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BEFORE THE STATE OF NEVADA

STATE ENVIRONMENTAL COMMISSION

In the Matter of:

GREAT BASIN RESOURCE WATCH
APPEAL OF NOTICE OF DECISION
TO RENEW WATER POLLUTION

CONTROL PERMIT NEV2008106 TO
EUREKA MOLY, LLC FOR THE
MOUNT HOPE PROJECT
_____/

PETITIONER'S RESPONSE TO NEVADA DIVISION OF ENVIRONMENTAL PROTECTION'S AMENDED MOTION TO DISMISS

COMES NOW Great Basin Water Watch ("GBRW"), by and through their attorney of record, CAVANAUGH-BILL LAW OFFICES, LLC, and hereby submits this Response to Nevada Division of Environmental Protection's ("NDEP" or the "Agency") Amended Motion to Dismiss. This Response is based on the attached Memorandum of Points and Authorities and all pleadings on file, the exhibits filed herein, as well as all oral arguments the State Environmental Commission ("SEC") will hear on this matter.

MEMORANDUM OF POINTS AND AUTHORITIES

In its Motion, NDEP argues that the appeal should be dismissed on the ground of "ripeness". As a matter of law, an issue is ripe for appeal once the agency's final decision is rendered. (See NRS 233B.130) NAC 445B.890.1; Exhibit A (attached hereto). What the agency is essentially asking is that it be allowed to issue its permit, notice its " Decision" and then argue against their own data or findings to assert that the Commission should wait until more data comes in. The agency should not be allowed to have it both ways - arguing that its permit approval is final to

allow the project to begin, but at the same time argue it needs more data to determine the true impacts. This simply underscores the Petitioners' assertion that the decision was, in fact, arbitrary as there was insufficient data collected. NDEP assumes that uncertainty in the modeling for pit lake predictions can only be addressed with additional data that will be collected once the mine begins to excavate for the open pit. The agency cannot use this uncertainty to disavow the EIS' predictions, or unilaterally limit its authority and duty to act upon them.

In fact, the NDEP argument of "ripeness" underscores the very concerns set forth by GBRW and necessitates the additional measures that GBRW has been advocating throughout its comments and discussions. For example, better characterization data can still be collected prior to construction of the mine. As noted previously by GBRW, in addition to the underlying conceptual "rind model" used for the Mt Hope pit lake is the same as was used for the Lone Tree pit lake. Predictions for the Lone Tree Mine pit lake have been found to be very far off from reality. The Division should be more critical of this type of modeling given its very poor predictability based upon actual case examples.

In addition the Division was unwilling to examine other molybdenum mines for a comparative analysis to provide additional information for decision making. Nevada is host to another molybdenum mine near Tonapah called the liberty site, where the pit lake is of very poor quality. There are other examples such as Golden Sunlight in Montana, Climax mine in Colorado, and the Questa mine in New Mexico that all have already demonstrated poor water quality. *See* Exhibit G - comparison chart. GBRW acknowledges differences in geology and the physical environment of the different mines; however, the predicted water quality for the Mt Hope pit like is much better than what is seen at existing molybdenum mines and predictions for others under development. The Division should be required to use the information from other molybdenum mines and conduct a comparative analysis to better understand how the Mt Hope site will evolve in time and reduce uncertainty.

NDEP also dismisses GBRW's argument that NDEP will be less inclined to deny the Mt Hope permit once construction begins as speculative. There is nothing speculative about the pressure on the Division to approve future permit renewals once the mine is under construction. It is not uncommon for mining companies to argue that once construction has begun that to deny

the permit will cost the hosting community many jobs and weaken the local economy. The time to address the impacts is prior to beginning construction, not mid-way through. This is why the laws are written the way they are and matters are appealable once the Decision is issued, not waiting until ground has already been broken. Once construction begins groundwater pumping would commence ramping up to the full rate of 11,300 AFY by the first year thus surface waters will be impacted and surface operations will commence with clearing of land areas for the various facilities such as waste rock dumps, tailing impoundments, and the well pumping field. The opportunity to make substantive changes to the mine plan will have been lost.

NDEP's Claim that GBRW's Concerns were Addressed in the Revised WPCP is False.

Despite the Agency's contention otherwise, GBRW's concerns were not addressed in the revised WPCP. GBRW's technical analysis leads to the conclusion that the proposed mine plan is inadequate due to an incomplete characterization of the waste rock, multiple incorrect assumptions regarding the management of the waste rock, particularly the PAG waste rock, and a faulty pit lake water quality analysis. The permit requires a good faith attempt using defensible technical analysis to characterize and predict future conditions at the mine site. This is needed prior to allowing the construction of the mine to begin. To require the Agency only to reassess this after construction of the mine commences fails the upfront standard demanded by Nevada law.

The Agency's conclusion that Water Quality is Not Expected to Harm Human, Terrestrial or Avian Life is Based on Insufficient Information.

A. Rock Characterization Data

GBRW disagrees with the Agency's argument that there has been sufficient rock characterization data collected. GBRW reviewed the literature on sampling for geochemical characterization. Most of the recommendations pointed to a larger sampling rate than Eureka Moly ("EML") has performed in its analysis and which NDEP depended upon. GBRW's comments, in part, to NDEP on this aspect was and still is the following:

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[1] is 1 sample per million tons of rock, which Eureka Moly LLC (EML) approximately achieves. According to the mine plan 1,750 million tons of waste rock is anticipated[2], 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).[3] 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 acknowledges that such an estimate may be overly conservative. In a more recent review of predicting water quality at mine sites, Maest and Kuipers recommend the following[4]:

TABLE 1

Mass of Each Separate Rock Type (tonnes)	Minimum Number of Samples
<10,000	3
<100,000	8
<1,000,000	26
10,000,000	80

Using this prescription adapted from Price and Errington 1994,[5] 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 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, as indicated in the FEIS *"There were little sampling data from some of the pit wall areas because of the relatively cylindrical nature of the orebody."* [6] 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

1 U.S. Environmental Protection Agency, "Technical Document Acid Mine Drainage Prediction," EPA530-R-94-036, December 1994,. (p. 11)

2 U.S. Department of the Interior Bureau of Land Management, *Mount Hope Project Final Environmental Impact Statement (NV063-EIS07-019)*, October, 2012 (p. 2-24)

3 General Moly Inc., "Mount Hope Project Waste Rock and Pit Wall Rock Characterization Report," January 28, 2008, (pp. 4-2 – 4-3)

4 Maest, A.S., Kuipers, J.R., Travers, C.L., and Atkins, D.A., 2005. Predicting Water Quality at Hardrock Mines: Methods and Models, Uncertainties, and State-of-the-Art (p. 22)

5 Price, W. and Errington, J, 1994. ARD Policy for Mine Sites in British Columbia. Presented at International Land Reclamation and Mine Drainage Conference and the Third International Conference on the Abatement of Acid Drainage, Pittsburgh, PA,. (p. 287)

6 *U.S. Department of the Interior Bureau of Land Management, Mount Hope Project Final Environmental Impact Statement (NV063-EIS07-019)*, October, 2012. (p. 3-212)

skeptical that they and the additional recent samples have been sufficient to fully understand PAG versus Non-PAG breakdown and ultimately water management plan and closure of the site.

BLM in response to GBRW draft EIS 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."[7] A more current, 2009, analysis[8] to which the BCATF refers, cites the same table that GBRW used in the FEIS comments (Table I above) 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."[9] 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 FEIS, p. 3-209) 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."

NDEP did agree that more data is better, and required an updated waste rock management plan including additional characterization data in the schedule of compliance, so the Division shows concern on this point, but didn't go far enough to require the increased data prior to permit approval.

B. Pit Lake Water Quality is an Issue During this Permit Cycle.

NDEP then argues that since the pit lake water quality will be addressed at a later time as a Schedule of Compliance item prior to mining below the pre-dewatering groundwater elevation

7 U.S. Department of the Interior Bureau of Land Management, *Mount Hope Project Final Environmental Impact Statement (NV063-EIS07-019)*, October, 2012. (Vol. III, p. 331)

8 Price, William A., "Prediction Manual for Drainage Chemistry for Sulphidic Geologic Materials," CANMET – Mining and Mineral Sciences Laboritories, Smithers, British Columbia, V0J 2N0, December 2009.

9 Price, William A., "Prediction Manual for Drainage Chemistry for Sulphidic Geologic Materials," CANMET – Mining and Mineral Sciences Laboritories, Smithers, British Columbia, V0J 2N0, December 2009. (p. 8-8)

that it is "not an issue" during the permit cycle. What then is the purpose of the initial pit lake analysis if it is considered irrelevant at the issuance of the permit? There must be a good faith effort to determine pit lake water quality for the permit to be issued in the first place. This is important for planning of the mine project and ensuring that the mine will be able to comply with all state laws during operation and through closure. If NDEP does not require the best possible prediction for the pit lake or any aspect of the mine then the best mine plan at the outset is not likely and the state will have failed to regulate as required by law.

