downstream direction. They do not distinguish whether the decrease is due to regional groundwater discharge, perched groundwater discharge, or runoff with the loss being due to phreatophytes. The stream lies in alluvium, young Quaternary deposits (Figure 2).
It appears therefore that Montgomery et al may have an error in its conceptual model for the Henderson Creek north of Mt Hope which may limit the extent of drawdown north and northwest of the proposed mine.

Their model ignores an important aspect of recharge with time. As the water table near the pit lowers due to dewatering, the distance between the ground surface and water table increases; near the pit the water table draws down up to 2250 feet. This drawdown increases the distance through which recharge must flow to actually reach the water table. Inflow to the pit lake may initially be less than simulated because the modeling does not account for the time for unsaturated flow through up to 2250 feet.

Recharge near the proposed production wells in Kobeh Valley is near zero because the wells will be near the center of the valley. Recharge to Kobeh Valley occurs primarily in the mountains bounding the valley with some runoff recharging at the point where runoff reaches the basin fill. Pumping initially removes water from storage which creates a gradient and draws flow from the points of recharge. Because the simulated recharge is primarily into the bedrock, with a large proportion occurring north of the proposed well field in the Roberts Mountain, the water has to flow a significant distance to the well. Recovery from production pumping may take longer because of this distance.

Production Well Pumping in Kobeh Valley
The proposed production wells in Kobeh Valley southwest of the minesite will cause a very substantial drawdown over about a quarter of the valley (DEIS Figure 3.2-18). However, the drawdown extent does not approach the boundary with Diamond Valley within the time period of the project. The DEIS is not inaccurate in its presentation of the impacts.

However, there is no guarantee that the pumping associated with the mine will actually cease after 32 years because the water rights issued for the project are not temporary. The mining company will have 11,200 afa of certificated water rights which may be changed, either their point of diversion or place and type of use, after the mine closes.

The pumping is less than the perennial yield for the valley, as determined by the NSE in Ruling 6127. The extensive predicted drawdown is evidence of the amount of drawdown that developing close to a perennial yield may cause – the drawdown will continue to expand as the level near the wells recovers or the wells continue pumping for new uses. The BLM should consider the impacts of pumping the wells in Kobeh Valley beyond the mine life because continued use would be a connected action; if the mining company did not permit and certificate the water rights, the pumpage would not occur.

Water Resources Monitoring
The DEIS presents a monitoring plan for surface and groundwater resources in Appendix B (DEIS Appendix B). Monitored parameters include flow rate for surface water, depth to groundwater, and water chemistry.

Figures 1 and 2 and Table 1 in the DEIS Appendix B show locations and list the proposed and existing monitoring wells. The number of and spatial location of the wells dedicated to monitoring the groundwater level, which could be affected by production water pumping or mine pit dewatering, appears adequate and even exceeds that seen initially for other large mining projects. The plan does not specify details about the screens, however. The plan also includes surface water flow monitoring on a continuous basis, which is excellent. Proposed water quality monitoring near the mine facilities is not well described or specified, however. This section discusses more details and makes recommendations regarding the proposed monitoring.
The plan, in point 13, states that the data collection will be used “to assist in defining baseline conditions”; also, 23(d) refers to “baseline chemistry analyses” (DEIS App B, p 5). The plan does not define “baseline” or specify for how long such data should be collected before mine construction could begin; two years should be the minimum. The chemistry monitoring wells must be sampled sufficiently often to establish seasonal trends (water level data is collected seasonally).

Point 14 notes that there will be 14 new monitoring wells constructed. It is difficult to verify these wells on Figure 2 and Table 1 does not denote which wells would be new. For example, wells MH-403 and MH-404 appear to be proposed to monitor drawdown in the upper parts of Robert’s Creek, but wells MH-405 through MH-411 are production wells that Table 1 presents as monitoring wells (see next paragraph). The BLM should specify on Table 1 those wells that are yet to be constructed. Table 1 should also specify for clarity whether the wells monitor production or dewatering drawdown; the comment on the right column is not specific and does not make it easy to group the wells. Point 14 should be made more clearly by specifying where the new wells would be constructed (Kobeh or Diamond Valley, production or dewater field).

