November 28, 2012

NOTICE OF DECISION

WATER POLLUTION CONTROL PERMIT
NUMBER NEV2008106

Eureka Moly, LLC
Mount Hope Project

The Nevada Division of Environmental Protection has decided to issue Water Pollution Control Permit NEV2008106 (Permit) to Eureka Moly, LLC. This Permit authorizes the construction, operation, and closure of approved mining facilities in Eureka County. The Division has been provided with sufficient information, in accordance with Nevada Administrative Code (NAC) 445A.350 through NAC 445A.447, to assure the Division 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 December 13, 2012. 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, December 8, 2012, on Form 3, with the State Environmental Commission, 901 South Stewart Street, Suite 4001, Carson City, Nevada 89701-5249. For more information, contact Tom Gray at (775) 687-9403 or visit the Division's Bureau of Mining Regulation website at www.ndep.nv.gov/bmrr/bmrr01.htm.

Written comments were received during the public comment period from Carolyn Bailey, rancher and farmer from Eureka, Nevada; Leonard J. Fiorenzi, of the Eureka County Board of Commissioners; and John Hadder, of Great Basin Resource Watch. Oral comments were received during an October 30, 2012 public hearing, held in Eureka, Nevada, from Jake Tibbitts, Natural Resources Manager for Eureka County; Dale Bugenig, also representing Eureka County; and Carolyn Bailey, of Eureka, Nevada. Jake Tibbitts also submitted a written version of his oral comments. The Division contracted with certified court reporter Shannon L. Taylor to produce a transcript of the hearing. The text of all comments, in some cases excerpted, and the Division responses (in *italics)* are attached to this Notice of Decision.

Carolyn Bailey, Written Comment:

I sent my comments, thirty-one pages, regarding the Mount Hope Mine Project to you by certified mail…. My comments are titled *DEIS Comments, Mount Hope Mine*…. I am requesting that my comments be included in any public comment period(s) regarding your permitting for Mount Hope Mine….

My name is Carolyn Bailey. I am a member of the Bailey family. This family has a rich legacy in ranching and agriculture in Eureka County with many generations of the family currently thriving in the area. The Bailey ranching business in Diamond Valley was established in 1863 and is listed as the sixth oldest Pioneer Company in Nevada by the *Nevada Business Journal* (Foley, 2003, pg. 16)…. We also own farming operations in Diamond Valley. We own the closest private property to the Mount Hope Mine project in two directions….

The Bailey Ranch should be considered a Sensitive Receptor and be included in the maps and studies used in the Environmental Impact Statement….

Division Response 1:

Although this comment was originally submitted in response to the federal Draft Environmental Impact Statement (DEIS), because it was resubmitted during the public comment period for the Permit, responses are provided to the portions that are applicable to the Division's Water Pollution Control (WPC) program. All potential downgradient receptors are considered important.

Idaho General Mines, Inc., General Moly, Inc., Eureka Moly, LLC, Kobeh Valley Ranches LLC and any other entities that are clearly connected to the Mt. Hope Project should be included in the maps and studies of the land that the mine owns or controls….

I believe that some of the major issues have not been studied where I live. This action on public and private land will significantly affect private land owners and residents in Diamond Valley and Eureka County. The surface water at both the Bailey Ranch and the Romano Ranch already have gone dry from over appropriation making any further dewatering or pumping a serious issue. With the decline of the water table and global warming issues, the trading of water, air quality, soil and forage for mineral wealth and urban populations may create a possible shortage of agriculture in the future….

On the Sadler/Brown Road is a ranch owned by Idaho General Mines, Inc. (Mount Hope Mine). The next ranch is owned by our family. Directly south of

Mount Hope Mine on Hwy 278, the first farm is owned by our family. Both properties are close enough to Mount Hope Mine to be affected by dust, drainage, smoke, traffic, noise, and the possibility of damage to our business from any drawdown, cone of depression, or any drop in the static level from the added use of water by the mine….

Division Response 2:

These issues are beyond the scope of the Permit.

My Figure 4 shows a Serious Drainage Issue. This is serious because it drains from the proposed Potentially Acid Generating Waste Rock Disposal Facility elevation of 7,550 feet (United States, 2011, p. 2-23) and the pit directly toward the farms and residents in Diamond Valley at 5,800 feet elevation (Eureka County, 2004).