The Division misrepresents GBRW's contention on pit lake water quality by stating that GBRW is taking the position that the pit lake must meet drinking water standards. GBRW stated that drinking water quality or near so water will be flowing into the pit lake, and that the pit lake water will be of lower quality than the water in the aquifer surrounding the pit lake. In this way waters of the state are degraded.

Furthermore, since there is no beneficial use applied to the pit lake there will be no specific water quality standard - only the stipulations contained in NAC 445A.429. More importantly, the pit lake water derived largely from bedrock aquifer will not be used, where prior to flowing into the pit lake as groundwater the water could be used. The pit lake effectively removes water from use, so long as no beneficial use is established for the pit lake.

The Division argues that in NAC 445A.429 the word potential refers to a "meaningful possibility" that the pit lake will degrade the groundwater of the State or adversely affect human, terrestrial, or avian health. But, this still is dancing around the issue. NDEP still needs to clarify what constitutes "meaningful possibility," how poor must the water quality be for there to be a *potential* to degrade the groundwater of the State or adversely affect human, terrestrial, or avian health?

Finally, the Division continues to rely on a pit lake analysis that is suspect. As stated above other molybdenum mines existing and proposed suffer from poor water quality and predicted or existing poor water quality in the pit lake. Is the Mt. Hope deposit that unique to produce so much better pit lake water quality? Just the anticipated amount of potentially acid generating (PAG) rock at the site (~30%) would suggest that it is not unique and likely to have poor water quality. GBRW has commented extensively on the errors in the modeling of the pit lake and

suggested that a respected third party, an analyst acceptable to NDEP, be enlisted to do an independent assessment. Yet, neither NDEP nor Eureka Moly LLC have supported this course of action to resolve the conflict.

NDEP assumes that the pit lake will be a hydrologic sink and thus there will not be outflow from the pit lake. However, the conditions at the site suggest that outflow could occur. GBRW discussed this in our comments to NDEP on the WPCP,

> GBRW remains concerned that a flow-through condition could exist at some point during the filling of the pit lake. The analysis presented in the Mount Hope Environmental Impact Statement (FEIS) 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" . 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 . 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.6 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.

Finally, the calculation models used estimates water-quality degradation from mine waste are inherently challenging to understand because the mass of available pollution actually varies over time. That is, the primary source of pollutants from mine waste--mainly sulfate, acidity, and heavy metals--is initially in sulfide minerals, such as pyrite (FeS2). But these sulfide minerals are essentially insoluble in water. The pollutants are thus not converted into a mobile water-soluble form until the sulfide minerals react with atmospheric oxygen and water. Only

then are the pollutants mobilized in the form of aqueous leachate, where then can be carried in water, such as into a pit lake, down to groundwater, or in surface flow the a stream.

The amount of pollutants release from sulfide minerals in mine wall rock (or from waste rock or from tailings) thus depends directly on how long the rock is exposed to the atmosphere and allowed to oxidizing. In the case of mine pit walls, this duration over which the sulfide rock is exposed to the atmosphere is almost always many years, and can be many centuries.

As an additional chemical complication, in mine waste that contains insufficient acid-buffering minerals, the sulfuric acid produced by the oxidation of the sulfide minerals can produce acidic pore water. In the terminology used in the Mt. Hope pit lake study, this is the potentially acid generation, or "PAG" rock. In the Mt. Hope mine pit lake, the primary source of pollution will be the sulfate and metals that are liberated from the wall rock during the time when these sulfide minerals are exposed to atmospheric oxygen and meteoric water that percolates into the pit benches.

A logical sequence for estimating the load of pollutants to a mine pit lake is typically:

1) Estimate the rate at which sulfide S minerals in the exposed wall rock react with oxygen from the air (e.g., Kg sulfate produce per meter-squared wall rock per year). These calculations often consider the rate at which oxygen diffuses into wall rock, as well as the sulfide sulfur concentration in the wall rock. The results provide estimates of the mass of sulfide mineral oxidize in a unit area of wall rock over a given amount of time. There are many examples of these wall-rock-reaction-rate estimates in Nevada mine lake studies, but initial values are typically between ~2 and 20 Kg sulfate produce per meter-square wall rock per year. The calculations generally predict that this rate will decrease over time as the sulfide minerals near the pit wall are completely reacted away and oxygen must travel farther into the wall rock to reach sulfide minerals. An important component in the estimates of wall rock reaction is often the thickness of the "damaged wall rock zone," or depth affected by blasting. The value used for the Mount Hope Mine lake model, 1.8 meters, is on the extreme low end of what has been measured in open pit mines (i.e, range between ~1.1 to 15 meters).

2) Estimate the rate at which other pollutants (metals and acidity) are produced, based on association with the amount of sulfide minerals are oxidized. This is typically where "humidity cell" tests come in--among the important results from these is an estimate for the ratio of acid and metals released from the wall rock relative to the amount of sulfide mineral that has oxidized.

3) Use this general behavior of pollution release (i.e., Kg sulfate produce per meter-squared wall rock per year) in conjunction with the area of rock exposed in pit walls, to estimate a total amount of sulfate, metals, and acidity that is released from the entire pit wall in each year of mining.

4) Make an estimate of the transport and fate of the pollutants that are released from wall rock. Some of these soluble pollutants may dissolve in run off into the pit during mining, being pumped out during mining, or flowing into the pit lake after closure. Some

may remain as concentrated water or salt minerals in the pores of the wall rock until they are leached by percolating water. Once an area of wall rock is submerged below the lake, inflowing groundwater will almost certainly cause these pollutants to flow into the lake.

5) Estimate the chemical reactions that occur in the pit lake as pollutants leached from wall rock mix with lake water. Importantly, it is only at this stage, after the main assumptions about pollution production and transport into the lake are complete, would a public domain equilibrium model, such as the USGS model PHREEQC, come into use.

The huge deficiency in the Mount Hope mine pit lake prediction study is that it does not present their estimate of mine lake water quality in terms of these very standard mine-lake model components. Specifically, the Slumberger, April 2010, Final Pit Lake Geochemistry Report, Mount Hope Project, does not:

- Present estimates for the wall-rock oxidation rate (and thus the rate of production of soluble pollutants) over time,

- Present in table or graph estimates for the rate at which the primary pollutant in the wall rock (i.e., soluble sulfate) is produced over time.

- Provide a quantitative estimate for the fate of the soluble pollutants that are produced by oxygen reaction with sulfide minerals in the wall rock (e.g., what is the mass of pollutants that, in each year, either percolate down through the pit benches and seep to the pit bottom, reach the pit lake in water percolating through pit walls or as runoff over the pit benches, or wind up flushed into the lake when a region of wall rock is submerged below the water table.

The result is that it is not possible to understand the exact methods used to estimate water quality in the Mt. Hope pit lake, and thus not possible to make a quantitative confirmation of the predicted water quality. The technical analysis discussed in our comments was not addressed by NDEP, so this issue remains unresolved. Thus, the potential to degrade groundwater also remains unresolved.

C. Potential of acid generating (PAG) waste rock disposal facilities (WRDF) and low grade ore (LGO) stockpiles to degrade groundwater.

NDEP states that drainage from a potentially expanded PAG WRDF will affect the two springs SP-3 and SP-4. However, these two springs have been determined to be Public Water Reserves (PWR) by the Bureau of Land Management. Springs and waterholes on public land in the West are reserved for public use by Public Water Reserve No. 107 ("PWR #107"), which was created by Executive Order by President Calvin Coolidge in 1926. PWR 107 provides:

> [I]t is hereby ordered that every smallest legal subdivision of public land surveys which is vacant, unappropriated, unreserved public land and contains a spring or water hole, and all land within one quarter of a mile of every spring or water hole located on unsurveyed public land, be, and the same is hereby, withdrawn from settlement, location, sale, or entry, and reserved for public use in accordance with the provisions of Section 10 of the Act of December 29, 1916.

As PWR's access to the springs as well water quality and water quality is important, and it is a violation of federal law to deny or impede access to these springs. Even the existing footprint for the PAG WRDF is likely to violate PWR 107 let alone an expansion of the footprint (see Figure 1 below).

The Operations and Closure Plans Are Not Protective of Groundwater Resources.

On page 13 lines 15 and 16 NDEP states that, "NDEP does not anticipate perpetual treatment of solution from the LGO Stockpile, non-PAG WRDF, or the PAG WRDF." However, NDEP does not define what is meant by perpetual treatment. In fact the State of Nevada has no regulatory definition of perpetual treatment. Without a clear definition or explanation of what NDEP means by perpetual treatment the statement is ambiguous and arbitrary.