Figure 2 shows wells MH-405 through MH-411 are production wells but Table 1 shows them as monitoring wells (DEIS App B, p 11). The same table has a row specifying that “all production wells” will be continuously monitored for flow and depth to water. The table makes it appear there will be six monitoring wells in addition to the production wells but the figure shows that it is not correct. The BLM should clarify because the document apparently double-counts monitoring wells. The production wells are all located in the center of the drawdown in central Kobeh Valley and the figure does not show any monitoring wells among the production wells.

Monitoring water level in production wells is necessary, but not sufficient, for defining the potentiometric surface in the area. There should be monitoring wells between the production wells to define the surface. It is important to have monitoring wells, at least four, centered in the cluster of production wells.

Point 15 indicates that test wells, “drilled near each planned production well location” (DEIS App B, p 3), would be converted to monitoring wells. Presumably, the test wells will test production. In general, production wells may be lousy monitoring wells because the screen length is too long. Whether monitoring water level, chemistry, or both, the level or the sample represents an average over the screened interval. Regarding water level, the observed depth to water represents the water level from the most transmissive zone intercepted by the screen; it can fail to detect drawdown in less transmissive formation layers. A water sample, if water in the well is fully mixed, is a weighted average of the water entering from all formation layers, with the weighting depending on transmissivity. If the more transmissive layer has cleaner water, contamination will be missed.

Therefore, monitoring wells should have relatively short well screens that are targeted to the specific layer desired to be monitored. Twenty feet is a common screen length. The plan mentions that some wells may be paired in alluvium and bedrock to consider the connection between lithologies; even better would be the installation of multiport wells in which the water level can be monitored simultaneously at various levels.

Point 19 indicates that the groundwater model will be updated after “recovering 6 months of post-operational monitoring data” (DEIS App B, p 4). The meaning of this is unclear. Does “recovering” mean collecting data so that the intent is for a model update 6 months after mine construction begins? “Post-operational” could mean once operations has ceased, but that certainly is not the intent herein, or rather it should not be.
The monitoring plan must also specify for how long after mining the wells would be monitored. Those associated with dewatering and pit lake refill must essentially be monitored in perpetuity. The BLM should specify based on the amount of observed water level recovery how long they will be monitored. The intent should be for steady state to be reestablished, but because complete recovery takes an infinite amount of time, recovery of more than 90% of the drawdown is acceptable.

Table 1 shows only four wells to be monitored for chemistry, IGMI-234P, IGMI-235P, IGMI-237P, and TM1-B. The first three are near the process facilities in Kobeh Valley. IGMI-236P is also a monitoring well near the facilities (DEIS App B Figure 2), but Table 1 shows it only monitors depth to water; this is likely incorrect and it should be shown to monitor chemistry. This monitoring appears to occur only near the tailings impoundment; it is insufficient because large areas around the tails could pass a contaminant plume without being sampled. The BLM should require more extensive chemistry monitoring near the tails, and also near the waste rock dumps.

Additionally, monitoring plan does not consider the drainage from the waste rock. The PAG waste rock dump has a liner (but this is a compacted clay layer) and collection facility; the BLM should require that both the flow rate and chemistry be monitored regularly. This monitoring must continue into the future, after reclamation, until the monitoring shows that seepage has ceased or that acid generation is not going to occur.

General Water Related Comments
The BLM continues its standard practice of using the ten-foot drawdown zone as the “area of potential concern regarding impacts to water resources” (DEIS, p 3-63); they note the approach is “commonly used … for EISs in Nevada” (Id.). This is inappropriate for the following reasons:

- Any drawdown at all can cause a spring to go dry. A phreatic spring occurs where the water table intersects the ground surface; lowering the water table may turn a flowing spring into a muddy area. Discharge from fracture-controlled springs can change if just the gradient at the spring changes – drawdown is not even required. The BLM should use the 1-foot drawdown, just as the U.S. Geological Survey did in its study of pumping impacts to Great Basin National Park (Halford and Plume 2011)\(^\text{14}\).
- A ten-foot drawdown could have a disproportionate impact to wells. That is because wells are not uniformly productive across the entire thickness of the screen. Instead, a well’s productive zone often includes several productive zones with several low-conductivity zones. It is possible that drawing the water table down by 10 feet will draw the water table below the most productive formation zone in the well and cause it to lose much more flow than a standard well flow calculation might estimate.