Mt. Hope Potentially Acid Generating Waste Rock Disposal Facility is in a Flash Flood Area. Mt. Hope DEIS uses 24 hour 100 year event data for planning (United States, 2004). A 24 hour 100 year event is very different than a flash flood. The 100 year data is basically if the weather station at Eureka Airport collected data for 100 years, what their highest rainfall in a 24 hour period was (U.S.Geological, 2011). Then it is said that there is a 1% probability that there will be that much rain this year (a new highest rainfall amount could be added this year, or it can happen two years in a row). There are also 1 hour 100 year events, 100 year drought levels, 50 year, 500 year, 48 hour, and so forth (U.S.Geological, 2011). The USGS states that "during intensely localized storms, rainfall amounts throughout the basin can differ greatly from the rainfall amount measured at the location of the rain gage. Some parts of the basin may even remain dry... Another factor to consider is the relation between the duration of the storm and the size of the stream basin in which the storm occurs. For example, a 100-year storm of 30-minutes duration in a 1-square-mile basin will have a more significant effect on stream flow than the same storm in a 50-mile basin. (U.S. Geological, 2011, pg. 2)" [sic]

According to the National Weather Service, floods are the most common weather-related natural disasters and "flash floods are the most dangerous kinds of floods, because they combine the destructive power of a flood with incredible speed and unpredictability…. In the mountains, where terrain channels the flow of water, rocky, dry packed soil or bedrock keeps precipitation from percolating into the ground. Thunderstorm precipitation rates can be high as well over mountainous terrain, so that the combination can lead to flash floods with rainfall of only an inch or two. (National Weather, 2011, pg. 1)."

There have been flash floods observed in Garden Pass including events that have partially and totally washed out the Sadler Brown Road (Figure 4). One flash flood washed a pickup and horse trailer off of Highway 278 causing the owners to rescue the pinned horses (Parman-Dempsey, 2011). According to the National Weather Service, in order to monitor storms in Eureka, a beam is sent from Battle Mountain (personal communication, December 18, 2011). Mountains are in the path of the beam between Battle Mountain and Eureka. Consequently, the beam is sent at 6000' higher, to clear the mountains, creating a situation where only the strongest storms are visible (personal communication, December 18, 2011). Even with data considered sparse in the area, there were Flash Flood Warnings issued for Central Nevada on the following dates:

September 16th, 2011 at 1:56 pm
July 31st, 2011 at 5:01 pm
July 31st, 2011 at 4:48 pm
June 15th, 2009 at 7:01 pm
August 1st, 2007 at 5:22 pm
July 31st, 2007 at 2:30 pm (personal communication, December 18, 2011, and NOAA weather)….

A Flash Flood Warning "is issued when a hazardous weather or hydrologic event is occurring, imminent or has a very high probability of occurring (The City of [sic], 2012, pg. 1)." Some dirt work has been done at the mine that may disguise this fact, but the evidence is there on satellite photos and on the Sadler Brown Road. On one side where the road washes out, the ditches have been filled with dirt and reclaimed, thereby erasing the ditch. On the other side of the road, someone has tried to fill the ditch with a huge pile of used wire, a refrigerator, etc., to hold the road from washing out again.

The projected changes in climate (increases in temperature, reductions in soil moisture, and more intense rainfall events) could increase the possibility of these events. This data should be studied in reference to uncontrolled acid rock drainage, or other contaminants moving through the down gradient water system causing impacts to the waters of Diamond Valley and the State of Nevada.

Division Response 3:

Regulations (NAC 445A.433) stipulate 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. Mount Hope Project

designs, including but not restricted to those for the Potentially Acid Generating (PAG) Waste-Rock Disposal Facility (WRDF), go beyond the minimum requirement by having sufficient capacity to contain all accumulations from a 100-year, 24-hour storm event. According to the National Oceanic & Atmospheric Administration (NOAA) online Precipitation Frequency Atlas 14, with 90% confidence the estimated accumulation from a 100-year, 24-hour storm event at Mount Hope is between 2.6 and 3.4 inches. This is more than twice the estimated accumulation for a 100-year, 1-hour storm event (1.06 – 1.61 inches), or a 100-year, 2-hour storm event (1.22 – 1.74 inches) for the same area, both of which would likely cause flashfloods in the surrounding area. Therefore, based on regulatory requirements and precipitation estimates, the Division believes that the PAG WRDF is designed with sufficient capacity.