LEGAL ANALYSIS

As discussed in our Reply Brief, the issue of ripeness was squarely faced in *Save Our Cabinets v. U.S. Dep't. of Agric.*, 254 F.Supp.3d 1241 (D. Mont. 2017). There, USFS' FEIS included long-term models predicting that the mine's dewatering would eventually reduce stream flows. Plaintiffs argued that such streamflow depletions violated state nondegradation water quality standards. Like here, USFS attempted to escape from its own modeled predictions: "The defendants argue that the modeled baseflow data cannot and should not be relied upon to reach a degradation conclusion because the model is conservative, more data will be collected during the Evaluation Phase, and the model will be updated before the Project proceeds." Id. at 1253.

The court rejected USFS' argument:

> [T]hat again ignores the fact that the Forest Service determined it had enough information to proceed with the ROD. … To say that noncompliance does not matter in the face of 'adaptive management' is contrary to the evidence before the agency. Cf. Greater Yellowstone Coalition v. Servheen, 665 F.3d 1015, 1029 (9th Cir. 2011)("[I]t is not enough to invoke 'adaptive management' as an answer to scientific

uncertainty."). Id. at 1254.

As in the instant case, in *Greater Yellowstone*:

> The Service's ultimate (and understandable) conclusion is that it simply does not yet know what impact whitebark pine declines may have on the Yellowstone grizzley. ***But we nonetheless have a responsibility to ensure that an agency's decision is not arbitrary. Cf. *Lands Council v. McNair*, 537 F.3d 981 (9th Cir. 2008) (en banc). It is not enough for the Service to simply invoke "scientific uncertainty" to justify its action. *Greater Yellowstone* at 1028.

In fact, each of the cases cited by the Agency on the ripeness question are either in clearly distinguishable phases of the agency decision and/or actually come out with decisions directly opposite of what the Agency is arguing in this particular case. *See e.g. Ohio Forestry Ass'n, Inc. v. Sierra Club*, 523 US 726.1998) (case involving the development of a forestry plan with no particular logging proposals at issue. The Court found the plan was at a "pre-permit" stage and therefore not ripe as the judicial review "would have to take place without the benefit of focus that a *particular* logging proposal could provide.") (emphasis added). In our case, there is a specific proposal and an actual permit with a final decision. The matter is therefore ripe for judicial review. Likewise, in *Central Delta Water Agency v. U.S.*, 653 F. Supp. 2d 1066, 1088 (E.D. Cal. 2009) The case involved a proposed Conservation Plan wherein there was a request to review the Plan at an early stage - before the final EIS had been completed with the agency's only decision being to publish a Notice of Intent with no guarantee that a plan would even be finalized distinguishable from the action at issue in *Central Delta*, in our case, where there has been a final decision. As set forth in *Bennet v. Spear* (cited in *Central Delta*) "[a]gency action is considered final if it "marks the consummation of the agency's decision-making process" and defines parties' rights and obligations or carries other legal consequences.". 520 U.S. 154, 177-78 (1997). NDEP issued its Decision, setting forth GBRW's right to appeal - to grant NDEP's request with respect to ripeness would render that right to appeal meaningless and would bifurcate the very legislative intent allowing the right to appeal at the Final Decision stage.

Similarly in *Public Lands for the People v. U.S. Dept. Of Ag*, also cited by the Agency, a travel management plan was at issue wherein the plan contemplated limits as to

motorized vehicle use. 733 F. Supp. 2d 1172, 1184 (E.D. Cal. 2010). The Plaintiff sought review of the plan with respect to those limits; however the Court found that there had been no claims for access submitted yet so the agency had no factual case to deny. *Id.* In our case, there has been an actual mine plan submitted and a final permit issued. In *Abbott Laboratories v. Gardner*, the issue was found to be ripe and the Court reiterated that "[i]n interpreting the finality requirement, a court looks to whether the agency action represents the final administrative word to insure that judicial review will not interfere with the agency's decision-making process." 387 U.S. 136, 148-149 (1967). In our case, a final decision is what we have in hand, the agency's decision has been made and they are now asking that the project be allowed to start without the right to appeal but that they be allowed to re-analyze what they should have adequately analyzed before making their final decision. In *Winter v. Calif. Med. Review*, the case involved notification of alleged violations - it was determined not to be ripe due to the fact that the agency was still in the process of investigating the allegations and there was no "final administrative word." 900 F.2d 1322, 1325 (9th Cir. 1989). Likewise, although not controlling authority, both *Consol. Rail Corp.* and *Nat. Resource Defendant* Counsel, Inc. V. U.S.E.P.A. reflect cases where there were several issues and general policies stretching over a multitude of projects being challenged - not as in this case where we have a single project and a final decision on that very project. 812 F.2d 1444, 1453 (finding no final agency action taken yet and waiting for issues to arise in individual rate cases); 859 F.2d 156, 211-212 (finding that challenges to some 6,000 "continuing" but yet to be renewed permits were ripe as to certain aspects on the original permits) The U.S. Supreme Court stated it well in *Abbott Laboratories v. Gardner*:

> as that its basic rationale is to prevent the courts, through avoidance of premature adjudication, from entangling themselves in abstract disagreements over administrative policies, and also to protect agencies from judicial interference until an administrative decision has been formalized and its effects felt in a concrete way by the challenging parties.

387 U.S. 136, 148-49 (1967). In our case, there is undisputedly a final decision with appeal rights given and the matter should be heard.

CONCLUSION

In conclusion, the Agency's Motion should be denied. NDEP's Decision is a final decision and ripe for review.

DATED this 29th day of May, 2019

Julie Cavanaugh-Bill
NV Bar No. 11533

Figure 1. Map source Final EIS Mt Hope. Purple circles are estimates of the quarter mile withdrawal zone around the springs.