The DEIS uses the simulated groundwater levels in 2009 as a baseline against which to calculate future drawdown. This is a common and standard practice because the simulation fills in groundwater levels between the wells where observations are available. However, the predicted drawdown should be considered accurate only if the simulated levels accurately represent the actual levels. The DEIS should compare the simulated to observed values in 2009.

The DEIS apparently only considers the effect of drawdown on surface water resources if that resource is “covered by a water right” (DEIS, p 3-72). That is not proper. The BLM is responsible for surface water resources on the land it manages without regard to it water right status.
The DEIS apparently is separating pit lake evaporative loss into components, with that due to groundwater inflow decreasing over time. The DEIS states that after 100 years, the consumptive loss of groundwater “due to pit lake evaporation” would be approximately 165 gpm and that it would reduce to 100 gpm after 800 years (DEIS, P 3-108). This statement is confusing, because Figure 3.2.21 shows that it is groundwater inflow, which decreases as the pit lake fills, and that pit lake evaporation increases, as it should, due to the increasing pit lake area. The DEIS then notes that the NSE may require a water right for the pit lake consumptive use. The BLM’s breakdown ignores the fact that some of the precipitation on the pit lake and on the pit walls would also have become recharge and part of the groundwater budget. This additional portion of pit lake evaporation should also be considered a consumptive use of groundwater with respect to pit lake consumptive uses.

FAILURE TO FULLY ASCERTAIN AND PROTECT/MITIGATE CULTURAL, RELIGIOUS, AND HISTORICAL RESOURCES

The DEIS acknowledges that: “Implementation of the Proposed Action would result in adverse effects to 83 officially eligible [for the National Register of Historic Properties] sites within the area of direct impacts. Outside of this area but within the Project APE, this action would also have indirect impacts on 180 officially eligible and one unevaluated site.” DEIS at ES-37. “These direct impacts are considered to be significant.” Id.

In an attempt to prevent/mitigate these impacts, the DEIS says that a “treatment plan” will be developed in the future:

Mitigation Measure 3.21.3.3-1: EML would develop, and submit to the BLM for approval, a treatment plan to address the potential direct impacts to the 83 officially eligible sites within the Project APE. EML would implement the treatment plan prior to any surface disturbance of eligible sites within the area of direct impacts. All adverse effects under the NHPA and direct and indirect impacts under the NEPA to known-eligible properties within the Project APE would be mitigated in accordance with the PA and the treatment plan prepared for the Project. (DEIS pg. ES-37). The DEIS goes on to conclude that: “The implementation of the treatment plan under the mitigation measure would be very effective at lessening the impact.” Id. See also DEIS at 4-68, relying on the future “treatment plan” to supposedly mitigate cumulative impacts to these resources.

However, because the “treatment plan” for these resources has not yet been developed, how can BLM claim that it will be “very effective at lessening the impact”? Such speculative reliance on future mitigation measures violates BLM’s duties under NEPA to fully consider mitigation measures, and their effectiveness. Under NEPA, the agency must have an adequate mitigation plan to minimize or eliminate these impacts – which the DEIS does not have. NEPA requires the agency to: (1) “include appropriate mitigation measures not already included in the proposed action or alternatives,” 40 CFR § 1502.14(f); and (2) “include discussions of: . . . Means to mitigate adverse environmental impacts (if not already covered under 1502.14(f)).” 40 CFR § 1502.16(h). NEPA regulations define “mitigation” as a way to avoid, minimize, rectify, or compensate for the impact of a potentially harmful action. 40 C.F.R. §§1508.20(a)-(c). “[O]mission of a reasonably complete discussion of possible mitigation measures would undermine the ‘action-forcing’ function of NEPA. Without such a discussion, neither the agency nor other interested groups and individuals can properly evaluate the severity of the adverse effects.” Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 353 (1989).
NEPA also requires that the agency fully review whether each mitigation measure will be effective. See South Fork Band Council v. Dept. of Interior, 588 F.3d 718, 728 (9th Cir. 2009). “The Forest Service’s broad generalizations and vague references to mitigation measures … do not constitute the detail as to mitigation measures that would be undertaken, and their effectiveness, that the Forest Service is required to provide.” Neighbors of Cuddy Mountain v. U.S. Forest Service, 137 F.3d 1372, 1380-81 (9th Cir. 1998).