Acid Mine Drainage can occur from under the "low permeability base layer" of the PAG WRDF (United States, 2011). Acid Mine Drainage can occur from Flash Floods breaching the collection channels and collection ponds. Acid Mine Drainage could occur from a breach in the .06 inch liner under 966 million tons of tailings. Acid Mine Drainage can occur when the pond liners are cut at closing (United States, 2011, p. 2-85). Acid Mine Drainage can occur from a landslide, earthquake or pipeline rupture. Evapotranspiration cells for storm discharge may be difficult to install because of the volume of waste and the steep slope (United States, 2011, pg. 2-86). Leached constituents including remobilization of heavy metals into the soil and water supply would be very hard to mitigate.

Division Response 4:

As designed, any Acid Rock Drainage (ARD) generated on the PAG WRDF will remain on top of the one-foot thick engineered subgrade (permeability no greater than 1 x 10^{-5} cm/sec) and flow toward the nearest contained drainage where it will flow onto a 60-mil High Density Polyethylene (HDPE) liner. Once on the liner the ARD will be conveyed into an HDPE-lined collection channel and an HDPE-lined Stormwater Collection Pond. The Division believes that ARD seepage through the engineered subgrade of the PAG WRDF, or through the HDPE liners associated with the PAG WRDF and the South Tailings Storage Facility (South TSF), is unlikely, however, downgradient monitoring wells are present to monitor for groundwater quality impacts. If groundwater degradation is detected, or if ARD, or other hazardous substances, process solutions, or petroleum products, are released from a ruptured pipeline or other component, regardless of cause, the Permit and applicable regulations require submittal of a plan to clean up the contamination and minimize the impact to waters of the State, the public, any domestic animals, and wildlife. Although final permanent closure plans for the facility are not yet required and have not been finalized, the tentative closure plan

proposes to use existing operating ponds and the tailings impoundment itself instead of constructing new ponds for evapotranspiration cells.

In addition, page 3-595 of the DEIS states: “Post-mining pit lake is potentially predicted to exceed the calculated screening level toxicity criteria (United States, 2011, pg. 3-595)."

Millions of gallons of water will fill the pit where 2.7 billion tons of ore were removed. Throughflow that infiltrates the pit wall will move through and into the downgradient ground water system and gradually evolve as the readily soluble chemical mass and be rinsed out into Diamond Valley (United States, 2011, p. 3-221). Proponents of the mine may confuse pit lake toxins to be low because they are not intended for livestock or humans and there will be a permanent fence to barricade the pit forever (United States, 2011, p. 3-402, 3-425, 3-206, 3-219). This information provided in the DEIS contradicts what Mount Hope Mine tells the public. Eureka Moly touts "Satisfactory water quality in post-mining pit-lake. (Eureka Moly, 2011, pg. 1)"

There could be a huge economic burden if the mine company files bankruptcy or refuses to cover treatment costs. The Interstate Technology & Regulatory Council Mining Waste Team identified two general problems:

- Mining-impacted waters are difficult to treat cost-effectively to levels protective of human health and the environment.
- Solid mining waste is not a specifically regulated waste and involves huge volumes of material. The volume of material alone makes some of the techniques for minimizing the risk unreasonably costly. On the other hand, the exposure posed by direct and indirect ingestion of some of this waste is a major health and ecological concern. (ITRC, 2008, pg. iv)

I believe that by the time the Nevada Division of Environmental Protection could detect a health risk at a well in Diamond Valley, the situation would be irreversible and irretrievable. The BLM includes goals to manage any discharges from process components (United States, 2011, p. 1-9). This project puts human health and the environment at risk. *FIGURE 4 shows the drainage from Mount Hope Mine directly toward Diamond Valley residents. I believe Figure 4 showing the drainage from Mount Hope into Diamond Valley demonstrates Significant Criteria (p. 3-196) for significant impact.*

Division Response 5:

The pit lake is predicted to have concentrations of cadmium and fluoride in excess of beneficial use standards for livestock watering. However, the pit lake has no established beneficial uses and will have fencing to prevent livestock, and

humans, from accessing it. Pit lake modeling indicates that the pit lake will be a hydrologic sink, meaning that groundwater will flow toward the pit lake from all sides, thereby precluding the potential for groundwater degradation (beyond a narrow zone of diffusion) and preventing the flow of groundwater away from the pit lake. Groundwater monitoring wells on all sides of the pit will be monitored during and after mining operations to determine if this prediction is accurate. If problems arise, the operator will be required to address them in a manner that is protective of waters of the State and human, terrestrial, and avian life.