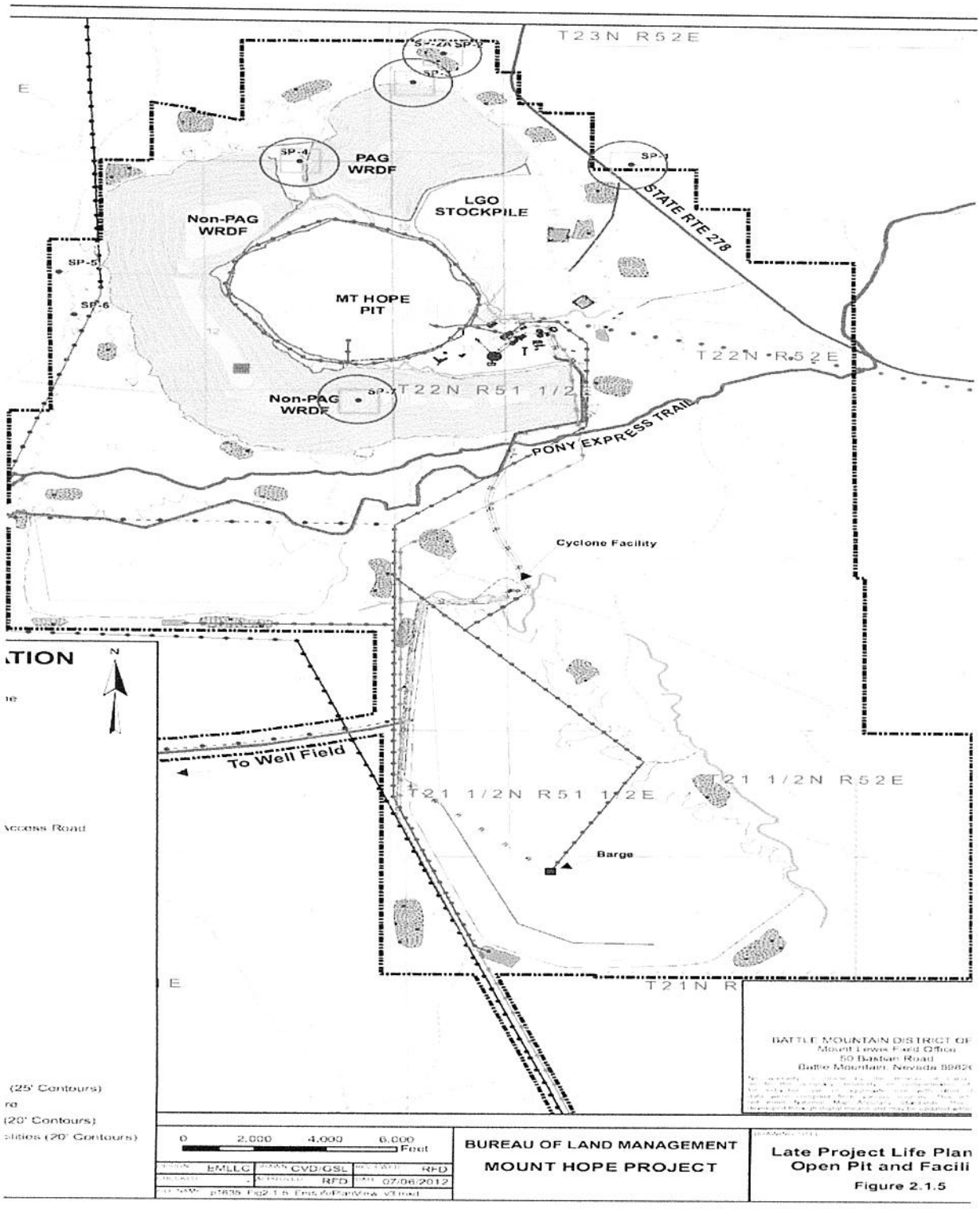

EXHIBIT A

NOTICE OF DECISION - Bureau of Mining Regulation and Reclamation

Web Posting: 11/06/2018

Deadline for Appeal: 11/16/2018

Eureka Moly, LLC
Mount Hope Project
WPCP Number NEV2008106

The Administrator of the Nevada Division of Environmental Protection (the Division) has decided to issue renewed Water Pollution Control Permit NEV2008106 to Eureka Moly, LLC. This Permit authorizes the construction, operation, and closure of approved mining facilities in Eureka County, Nevada. The Division has been provided with sufficient information, in accordance with Nevada Administrative Code (NAC) 445A.350 through 445A.447, to assure that the waters of the State will not be degraded by this operation, and that public safety and health will be protected.

The Permit will become effective **21 November 2018**. The final determination of the Administrator may be appealed to the State Environmental Commission pursuant to Nevada Revised Statute (NRS) 445A.605 and NAC 445A.407. All requests for appeals must be filed by 5:00 PM, **16 November 2018**, on Form 3, with the State Environmental Commission, 901 South Stewart Street, Suite 4001, Carson City, Nevada 89701-5249. For more information, contact Matthew Schulenberg at (775) 687-9409 or visit the Division website at https://ndep.nv.gov/posts/category/land.

Comments were received during the public comment period from John Hadder, Director, Great Basin Resource Watch (GBRW) of Reno, Nevada. The text of all comments, in some cases excerpted, and the Division responses (in *italics*) are included as part of this Notice of Decision.

GBRW Comment 1:

GBRW has reviewed the permit, fact sheet, and various background materials related to the Mt. Hope Project, and does not support this permit renewal. GBRW anticipates significant toxic drainage at this site with an insufficient plan to arrest the problem, which will result in violations of Nevada Law....[D]rain-down solutions from the tailings storage facilities are expected to contain aluminum, antimony, cadmium, fluoride, manganese, molybdenum, and sulfate concentrations that exceed water quality standards, and will become acidic over time. Waste rock seepage will contain high concentrations of aluminum, arsenic, cadmium, fluoride, manganese, nickel, zinc, copper, iron, lead, beryllium, thallium, selenium, sulfate, and total dissolved solids. If tailings and waste rock disposal facilities, fluid collection systems, and 2 evapotranspiration cells are not properly managed over the long-term, the project could result

in significant and long-term degradation of surface water and/or groundwater quality, as well as wildlife exposure to these waters.

Division Response 1:

Division oversight and Permit conditions will ensure that the mine site facilities are properly managed over the long-term and will prevent degradation to waters of the State. In accordance with Part I.A of the Permit, the Permittee must 1) construct, operate, and close the facility in accordance with Division approved plans, 2) contain within the fluid management system all process fluids including all meteoric waters which enter the system as a result of the 25-year, 24-hour storm event, and 3) not release or discharge any process or non-process contaminants from the fluid management system. In the event there is a release from containment and subsequent groundwater/surface water degradation, the Division will require that appropriate measures be taken to mitigate the degraded waters and measures be taken to prevent further degradation.

GBRW Comment 2 (Site Monitoring):

GBRW acknowledges that NDEP added seven monitoring wells from the originally proposed monitoring scheme of 2012. Despite the addition of monitoring wells GBRW still finds the number of wells to be insufficient and insists that the following be added:

1. At least three additional monitoring wells that screen across the water table should be constructed along the southern boundary of the non-PAG waste rock dump west of IGM-157.
2. LGO (low grade ore) Stockpile Monitoring: a couple of shallower wells that screen any water levels in the alluvium are necessary. Well SCP-1 should be constructed to span the water table if there is a phreatic aquifer in the area; the permit should specify these construction details.
3. At least three new monitoring wells east of the PAG waste rock dump with depth to screen chosen based on the presence of a water table aquifer and the presence of fracture flow zones at depth, as in the wells east of the LGO stockpile.

Division Response 2:

The Division concurs in large part with the GBRW comments. A Schedule of Compliance (SOC) Item was added to the Permit when it was first issued in 2012, requiring the submittal of plans for the installation of seven new monitoring wells, in addition to two wells downgradient of the mill and LGO Stockpile that were previously proposed but not yet installed. The seven new monitoring well locations are as follows: two on the south side of the South Tailings Storage Facility (TSF), three on the west side of the South TSF, one downgradient of the potentially acid generating (PAG) waste rock disposal facility (WRDF), and one downgradient of the Tailings Thickener Emergency Overflow Pond.
The Division had determined that the additional seven wells added as part of SOC Item Part I.B.1 in 2012 in addition to the already existing 21 wells will allow for proper monitoring of facility components. However, with this 2018 renewal, the Division has determined that an

additional well downgradient of the non-PAG WRDF is warranted due to predicted groundwater flow paths and the overall size of the facility. This will be incorporated into SOC Item Part I.B.1 of the Permit.

For reasons beyond the purview of this Permit renewal, the required installation of the new monitoring wells did not occur during the 5-year effective period. The Schedule of Compliance item requiring installation of the new monitoring wells was not removed from the 2018 Permit renewal and remains in effect.

GBRW Comment 3 (Basis for Critique of Monitoring Plan):

NDEP should require the applicant to determine a "discharge influence area" so that it is known from where leakage from waste facilities would be able to move downgradient and not toward the pit; such an analysis would depend on time because the capture zone may change.

Division Response 3:

Nevada Administrative Code (NAC) 445A.433 stipulates that, at a minimum, all mine process components must be designed to fully contain all accumulations resulting from a 25-year, 24-hour storm event, and withstand, but not necessarily contain, all accumulations from a 100-year, 24-hour storm event. The Division concluded in 2012 that the Mount Hope Project designs, including but not restricted to those for the PAG WRDF, go beyond the minimum requirement by having sufficient capacity to contain all accumulations from a 100-year, 24-hour storm event.

As outlined in SOC Item Part I.B.1 of the Water Pollution Control Permit, the work plan for the installation of additional monitoring wells must include a map(s) showing mine facilities, updated groundwater potentiometric surface contours, and proposed well locations, plus proposed well parameters and provisions for drilling oversight and field screen depth determination by a qualified geologist or hydrologist. In addition, the work plan must include a schedule for completion of monitoring well installation that will ensure sufficient time to establish baseline groundwater elevations and water quality before component commissioning to minimize the potential for dewatering drawdown to render the wells nonfunctional.

GBRW Comment 4 (Non-PAG [not potentially acid generating] Waste Disposal Facility Monitoring:

Discharge from the Non-PAG WRDF is expected to be of low quality in some cases requiring treatment and has the potential to degrade groundwater....It is essential that at least three additional monitoring wells that screen across the water table be constructed along the southern boundary of the non-PAG waste rock dump west of IGM-157.

GBRW Comment 5 (LGO [low grade ore] Stockpile Monitoring):

The draft permit specifies that monitoring well SCP-1, IGMI-232P, and IGMI-233P are downgradient monitoring wells....These wells are apparently monitoring fracture zones in the respective lithologies. There is no discussion of how the monitoring depth was chosen....[S]hallower wells that screen any water levels in the alluvium are necessary. Well SCP-1 should be constructed to span the water table if there is a phreatic aquifer in the area; the permit should specify these construction details.

GBRW Comment 6 (PAG Waste Dump Monitoring):

Wells IGM-152, -226P, and -227P are all called downgradient monitoring wells for the PAG WRDF. The latter two are east of the southernmost end of the LGO stockpile and not downgradient of the PAG waste rock dump. IGM-152 is northwest of the PAG waste rock dump...groundwater contours show that a flowpath [sic] intersecting this well would not be underneath the PAG WRDF. The wells...specified in the draft permit will not monitor the PAG WRDF....NDEP should specify at least three new monitoring wells east of the PAG waste rock dump with depth to screen chosen based on the presence of a water table aquifer and the presence of fracture flow zones at depth, as in the wells east of the LGO stockpile.