The DEIS’s reliance on a future, as yet-unsubmitted, “treatment plan” to prevent/mitigate adverse impacts to these resources also violates BLM’s duties under the National Historic Preservation Act [NHPA]. The NHPA, and its implementing regulations, require full review of these impacts as part of the public review process – something which has not occurred here.

BLM also failed to conduct the required government-to-government consultation with potentially affected Native American Tribes. Appendix E of the DEIS lists some letters sent to Western Shoshone Tribes and Bands, yet for many Tribes/Bands, only a few (or less) letters were sent in 2007 and 2008, after which the BLM stopped sending any communications. At a minimum, a simple letter or two is not sufficient to satisfy the NHPA and related consultation duties under Presidential Executive Orders. Further, BLM’s failure to send any letters at all to many Tribes/Bands after 2007/08 cannot be said to be government-to-government consultation. Also, the few letters contained in Appendix E deal only with the Programmatic Agreement that would be developed and does not constitute the detailed consultation on the Project required by the NHPA and Executive Orders. Further, without proper and full consultation, and involvement from all Western Shoshone communities, the DEIS’s analysis of impacts to, and mitigation of, these resources cannot be considered adequate or reliable.

THE DEIS IS BASED ON INCORRECT AND UNSUPPORTABLE ASSUMPTIONS AND POSITIONS REGARDING EML’S ALLEGED “STATUTORY RIGHT” TO HAVE THE PROJECT APPROVED UNDER THE MINING LAW

The DEIS states that EML has a “statutory right … [to] develop federal mineral resources” at the site (DEIS pg 1-9). Thus, according to the DEIS, EML has a statutory right to conduct its waste rock and tailings dumping, pit excavation, processing, and other operations based solely on the fact that the company has blanketed the projects lands with mining and/or millsite claims.

Here, although it is difficult ascertain the exact number and nature of the claims from the DEIS, EML has filed lode mining and/or millsite claims on all of the federal lands in the project area, including those where no mining is proposed (i.e., dumping, processing, and other ancillary uses). According to the BLM, the filing of these claims precludes the agencies from choosing the no-action alternative, as well as significantly restricting its approval and review authority over the project.

The BLM’s position is wrong. Such rights, or “entitlement” as stated by the BLM, can only accrue to the company if these claims are valid under the 1872 Mining Law. Here, there is no evidence in the record that these claims are valid. Indeed, the agencies have not even inquired into whether these claims are valid, and apparently has no intention to conduct such an inquiry.

Accordingly, in addition to making an arbitrary and capricious decision without evidentiary support, the BLM violated the Federal Land Policy and Management Act (FLPMA) and the 1872 Mining Law (as amended) by not requiring EML to pay Fair Market Value (FMV) for the use of public lands not covered by valid mining claims, based on the lack of any evidence that the vast majority of the claims at the Project site are valid under the Mining Law. Similarly, BLM’s position also violates
provisions of FLPMA and the Multiple Use Sustained Yield Act and other laws mandating that BLM manages, or at least considers managing, these lands for non-mineral uses – something which BLM refused to do or consider in this case.

The DEIS’s review and the BLM’s proposed approval of the Project are based on the overriding assumption that EML has statutory rights to use all of the public lands at the site under the 1872 Mining Law. However, where Project lands have not been verified to contain, or do not contain, such rights, the BLM’s more discretionary multiple use authorities apply. See Mineral Policy Center v. Norton, 292 F.Supp.2d 30, 46-51 (D.D.C. 2003).

A proper application of BLM’s multiple use, public interest, and sustained yield mandates to those areas not covered by valid claims would result in a very different Project review, alternatives, and level of protection for public land resources and values, as well as reducing or eliminating the adverse impacts to the use of these lands by members of the public and commenters.

The Mineral Policy Center court specifically recognized the federal government’s duty to apply its broader, multiple use authority when mineral development operations are proposed on lands not subject to valid and perfected claims:

While a claimant can explore for valuable mineral deposits before perfecting a valid mining claim, without such a claim, she has no property rights against the United States (although she may establish rights against other potential claimants), and her use of the land may be circumscribed beyond the UUD standard because it is not explicitly protected by the Mining Law. 292 F.Supp.2d at 47. The court was equally clear as to what was required to “perfect” a mining claim:

The Mining Law gives individuals the right to explore for mineral resources on lands that are “free and open” in advance of having made a “discovery” or perfected a valid mining claim. United States v. Locke, 471 U.S. 84, 86, 105 S.Ct. 1785, 85 L.Ed.2d 64 (1985). The Mining Law provides, however, that a mining claim cannot be perfected “until the discovery of the vein or lode.” 30 U.S.C. § 23.

Id. at 46 n.19.

Regarding the apparent millsite claims at the site, the DEIS is based on the view that EML can locate and use as many millsite claims as it needs for Project operations. DEIS at 1-9. That is wrong, as a proper understanding of the millsite provision in the Mining Law, 30 U.S.C. §42, shows that EML can only locate one 5-acre millsite claim (or multiple millsite claims with a maximum of 5 acres total) for each valid lode claim to be used by the Project.

For both lode and millsite claims for which BLM has not determined are valid, pursuant to the Mineral Policy Center decision:

[b]efore an operator perfects her claim, because there are no rights under the Mining Law that must be respected, BLM has wide discretion in deciding whether to approve or disapprove of a miner’s proposed plan of operations.

Id. at 48. In its review of the Project, BLM erroneously believed that it did not have – and never even considered – this “wide discretion” to “approve or disapprove” any part of EML’s Plan of Operations.
Regarding the requirement for the federal government to obtain Fair Market Value for the use of lands not covered by valid claims, the court held that, under FLPMA, “the United States [must] receive fair market value of the use of the public lands and their resources unless otherwise provided for by statute.” 43 U.S.C. §1701(a)(9). The court held that unless the lands were covered by valid claims (i.e. the situation “otherwise provided for by statute” in § 1701(a)(9)), the agencies must comply with their Fair Market Value duty:

Operations neither conducted pursuant to valid mining claims nor otherwise explicitly protected by FLPMA or the Mining Law (i.e., exploration activities, ingress and egress, and limited utilization of mill sites) must be evaluated in light of Congress’s expressed policy goal for the United States to “receive fair market value of the use of the public lands and their resources.” 43 U.S.C. § 1701(a)(9).

Id. at 51.

At Mt. Hope, the BLM has utterly failed to even consider the application of its multiple use authority, and related Fair Market Value requirements pursuant to the Court’s Order in Mineral Policy Center – a violation of FLPMA, the Mining Law, and their multiple use mandates, as well as being an arbitrary and capricious decision under the Administrative Procedure Act (APA).

As noted above, the vast majority of the proposed disturbance on public land involves waste rock, tailings, processing and other non-extractive uses covered by unpatented lode and/or millsite claims. There is no evidence in the record that any of these claims are valid or indeed contain locateable minerals (outside of arguably the lode claims covering the edges of the mine pit, although the validity of these claims have also never been ascertained). Indeed, it is likely that the lands covering the waste rock, tailings, and other ancillary facilities do not contain the requisite locateable minerals, which is a prerequisite for claim validity. See 30 U.S.C. § 22 (only “valuable mineral deposits” are covered by the Mining Law); 30 U.S.C. § 611 (“common varieties” of minerals are not locatable under the Mining Law). As the Interior Department has held:

Generally, absent the discovery of a “valuable mineral deposit” on each of the unpatented lode mining claims, ASARCO would not be entitled to the “exclusive right of possession and enjoyment of all the surface [of the claim]” and subsurface rights under 30 U.S.C. §§ 22 and 26, good against the United States, or ultimately to a patent of the claimed lands, pursuant to 30 U.S.C. §§ 22 and 29 (2000). Best v. Humboldt Placer Mining Co., 371 U.S. 334, 335-36 (1963); Wilbur v. Krushnic, 280 U.S. 306, 316-17 (1930); Cameron v. United States, 252 U.S. 450, 460 (1920); Cole v. Ralph, 252 U.S. 286, 294-96 (1920). In such circumstances, BLM would have discretion to modify or even reject an MPO filed to engage in mining operations and related activity. Great Basin Mine Watch, 146 IBLA 248, 256 (1998) (“Rights to mine under the general mining laws are derivative of a discovery of a valuable mineral deposit”).