GBRW Comment 7 (Tailings Impoundment Monitoring):

The original draft permit indicates that four upgradient and two downgradient wells will be used to monitor this site....The original draft permit...has just three adequate upgradient wells and one downgradient well. Because of the size of the impoundment and the potential contamination from leaky tailings, it is obvious there should be at least four additional monitoring wells downgradient from the tailings facility. Two should lie between TM-1B and TM-B and two should lie on a line between TM-1B and the number 6300 on the contour space about 1/3rd mile north from TM-1B.

Division Response 4 - 7:

Please refer to Division Response 2 above regarding the placement of additional monitoring wells.

GBRW Comment 8 (General Monitoring Well Requirements):

The original draft permit specifies that if a well is dry or fluid is not otherwise accessible, they should just record "dry". However, the permit should specify what is to be done if the well goes permanently dry....NDEP should require profile 1 sampling of any dewatering wells for the same reason they require monitoring wells and to characterize the water that will become inflow to the pit after dewatering. If dewatering wells are not used, the permit should specify that inflow to the pit be sampled....The permit must also establish sampling procedures...methods used for sampling the wells may not be consistent and may not meet industry standards.

Division Response 8:

It would be speculative to include a list of specific steps that should be taken in the event that a monitoring well goes dry. As noted on the cover (signature) page of the Permit, the Permittee is required to "inform the Division of any deviation from or changes in the information in the application, which may affect the Permittee's ability to comply with applicable regulations or Permit conditions."

Although currently not outlined in the Mount Hope Permit Application, excess dewatering water not utilized as make-up water would most likely need to be disposed of by discharging the water into a rapid infiltration basin or through a surface water discharge. Both discharges would require permits issued by the Division. Both of these permits would come with their own initial characterization requirements and monitoring at the discharge. In addition, as outlined in Footnote 7 (referenced in Part I.D.11) of the Permit, if any ponded water accumulation within the pit is present for more than one year, the Permittee shall perform the required monitoring for pit lakes. All monitoring data would be utilized to update the pit lake model as outlined in Continuing Investigation Part I.N.1.

Rather than including more detailed sampling procedures in the Permit, such procedures are more appropriately included in the monitoring plan portion of the Permit operating plans. However, Part II.B.3 of the Permit states that "Samples must be taken, preserved, and labeled according to Division approved methods." The Division approved methods for groundwater well sampling and preservation are listed on Page 3 of the Division guidance document "Monitoring Well Design Requirements". In addition, SOC Item I.B.6 has been added to the Permit that requires the submittal of updated operating plans within 180 days after the Permittee initiates a Project Construction Schedule.

The SOC language will read: "Within 180 days after the Permittee initiates a Project Construction Schedule, the Permittee shall submit for review and approval updated operating plans, pursuant to Nevada Administrative Code (NAC) 445A.398 and 445A.427, which are revised, as warranted, to reflect the requirements in this Permit and any associated as-built reports."

GBRW Comment 9 (Summary of Monitoring Well Requirements):

Because the applicant did not consider the conceptual flow model when constructing some of these wells, additional wells are needed if this facility is to be adequately monitored....There are no monitoring wells downgradient from the bulk of the Non-PAG WRDF. At least three additional monitoring wells that screen across the water table should be constructed along the southern boundary of the Non-PAG WRDF west of IGM-157. The PAG WRDF has no monitoring wells at all...two of the proposed wells are... east of the LGO stockpile and the other is northwest of the facility...not on a flowpath [sic] beneath it. NDEP should specify at least three new monitoring wells east of the PAG WRDF with depth to screen chosen based on the presence of a water table aquifer and the presence of fracture flow zones at depth. The LGO stockpile has

two deep monitoring wells, so the currently planned-for third well should be shallower, sampling the water table aquifer if possible.

At least two of the proposed wells at the tailings impoundment are not on a flow pathway that could transport contaminants from the facility. Only one downgradient well is currently proposed (because the other in the draft permit is not actually downgradient). It is essential that NDEP require at least four additional monitoring wells constructed as specified above.

Division Response 9:

Please refer to Division Response 2 above regarding the placement of additional monitoring wells.

GBRW Comment 10 (Pit Lake Monitoring)

The periodic updates to the pit lake model should include any current groundwater data that pertains to inputs for the modeling process....The permit needs to indicate which wells would be used for this purpose and what data is to be obtained from them for model updates.

GBRW remains concerned that a flow-through condition could exist at some point during the filling of the pit lake....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.

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.

Division Response 10:

As noted above in Continuing Investigation Part I.N.1 of the Permit, the Permittee shall submit an updated groundwater flow model and pit lake study with each Permit renewal and with any application to modify the Permit that could affect the pit lake predictive model. The updated pit lake model is required to incorporate all data collected since the previous submittal and any new methods or alternatives, as applicable, based on regulations and best engineering and scientific principles and practices. If additional monitoring points or parameters are necessary to investigate or confirm pit lake model predictions, these will be required by the Division.

For reasons beyond the purview of this Permit renewal, there has been no mine development, construction, or monitoring well installation activity at the Mt. Hope mine site since the Permit was first issued in 2012. The Continuing Investigation requirements (Part I.N) requiring the

Permittee to perform and submit a revised pit lake study has not been removed from the Permit and remains in effect.

GBRW Comment 11 (Geochemical Characterization):

GBRW does not see the sampling rate for Mt. Hope to be sufficient....GBRW recommends that NDEP require EML [Eureka Moly LLC] 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 to minimize the uncertainly regarding acid generation and the potential need for long-term treatment, so that impacts can be optimally determined and mitigation and best management practices can be developed.

Division Response 11:

While the Division agrees with GBRW that more available data up front is best, the Division has determined that the available data set is adequate for initial characterization of the Mount Hope Project. The iterative nature of the Water Pollution Control Permit allows for the continued collection of samples and the ability to modify the Waste Rock Management Plan, Pit Lake Study, etc. as the mine develops and more information is acquired and the site specific nature of the deposit becomes better understood. Over the planned mine life, there will be quarterly samples collected from Low Grade Ore, Coarse Ore, PAG Waste Rock, and Non-PAG Waste Rock Materials. Meteoric Water Mobility Procedures for Division Profile I-R constituent (primary and secondary drinking water constituents) release and Acid Neutralizing Potential/Acid Generation Potential testing (also known as static testing), in accordance with the most recent version of the Nevada Modified Sobek Procedure, will be performed on each of the above listed mined materials.

Pursuant to Footnote 4 and 5 of the WPCP, in the event that the static testing results indicate the potential for acid generation, Kinetic Testing will be initiated. Even if the material has been classified as PAG, additional samples will be analyzed until the Division has sufficient confidence in the range of acid generation and metals leaching potential for the particular material type. This information will then be used to modify and update the Pit Lake study, Ecological Risk Assessment, and Waste Rock Management Plan with each renewal.

However, the Division does agree that samples need to be in close proximity to the final pit wall configuration so that the predictive pit-lake model can be as accurate as possible. The Division will require that, as part of this Permit renewal, the Waste Rock Management Plan be updated to include a characterization plan that outlines sampling and analytical procedures for portions of the final pit wall that have not been characterized. Cross sections showing previous sample locations, testing types, and major lithology, rock, and alteration types and the proposed locations of collected samples during the progression of mining will be required. This requirement will be placed into the Permit as SOC Item Part I.B.4 and will be required within 180 days after the Permittee initiates a Project Construction Schedule.

The SOC Language will read: "Within 180 days after the Permittee initiates a Project Construction Schedule, a revised Waste Rock Management Plan (WRMP) shall be submitted to

the Division for review and approval. This updated WRMP will include a characterization plan that outlines sampling and analytical procedures for portions of the final pit wall that have not been characterized. This plan shall include cross-sections displaying previous sample locations and testing types, major lithology, rock, and alteration types, and the proposed locations of collected samples during the progression of mining."

GBRW Comment 12 (PAG Waste Rock Management Plan):

The data available...do indicate a significant potential for acid generation, but with very little neutralizing capacity....GBRW foresees significant acid drainage from and a potentially larger footprint for the PAG WRDF [Waste Rock Disposal Facility]....EML is also anticipating some acid drainage by installing a drainage system at the bottom of the PAG WRDF to collect substandard water....EML needs to amend the management plan to evaluate long-term treatment of acid mine drainage including a credible estimation of the timeframe for treatment and potential increased treatment costs.

The waste rock management plan has used sensible modeling to approximate the unsaturated flow through the proposed store-and-release cover under current conditions. However, given the uncertainties in future temperatures, surface-vegetation type, soil-cover integrity and continuity, and the frequency, intensity, and annual amount of precipitation, the PAG WRDF is certain to produce intermittent or continuous discharge of acidic metal-bearing to the underlying groundwater and surface capture system. Mt. Hope Mine planning needs to incorporate an explicit acknowledgement of this condition of long-term future management, and provide a reliable funding based on quantitative estimates for what is essentially perpetual care.