Center for Biological Diversity, 162 IBLA 268, 278 (2004). “[T]he location of a mining claim does not render a claim presumptively valid and the Department may require a claimant to provide evidence of validity before approving an MPO or allowing other surface disturbance in connection with the claim.” Id. at 281.iv

iv The Board’s decision in Center for Biological Diversity was overturned by the Ninth Circuit Court of Appeals in Center for Biological Diversity v. U.S. Department of the Interior, 623 F.3d 633 (9th Cir. 2010). That case involved BLM’s approval of a land exchange with the holder of mining claims. The BLM had approved the land exchange based on its view that, because the exchange proponent had mining claims, the exchange would have made no difference in BLM’s regulation of the intended mining of the lands (since it was obligated to approve the mine anyway). The IBLA
In addition, BLM’s decision not to require the payment of Fair Market Value, and to limit its authority over the use of the ancillary lands, must be supported by substantial evidence in the record – evidence which does not exist. The agency cannot simply assume, without any evidence (and indeed the evidence points to the contrary) that the lands to be buried by the dumps and processing facilities are covered by valid mining claims. The Supreme Court has explained:

[A]n agency rule would be arbitrary and capricious if the agency has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise.


[T]he APA requires us to determine whether the Commission's decision was a reasonable exercise of its discretion, based on consideration of relevant factors, and supported by the record. . . . While our standard of judicial review is highly deferential, it may not be uncritical. Under the APA, an agency's discretion is not boundless, and we must satisfy ourselves that the agency examined the relevant data and articulated a satisfactory explanation for its action based upon the record.

People of State of Cal. v. F.C.C., 905 F.2d 1217, 1230 (9th Cir. 1990). See also Marsh v. Oregon Natural Resources Council, 490 U.S. 360, 378 (1989)(requiring that courts ensure that agency decisions are founded on a reasoned evaluation “of the relevant factors.”).

Put another way, it defies the record in this case, and indeed common sense, for the agencies to assume that EML would permanently bury “valuable mineral deposits” with hundreds of millions of tons of waste rock and contaminated tailings. Indeed, it is very likely that these ancillary lands do not contain sufficient mineralization to qualify as “valuable mineral deposits” and are in fact simple “common varieties” of rock and sand covering the non-mineralized portions of the Project site.

At a minimum, the agencies should have inquired as to whether the vast majority of the Project lands contained “common varieties” or “valuable mineral deposits.” BLM regulations contemplate an investigation into whether the lands covered by proposed plans of operation contain the requisite locatable minerals instead of common varieties. Under 43 CFR § 3809.101(a), except for casual use operations, claimants “must not initiate operations for minerals that may be ‘common variety’ minerals … until BLM has prepared a mineral examination report.”

In this case, due to the evidence showing that the lands proposed for the waste dumping, tailings, and other non-extractive uses do not contain the requisite valuable minerals (e.g., the mineralized zone is limited to the mine pit, even then the pit has not been verified to be covered by valid claims), and may indeed be “common variety” minerals, BLM’s assumptions of “rights” or an “entitlement” under the Mining Law are erroneous. For those lands covered by millsites, although the “valuable mineral deposit” requirement does not apply, the strict limits on the number of millsites contained in the Mining Law have been violated and the vast majority of those claims are thus invalid. At a minimum, the agency’s assumptions of these rights/entitlements should have been investigated and supported by detailed factual evidence – evidence lacking in this case.

affirmed the BLM’s position. The Ninth Circuit rejected that view, and held that the mere fact that the exchange proponent had mining claims did not mean that BLM lacked authority to reject or condition eventual mining on the land if it remained in public ownership. Id. at 642-647.
CUMULATIVE IMPACTS

As noted herein, the DEIS failed to fully consider all “direct and indirect impacts” under NEPA. These failures are in addition to the DEIS’ failure to review the “cumulative impacts” from all “past, present, and reasonably foreseeable future actions” under NEPA. 40 CFR § 1508.7. In this case, the DEIS’ analysis of cumulative impacts consists largely of a listing of the number of acres affected by the past, present, and reasonably foreseeable future surface disturbances for the cumulative impact areas (DEIS Chapter 4). Although the DEIS contains a short paragraph or two discussing cumulative impacts to some resources, the document provides no additional information on the actual cumulative impacts.

The Ninth Circuit recently and squarely rejected such reliance on the listing of the acreages of other projects as the primary means to review cumulative impacts:

A calculation of the total number of acres to be [impacted by the other projects] in the watershed is a necessary component of a cumulative effects analysis, but it is not a sufficient description of the actual environmental effects that can be expected from [impacting] those areas.

Klamath Siskiyou Wildlands Center v. BLM, 387 F.3d 989, 995 (9th Cir. 2004):

[T]he general rule under NEPA is that, in assessing cumulative effects, the Environmental Impact Statement must give a sufficiently detailed catalogue of past, present, and future projects, and provide adequate analysis about how these projects, and differences between the projects, are thought to have impacted the environment. See Neighbors of Cuddy Mountain v. United States Forest Serv., 137 F.3d 1372, 1379-80 (9th Cir.1998); City of Carmel-By-The-Sea v. United States Dept. of Transp., 123 F.3d 1142, 1160-61 (9th Cir.1997).

Lands Council v. Powell, 395 F.3d 1019, 1028 (9th Cir. 2005):

The [agency] cannot simply offer conclusions. Rather, it must identify and discuss the impacts that will be caused by each successive [project], including how the combination of those various impacts is expected to affect the environment, so as to provide a reasonably thorough assessment of the project’s cumulative impacts.

Klamath Siskiyou, 387 F.3d at 1001. In a major mining and NEPA decision, the Ninth Circuit recently specifically rejected the type of brief mention or listing of projects/acreages as found in the DEIS:

In a cumulative impact analysis, an agency must take a “hard look” at all actions. An EA’s analysis of cumulative impacts must give a sufficiently detailed catalogue of past, present, and future projects, and provide adequate analysis about how these projects, and differences between the projects, are thought to have impacted the environment. … Without such information, neither the courts nor the public … can be assured that the [agency] provided the hard look that it is required to provide.

Te-Moak Tribe of Western Shoshone, 608 F.3d 592, 603 (9th Cir. 2010) (Rejecting EA for mineral exploration that had failed to include detailed analysis of impacts from nearby proposed mining operations. Although that case involved an EA, the need for a complete cumulative impacts analysis also fully applies to an EIS).

In Great Basin Mine Watch v. Hankins, 456 F.3d 955, 971-974 (9th Cir. 2006), the court struck down the same sort of acreage listing and brief, generalized descriptions of mining impacts in the region. The court required BLM to include “mine-specific … cumulative data.” Id. at 973. Relying on Klamath-Siskiyou, and Lands Council, the court highlighted the need for a “quantified
assessment of their [other projects] combined environmental impacts” and “objective quantification of the impacts.” Id. at 972. That has not been done here.

For example, although the DEIS lists the nearby mining and other projects on cultural, Native American, water, wildlife, air, and other resources, there is no “mine-specific … cumulative data” for any other these past, present, or reasonably foreseeable future actions. Nor is there a “quantified assessment of their [other projects] combined environmental impacts” and “objective quantification of the impacts.” Another example involves potential oil and gas operations. Although Chapter 4 shows extensive oil and gas leasing and operations, there is no “quantitative assessment” of the impacts from these activities.

Overall, this DEIS’s cumulative impacts discussion is very similar to the Final EIS deemed inadequate under NEPA in Great Basin Mine Watch v. Hankins. As such, BLM must prepare a revised DEIS (and may not proceed directly to a Final EIS) to correct these deficiencies, and the other errors noted in these comments.

PROJECT APPROVAL WOULD VIOLATE FLPMA’S UUD MANDATE

Taken together, the significant, and in many cases unmitigated, damage to critical environmental, cultural, historical, and religious resources noted herein fails to comply with FLPMA’s mandate that BLM “shall … take any action necessary to prevent unnecessary or undue degradation of the lands.” 43 U.S.C. § 1732(b). This is known as the “UUD” standard. As the leading FLPMA and mining federal court decision states, this duty to “prevent undue degradation” is “the heart of FLPMA [that] amends and supersedes the Mining Law.” Mineral Policy Center v. Norton, 292 F.Supp.2d 30, 42 (D.D.C. 2003).

FLPMA, by its plain terms, vests the Secretary of the Interior [and BLM] with the authority – and indeed the obligation – to disapprove of an otherwise permissible mining operation because the operation, though necessary for mining, would unduly harm or degrade the public land.

Id. “FLPMA’s requirement that the Secretary prevent UUD supplements requirements imposed by other federal laws and by state law.” Center for Biological Diversity v. Dept. of Interior, 623 F.3d 633, 644 (9th Cir. 2010).