Division Response 12:

NAC 445Â.379 defines stabilized as "the condition which results when contaminates in a material are bound or contained so as to prevent them from degrading waters of the State under the environmental conditions that may reasonably be expected at a site." NAC 445A.429 Part 1, which relates to waste rock storage facilities, states that "The holder of the Permit must initiate appropriate procedures to ensure that all mined areas do not release contaminates that have the potential to degrade the waters of the State." In the event that acid mine drainage from the PAG WRDF is discovered through monitoring of foundation drains and monitoring wells, the Division will require that mitigation measures be taken and appropriate bond adjustments be made to protect waters of the State.

Although final permanent closure plans for the facility are not yet required for submittal and have not been finalized, the tentative closure plan proposes the placement of an alluvial cover to minimize meteoric infiltration and to use existing operating ponds for evapotranspiration cells if continuous long-term draindown is present. Typical evaporation cell designs consist of double-lined and leak detected ponds that utilizes a distribution system backfilled with evaporative material that allows for the passive capture and management of collected solution. Currently the division requires that appropriate bonding for multiple replacements of evaporation cell backfill material and pond liner replacements based on the quality of the

inflowing water and the potential for precipitates/evaporates to minimize the backfill material and subsequently the cells capacity. In addition, SOC Item Part I.B.2 of the Permit requires the Permittee to submit an application for a Permit modification to construct a cover test facility that includes large-scale drainage lysimeters to determine design specifications for the future cover material for the PAG WRDF such that constituents are stabilized and degradation of waters of the State is prevented.

In accordance with SOC Item Part 9.B of Reclamation Permit NO. 0330, any site-specific mitigation plans will be submitted to the Division for review. At that time the Division will evaluate and determine if implementation of proposed mitigation activates will create additional surface disturbance or reclamation liability, within or outside of the existing permitted project boundary that would require an amended Plan for Reclamation, permit modification pursuant with NAC 519A.290, 295, 300, and 305, and associated bond adjustment.

GBRW Comment 13 (PAG WRDF Design):

The basal layers in the proposed PAG WRDF design will not prevent acidic leached from percolating down through the bottom of the facility and into the underlying bedrock water table below....[P]erforated polyethylene drain pipes...appear to be designed to capture water from rock placed under much wetter conditions....[T]his design should work to capture saturated or near saturated water...from the area directly above the drain pipes or underlying geomembrane layer...unsaturated flow... outside of the drain liners will pass on into the 12-inch compacted low-permeability drain layer....[T]he 12-inch compacted low-permeability base layer...hydraulic conductivity...is too high to impede the expected flow of acidic leachate from the PAG WRDF.

Division Response 13:

As designed, any drainage through the PAG material in the PAG WRDF will remain above the one-foot thick engineered subgrade (permeability no greater than 1 x 10^{-5} cm/sec) and flow toward the nearest contained drainage onto a 60-mil High Density Polyethylene (HDPE) liner. Once on the liner, the drainage will be conveyed into an HDPE-lined collection channel and an HDPE-lined Stormwater Collection Pond. Drainage through the engineered subgrade of the PAG WRDF, or through the HDPE liners associated with the PAG WRDF and the South TSF is unlikely, however, downgradient monitoring wells are present to monitor for groundwater quality impacts. If groundwater degradation is detected, or if process solution is released from a ruptured pipeline or other component, regardless of cause, the Permit and applicable regulations require submittal of a plan to remediate the contamination and minimize the impact to waters of the State.

The current water balance simulations indicate that unsaturated flow will not be a significant contributor to groundwater degradation. However, SOC Item Part I.B.2 requires the construction of a cover test facility for verification of design specifications for the future cover of the PAG WRDF such that constituents are stabilized and degradations of waters of the State is prevented. In the event that future modeling efforts and/or the cover test facility indicate that the proposed 24-inch alluvium cover will not be protective of waters of the State, the

Division will require that the Permittee perform further evaluations of various closure cover designs and provide an alternative that will protect waters of the State.

GBRW Comment 14 (PAG Waste Rock Management Plan)

The PAG Waste Rock Management Plan needs to acknowledge that the onset of acidic seepage may be delayed for years to decades, but that it is then expected to be a long-term condition.

The...Waste Rock Management Plan...assumes that any water that infiltrates through the [WRDF] cover would report as drainage to the toe of the waste rock facility...[A] significant volume of water would be retained as moisture within the waste rock...[T]he Mt. Hope waste rock management plan [incorrectly] implies...that the PAG WRDF will probably not be a perpetual source of acidic leachate....[T]he proposed PAG waste rock [facility]...will be a long-term source of acidic leachate to surface seeps and underlying groundwater. A plan to perpetually capture and evaporate...needs to describe in detail the financial and institutional mechanisms that will be required to maintain this perpetual water management system....[T]he PAG WRDF is likely to capture much more water, and will likely be a larger footprint [than] that proposed...[T]he two-foot cover is probably not sufficient to prevent infiltration and acid drainage...GBRW strongly recommends a thicker cover to decrease infiltration further.

[T]he waste rock management plan to encapsulate PAG material with neutralizing material...needs to be amended to discuss this as a mitigation measure and how this kind of procedure would be achieved....GBRW is concerned...[that EML is] overly optimistic ...on how the site will evolve.

Division Response 14:

The Division has reviewed the waste rock characterization data submitted with the Permit application and has determined that it is adequate to support issuance of the Permit. The Division did not make the determination that there will not be acid generation, acid runoff, or acid drainage. Rather the Permit requires segregation of PAG waste rock and LGO in facilities designed to contain any solution that comes in contact with them and prevent any such solution from being released or otherwise posing a threat to waters of the State.

GBRW Comment 15 (PAG WRDF Location):

The footprints of the waste rock facilities needs to be changed to avoid close proximity and covering of springs....EML should develop ways to avoid these springs...[T]he springs will be negatively affected by dewatering...and could become dry for a number of years.

GBRW does not support the covering of the spring on the southwest corner of the site with the Non-PAG WRDF....[C]overing a spring can have seriously harmful consequences in the future....[T]he waste rock facility should be redesigned to avoid the spring....ELM [sic] should analyze the possibility of the [conveyance] conduit collapse and resulting impacts, and add to the waste rock management plan modified to include mitigation for this scenario.

GBRW is concerned that the one foot compacted layer base is not a sufficient barrier especially since acid drainage is likely (in our view)....[T]he drainage system may partially fail [over the long term] and acidic drainage would find its way into the unsaturated zone and eventually the groundwater especially as the water level recovers post dewatering.

[W]e recommend that NDEP require EML to reevaluate the design of the PAG WRDF to include neutralizing component, sufficiency of the base layer to act as a barrier, and judicious groundwater monitoring around the waste rock and tailings facilities.

Division Response 15:

The nearest spring north of the PAG WRDF is SP-3 which will remain approximately 350 feet north and cross gradient of the PAG WRDF. Based on flow lines shown in Figure II-9 of the application and surface water diversion and stormwater collection channels, the Division has determined that there will be no degradation to the spring from its proximity to the PAG WRDF. The Division acknowledges that the spring may become dry due to dewatering of the Mount Hope Pit.

As originally designed, the spring on the southwest corner of the Non-PAG WRDF (SP-7) will be collected through a 20-foot square by 18-inch deep collection gallery that will utilize 6-inch diameter perforated HDPE pipelines to collect spring flows. The collection gallery will be backfilled with clean drainage aggregate, encased in a layer of 10 ounce per square yard geotextile, and covered with a 60-mil textured HDPE liner that will extend at least 4 feet beyond the edge of the gallery. The pipeline will transition into a 6-inch diameter non-perforated single walled HDPE pipeline that will travel approximately 2,300 feet to the toe of the facility where it will discharge into a natural drainage. However, the Division has determined that the original design does not provide adequate protection of the buried conveyance pipeline. The Division will require that the Permittee revise this design and that alternative options be submitted to address potential collapse of the conveyance pipeline underneath of the non-PAG WRDF. This will be addressed as newly added SOC Item Part I.B.7.

The SOC item language will read: "Within 180 days after the Permittee initiates a Project construction schedule, the Permittee shall submit and engineering design change for a revised design of the SP-7 conveyance pipeline. This design change shall address the potential collapse of the pipeline and provide alternative designs to ensure that the spring will be conveyed to the toe of the non-PAG WRDF."

The foundation drains in the Section I.D of the permit include those for the PAG WRDF, the LGO stockpile, and spring SP-7, which will be located under the non-PAG WRDF. Each foundation drain on the PAG WRDF and LGO Stockpile will be constructed on a 10-foot-wide strip of 60-mil HDPE liner installed on top of the low permeability subgrade in a natural drainage. Because flow rates are expected to fluctuate based on many different factors,

weekly flow monitoring data is warranted to provide information on the performance of the foundation drains, and on the water balance of the pads for fluid management and closure. The Division has determined that quarterly water quality analyses are adequate because the water quality is not expected to change significantly over a short time period, but is nevertheless important to document.