BLM complies with this mandate “by exercising case-by-case discretion to protect the environment through the process of: (1) approving or rejecting individual mining plans of operation.” Id. at 645, quoting Mineral Policy Center, 292 F.Supp.2d at 44. The Ninth Circuit has stressed the “environmental protection provided by the MPO [mining plan of operation] process.” Center for Biological Diversity, 623 F.3d at 645 (emphasis in original).

BLM cannot approve a mining plan of operations that would cause “unnecessary or undue degradation.” 43 C.F.R. § 3809.411(d)(3)(iii). BLM’s mining regulations further require that all operations “must take mitigation measures specified by BLM to protect public lands.” 43 CFR § 3809.420(a)(4).

As noted herein, BLM violated these overarching duties.
CONCLUSION

The geochemical sampling was not adequate, which has broad implications. Effective sampling is the bedrock of much of the analysis for the project from acid drainage to pit lake water quality development. For the Mt. Hope Project much of the analysis is thrown into question.

It is also possible that the conceptual basis for the pit lake model is incorrect, which is another foundation aspect to the analysis. GBRW is very concerned that the pit lake could go the way of the Lone Tree pit lake.

There are two major points of error surrounding the water modeling that the BLM must consider in order for the DEIS to be a complete disclosure document. These pertain to dewatering rates and the extent of drawdown around the pit lake and to whether the pit lake will be a terminal lake.

The DEIS estimated unrealistically high recharge rates on siliciclastic rock on the Roberts Creek Mountains. Doing this caused conductivity to be significantly higher than in similar rock near the pit. The combination of high recharge near the massif and low conductivity near the pit prevents the drawdown from extending far north into the massif. The low conductivity near the pit lake limits the estimated dewatering rates at the mine; if the conductivity at the pit were as high as near the Roberts Creek Mountain massif, the dewatering rates could be much higher.

The pit lake may fill faster than the groundwater levels around the pit may recover. This is because the majority of the inflow is storm runoff from the pit walls. The BLM must present and analyze more simulated data to make a better estimate.

The DEIS admits that the Project will have significant, long-lasting, and in some cases permanent adverse impacts to water resources, including the loss or elimination of perennial and/or seasonal streams and numerous springs and seeps due to the Project’s dewatering. See DEIS Chapter 3.

BLM thus violated its duty under FLPMA to prevent “undue degradation” to these waters. The DEIS, however, states that its “mitigation measures” will be “very effective” in eliminating any adverse impacts. For the dewatering impacts during the Project, much of the “mitigation” is merely a plan to develop future mitigation (DEIS pp. 3-86 - 3-104). That violates BLM’s duties under NEPA. See South Fork Band Council v. Dept. of Interior, 588 F.3d 718, 728 (9th Cir. 2009)(BLM EIS contained an “inadequate study of the serious effects of … exhausting water resources.”).

Further, BLM has even less mitigation for post-closure impacts from dewatering, since the primary mitigation measures for impacts during the Project’s 40+ years will not be available. “For any significant impacts to wells with associated ground water rights that do not occur until after the end of mining and milling operations, the operational measures described above may not be available,” (DEIS pg. 3-104). Here, BLM posits that mitigation could include speculative actions such as EML’s purchase of water rights, drilling deeper wells, or posting a bond (DEIS pg. 3-105).

But this does nothing for public water rights, such as Public Water Reserve (PWR) #107, as well as the public land springs, seeps, and streams that don’t rely on wells. Thus, there is little, if any, mitigation either analyzed or proposed, for the post-closure impacts that will occur. Relatedly, there is no analysis of the effectiveness of this post-closure mitigation.

Regarding PWR 107, the DEIS admits that many could be affected, but have yet to be quantified or analyzed. “Additional … and future PWRs that are reserved for stockwatering (and domestic) purposes could exist within the Project Area and within the ten-foot ground water drawdown contour,” (DEIS pg. 3-57). BLM thus
failed its duty to analyze these public rights under NEPA, and failed to protect them under its PWR 107 duties. Further, the DEIS limits any potential PWRs to 1,800 gpd (DEIS pg. 3-77), yet fails to explain why such springs/waterholes with less flow can be ignored.

Overall, GBRW submits that the shortcomings of the FEIS warrant the development of a new EIS or supplemental EIS.

Sincerely,

[Signature]

John Hadder,
Director
cc. Senator Harry Reid
   Bruce Holgren, Bureau Chief Mining Regulation and Reclamation, Nevada Department of Environmental Protection