GBRW Comment 16 (Pit Lake Model):

The pit lake water quality model [rind model] used to predict pit lake water quality follows the physical model of previous pit lake estimates...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 physical model has failed for the two recent [Nevada] pit lakes...has substantially under predicted the primary indicator of oxidation (sulfate) by at least a factor of 5...both have exceeded...[gypsum] solubility product.

[R]ind model...fails to recognize...amount of surface exposed to air in the dewatered cone of depression is very much larger than the thin layer of the surface of the pit lake, which is what is generally assumed in this model....[T]he Mt. Hope pit lake model...should be entirely redone, with more realistic assumptions, and discussions on why the "rind" model [has] failed [at two recent Nevada pit lakes].

[R]ock in the walls does not appear to have much carbonate/neutralization ability... whatever neutralization capability exists may become covered with iron/manganese precipitates...[reducing] the buffering capacity...and allow the acidic water to drain into the pit lake....[A]ir will be convectively transported wherever water has been removed.... [O]xidation products will be rinsed into the lake...where pyrite exists...acidity generated could potentially be very high.

NDEP 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 [the two recent Nevada pit lakes] fail to predict water quality in those pit lakes, and what does that mean for the Mt. Hope pit lake[?]

The Mt. Hope Mine pit lake model estimates the volume of rock available to oxidize and then leach into to the lake as the product of the area exposed in the pit by mining and the assumed thickness of the "Damaged Rock Zone" (DRZ)...drawn from a study of measured fracturing in the blast face of a granite mine....[T]his assumed depth...is several times smaller than has been

measured in the wall rock of [other] open-pit metal mines....[T]he Mount Hope pit lake water quality model...*underestimated* [GBRW italics] the thickness of the enhanced-permeability wall rock [and] mass of wall rock available to leach solutes to the pit lake.

Division Response 16:

The Division agrees in large part with the above statement regarding the pit lake model and the calculation of wallrock available for solute leaching. The Division also understands that calculating the volume of oxidized wallrock available for leaching is quite difficult. The damaged rock zone (DRZ) calculation, as outlined in Siskind and Fumanti (1974), was performed in granite which is a different lithology than is present within the Mount Hope Project. This methodology provides an adequate starting point for modeling prior to pit development, but site specific data (when it becomes available) must be utilized to determine the volume of reactive wallrock at the Mount Hope Project. The Division will incorporate a Continuing investigation Item (Part I.N.3) related to the direct measurement of wallrock fracturing and oxygen transport at the Mount Hope Project.

The Continuing Investigation Item Part I.N.3 will read: "Within 180 days after the Permittee initiates a Project construction schedule, the Permittee shall submit a plan and schedule for the implementation of a study to directly measure wallrock fracturing and oxygen transport through the pit walls of the Mount Hope Pit. The collected information from this study will then be utilized to update the Pit Lake Study with more additional site specific data."

Additionally, the Division disagrees with GBRW's statement that gypsum has become supersaturated in both of the existing Nevada pit lakes described in the GBRW's submitted comments. Although many Nevada pit lakes are apparently saturated with respect to gypsum, one of the pit lakes described by GBRW is undersaturated with respect to gypsum, as was predicted by the most recent pit-lake study for the site. The Division suggests that GBRW utilize a geochemical equilibrium code to calculate saturation indices, as opposed to other types of calculations (e.g. spreadsheet methods).

GBRW Comment 17 (Analysis of Pit Lake Model Study):

The pit-lake water quality model...contains an error that...underestimate[s]...the calculated load of solutes released from sulfide-bearing wall rock and to the lake....[The model] does not consider the duration over which the wall rock is exposed to the atmosphere when calculating wall rock loads to the pit lake...it assumes that the concentration of solutes in leachate from sulfide-bearing wall rock is constant, regardless of how long the wall rock has been oxidizing since the previous flushing event.

[T]he description of how the pore-water accumulation effect into the lake water quality model contains three "red flags" that suggest...conceptual errors in the model design. From the description of how the pit-lake model developers attempted to incorporate the effect of higher solute release from PAG rock: "Weekly HCT [concentration] data were averaged (arithmetic) over the entire testing cycles, and were used to estimate runoff and flushing chemistry . . . This approach accounts for the higher concentrations associated with first flush (early time),

as well as the potential of high concentrations in the late time for some acid-generating material types."

- Red flag #1:The model prediction for the pit lake composition thus depends on the "first flush" composition measured in humidity cells. But in a sulfide-bearing rock, the first flush humidity cell composition is an entirely arbitrary parameter that depends on the duration that the sample happened to be stored, the conditions of storage before humidity cell testing began, and the water-to-rock ratio used in the humidity cell test. Thus, the model solute load depends on the arbitrary and unquantified storage history of samples prior to a laboratory test.

- Red flag #2: The model does not explicitly incorporate the duration that wall rock is exposed to the atmosphere and associated amount of sulfide that oxidized when it estimates solute leaching from wall rock. Instead, the model relies on this arbitrary "first flush" composition from a laboratory test to provide a quantitative estimate for the amount of acid solute that built up in rock in model simulation steps that ranged from 5 to 50 years in duration.

- Red flag #3: There is no indication that the model tracks mass balance of sulfide minerals in wall rock (e.g., the initial mass of sulfur in each wall rock zone before mining, and the mass lost during the model simulation).

The net effect of using an average concentration measured in 1-week duration laboratory humidity cell tests to estimate the solute release from multi-year exposure of wall rock to field oxidation has very probably introduced a systematic underestimate of pollutant loading to the Mt. Hope mine pit lake.

The Mount Hope Mine pit-lake model report does not provide a clear description of how much rock us [sic] included when calculating the water: rock ratio in the surface runoff.

Are the solute concentrations in runoff of meteoric water from each litho-chemical wall rock zone simply assumed to be equal to the average composition measured in humidity cell effluents from these materials? If so, then...this model approach ignores the effect of increasing solute released from sulfide-bearing wall rock in proportion to the duration over which it is exposed to the atmosphere.

Is runoff over wall rock assumed to also interact with the...Damaged Rock Zone (DRZ)? If so, the report should state this clearly. Without this information, there is no way to calculate a mass balance on sulfate and metals leached from the reactive sulfide-bearing wall rock.

The pit lake model needs to include a mass balance accounting for solutes leached from reactive wall rock to the mine pit lake. A mass balance would indicate...what fraction of the total sulfur and leachable metals in each section of sulfide-bearing wall rock zones (PAG and NAG wall-rock) is leached to the pit lake. This type of mass-balance tracking on pollution loading is a fundamental component in chemical modeling, and needs to be included in the Mt. Hope model.
Division Response 17:

Humidity Cell Tests (HCTs) are utilized to simulate and accelerate the chemical weathering rates of the main lithologies that will be encountered within the open pit. While not a perfect representation of field conditions, these tests are designed to target the oxidation of sulfide minerals through the introduction of saturated and dry air followed by leaching for chemical analysis of Profile I constituent release.

Pursuant with Continuing Investigation Part I.N.1 of the Permit, the Permittee is required to submit an updated groundwater flow model and pit lake study with each renewal and with any application to modify the Permit that could affect the pit lake predictive model. The Division determined in 2012 that the submitted models were adequate and that the next update of the models would incorporate information collected from required monitoring of the site and any other observed site conditions that could affect the model outcomes. For reasons beyond the purview of this Permit renewal, site development and associated site monitoring have not occurred during the 5-year effective period.

Future iterations of the Mount Hope Pit Lake Study will be required to incorporate many of the items discussed in GBRW Comment 17, with detailed explanations of assumptions and model inputs, so that the Division can ensure that the model can accurately (as possible) predict the future water quality of the Mount Hope Pit Lake.

Please refer to Division response 10, 11, and 16 regarding additional studies to further determine conditions at the site and further improve the accuracy of the Mount Hope Pit Lake Study.

GBRW Comment 18 (Pit Lake Closure Management Planning):

[C]losure management planning and associated financial bond to fund should, at a minimum:

- Enhance the pit-lake water quality model so that it includes more comprehensive analysis of true uncertainty and thereby better identify the reasonable range in possible future lake water quality;

- Incorporate these more realistic (and thus larger) ranges for water-quality prediction uncertainty into ecological risk assessments of future lake water quality;

- Update lake management plans and associated bond amounts so that they incorporate proven technical options to mitigate the effects of acute or chronic ecological toxicity that may form in the short-term (i.e., in the first 5 years after formation of the pit lake begins) as well as long-term (beyond 100-years).

- Include an adaptive management plan for perpetual care of the pit lake that includes evaluation of future options for long-term options that could eventually provide passive and perpetual "walk-away" remediation of the lake, such as slow but complete backfilling with benign waste rock.

Division Response 18:

The Division agrees with this comment. Once additional site specific data has been collected and associated studies updated, the Division will require appropriate bonding updates in the event that any mitigation measures are necessary.

GBRW Comment 19 (Pit Lake Water Quality):

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 FEIS states that..."There were little sampling data from some of the pit wall areas because of the relatively cylindrical nature of the orebody. This statement leaves GBRW to question how well PAG rock areas on the final pit surface are estimated....[A]pproximately 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. ... It appears as though the 30% "undefined" material pertains largely from material associated with the pit wall...historic samples were primarily [used] to determine the nature of the resource....The choice of extrapolating to the pit wall from the core the ore deposit is believed to be conservative [by EML], 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....[I]f 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.

Based on [water quality] data presented in...the FEIS it does seem as though groundwater entering the pit lake will be degraded, certainly for cadmium and possibly other constituents as well.

Division Response 19:

Please see Division responses 10, 11, 16, 17, and 18. In addition, the Permit requires comprehensive monitoring of any pit lake that forms. The required monitoring includes monthly water temperature, field pH, and specific conductance at the lake surface and at intermediate and bottom depths, and quarterly Profile I and Profile III analysis, lake surface elevation, maximum depth, and lake surface area. If acidic conditions or exceedances of Division reference values develop, additional analysis and mitigation will be required to protect human, terrestrial, and avian life as well as waters of the State.

GBRW Comment 20 (The Pit Lake will Violate Nevada Law):

The pit lake analysis presented in the WPCP application and the FEIS...does show that the pit lake will contain elevated constituents. The FEIS found that the initial pit lake water quality is predicted to meet Nevada water quality standards. However, as evaporation form the pit lake concentrates dissolves minerals, some water quality constituents [sic] concentrations are predicted to increase relative to baseline conditions and to exceed Nevada water quality standards.

A Screening-Level Ecological Risk Assessment (SLERA) was prepared using the results of the pit lake study for water quality. The Fact Sheet finds: "The SLERA results indicate the overall ecological risk to livestock and wildlife that might inhabit the site or could use the pit lake as a drinking water source is considered to be low. Given the low risks identified, mitigation of the Mount Hope Project pit lake does not appear to be necessary at the time."

The WPCP NEV2008106...allows a "low-risk" of ecological harm to livestock and wildlife as a result of drinking the pit lake water. Any risk...indicates a *potential* of adverse effects on terrestrial or avian life. The Fact Sheet, the SLERA, and the final EIS all conclude that terrestrial or avian life may be affected by the concentration of toxic materials or ecological risks presented in the pit lake. [Pursuant to] NAC 445A.429(3)...a mine operation "must not" create a pit lake that have the "potential to adversely the health of human, terrestrial, or avian life."

Despite...a risk of adverse effects to the health of terrestrial or avian life, NDEP had issued and plans to renew WPCP NEV2008106 with insufficient monitoring or mitigation measures to ensure that these effects do not occur. NDEP cannot permit EML to create an open pit mine that create and ecological risk.

Division Response 20:

The first step of the Ecological Risk Assessment course of action is to perform a Screening Level Ecological Risk Assessment (SLERA) where predicted pit lake chemistry is compared to Division Profile III Reference Values. The Division Profile III reference values have been determined to be the toxicity (or screening) benchmarks calculated for the No Observable Adverse Effects Level (NOAEL). If the predicted pit lake chemistry will exceed any of these screening levels, a further investigation into the pit lake conditions and future actions is required, as outlined in the Divisions Pit Lake Water Quality Characterization Program Guidance Document. Future actions may include one or more of the following: ERA; treatment; reduce or eliminate exposure pathway; or reduction or elimination of receptor access.

The Mount Hope Pit Lake Study predicted that cadmium and fluoride would exceed Profile III reference values. On page 27 of the Mount Hope Pit Lake SLERA (SRK 2010), it is stated that the study was performed utilizing the assumption that the livestock and wildlife in the area will obtain 100% of their drinking water from the Mount Hope Pit Lake for the entirety of their life. This is a conservative assumption and after exposure was adjusted to meet more realistic assumptions, as discussed on Page 28 of the SLERA, the results displayed a Hazard Quotient (HQ) calculation below 1. Therefore no adverse impacts are predicted and the Division has determined that at this time EML is not required to update the ERA.

As outlined in Continuing Investigation Item Part I.N.1, the Permittee is required to submit an updated groundwater flow model, pit lake study, and associated ERA with any application to modify the Permit that could affect the pit lake predictive model. In addition, these studies and assessments shall address all available data, alternative pit lake or backfill scenarios, and mitigations to reduce ecological risk and the potential to degrade groundwater, as applicable.

GBRW Comment 21:

The Fact Sheet states that groundwater inflow will be the primary source of water for the formation of the pit lake....As evaporation from the lake surface concentrates the dissolved minerals, some water quality constituent concentrations would be predicted to increase over time relative to baseline concentrations and to exceed the present Nevada water quality standards....NDEP is aware that drinking water quality groundwater will flow into the open pit, creating a pit lake....[G]roundwater will then become degraded because of evaporation...leaving the groundwater contaminants in higher concentrations. Additionally, pit wall material will influence the degradation of the pit lake....[D]egradation is prohibited by Nevada's Water Pollution Control Law. The issuance and renewal of the WPCP, which allows EML to create the pit lake, is illegal.

Division Response 21:

NAC 445A.2268 defines surface water as "all surface water open to the atmosphere and subject to surface runoff". Once groundwater enters into a terminal pit it no longer has the standards prescribed to it by groundwater because by definition it becomes a surface water. Since pit lakes are not developed for a specific use and have no beneficial use assigned to them by the NAC's, there are no surface water standards that apply to pit lakes except for those outlined in Part 4 and 7 of NAC 445A.121 and Part 3 (subsections A and B) of NAC 445A.429, which requires the protection of groundwaters of the State, along with human, terrestrial, and avian life. Therefore, NAC 445A.2268, 445A.121, and 445A.429 authorize the Division to issue a Permit for a Permittee to mine and subsequently create a terminal pit lake, as long as the pit lake water quality meets the standards assigned in NAC 445A.121 and 445A.429. Please see Division Response 20 for additional information on Ecological Risk Assessments and the results of the Mount Hope Project ERA.

In the event that the pit lake has a flow through component, then the Mount Hope Pit Lake water would be required to meet Division Profile I standards or determined background values, pursuant with NAC 445A.424.

GBRW Comment 22:

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

Division Response 22:

NAC 445A.429 Part 3 states that "bodies of water which are a result of mine pits penetrating the water table must not create an impoundment which has the potential to degrade groundwater's of the State." NAC 445A.424 discusses the limitations on degradation of water, and discusses that a facility shall not degrade waters of the State to the extent that the quality

is lowered below a state or federal regulation prescribing standard for drinking water (Division Profile I reference values) or established background water quality, whichever is higher. A pit lake can have a flow through component as long as it does not degrade groundwater in excess of Profile I reference values or established background water quality.

If the updated groundwater flow model is predicted to have an outflow component, the Mount Hope Pit Lake water will be required to meet Division Profile I standards or established background values, and if it does not, then treatment of the pit lake waters would be required.

GBRW Comment 23 (Conclusions):

GBRW considers the proposed Mt. Hope Mine a serious community and environmental risk to the region, and illegal under Nevada law. The amount of acid generating rock at the site is underestimated, which makes the waste rock management plan invalid at the outset. In addition, our analysis indicates considerable acidic discharge even if EML's waste rock characterization is correct. The time frame of the discharge is expected to be long-term with no end date for treatment, perpetuity treatment. It is critical that Nevada does not allow a mine to be permitted where this potential for perpetuity treatment exists.

Groundwater monitoring is also likely to be inadequate to intercept all possible drainage containing elevated levels contaminants.

The pit lake analysis presented in the WPCP application and the FEIS even taken at face value does show that the pit lake will contain elevated constituents. The FEIS found that the initial pit lake water quality is predicted to meet Nevada water quality standards. However, as evaporation form the pit lake concentrates dissolves minerals, some water quality constituents concentrations are predicted to increase relative to baseline conditions and to exceed Nevada water quality standards. Similarly, the Fact Sheet (p 26) states that "concentrations of antimony, cadmium, and manganese are predicted to be above Profile I reference values."

Assumptions contained in the pit lake development model are likely to be in error resulting and a significant underestimation of the constituent load in the pit lake. We have also pointed to evidence that supports a possible flow through characteristic in the earlier stages of pit lake filling, which would result in a violation of state law by degrading groundwater.

GBRW cannot at this time support WPCP NEV2008106. In our view the mine plan is poorly conceived and significant revisions will be needed to address the concerns raised here and avoid violations of Nevada state law.

Division Response 23:

Comment noted. Please see Division responses 1 through 22.