Water Quantity

The Bureau of Land Management as well as the Nevada Division of Water Resources has policies designed to protect water rights….

Division Response 6:

These issues are beyond the scope of the Permit.

Air Quality, Fugitive Dust, Roaster Flue Dust and Greenhouse Gasses

How much water would it take to wet 8,318 acres of disturbed Nevada surface so that it is not dusty during mine operation?…. I do not understand the use of tailings drain water as a means of dust control. Is it toxic? Will it dry and become airborne particulates to be deposited onto soil and vegetation surfaces?

….

How can Mount Hope tout the facility as "Designed as zero-discharge facility (United States, 2011, p. 2-66, DEIS and Eureka Moly, 2011, pg. 1)"? 600,000 tons per year is not zero. According to the DEIS there are no air quality standards for Hazardous Air Pollutants (United States, 2011, p. 3-293). This does not mean the same as zero pollutants….

Division Response 7:

Air quality is beyond the scope of the Permit. The Permit prohibits the release or discharge of contaminants from the fluid management system. This applies to process water, but is not applicable to dust or airborne emissions. The Permittee is not authorized to use process water from the South TSF for dust suppression outside of approved containment. The Permit currently authorizes the use of non-process water for dust suppression only if it meets all Profile I reference values (drinking water standards). Non-process water that exceeds Profile I

reference values may be used for dust suppression only if approved by the Division based on a demonstration of no potential to degrade waters of the State.

Soil and Vegetation …. **Visual Impacts, Noise, Traffic** …. **Culture, Economics, Employment and Environmental Injustice** ….

Division Response 8:

These issues are beyond the scope of the Permit.

Legacy Management: Yours, Mine or the Mine's?

Legacy is defined as:

- a gift that you arrange for someone to have after you die.
- something transmitted by or received from an ancestor or predecessor or from the past
- something such as a tradition or problem that exists as a result of something that happened in the past ….

"If we destroy the productivity of the land or have no one who knows how to nurture life from the land, there will be no future for humanity." (Ikerd, 2005, pg. 2) ….

"Mining may be essential to the economy of the United States, but historical mining practices and the absence of routine mine-land reclamation, remediation, and restoration have led to legacy sites with significant environmental and human health impacts. Typical remedial solutions are often lengthy, expensive, and unacceptable...communities continue to embrace economic prosperity along with dynamic environment(s). Although traditional mining practices and regulations have changed, new mining operations continue to have severe waste issues that must be addressed during and after the actual mining operation." (ITRC, 2008, pg. iii)

"Mining impacted water, occurring from mine drainage, can last for tens to hundreds of years. Undoubtedly, the potential liability for states on any of these properties is a major issue. (ITRC,2008, pg. iv)"

Perhaps the local, statewide, national, and global planners have a legacy plan for Nevada that includes the elimination of agriculture and ranching, the exhaustion of the mineral resources, the contamination of limited water resources, the use of Nevada as a receptacle for depositing mining and nuclear wastes and underground military bases. I am concerned that they believe the legacy of agricultural culture in Eureka County and Diamond Valley is expendable.

My father-in-law asked me to say one thing in my comments…. He said, "It is very simple. A glass of milk could be a luxury to those miner's grandchildren."

It is possible that in the future, people may invent ways to handle Acid Mine Drainage, Greenhouse Gasses and Particle Pollution. Mineral deposits are like money in the bank, they would be there later if proper techniques were invented to protect human health and resources.

Division Response 9:

Comment noted.

Who Inspects, Monitors or Punishes? Is there any actual Mitigation?

This process feels like a divide and conquer scenario. There seem to be numerous agencies all of which only accept responsibility for some part of the Mount Hope Mine Project. As the next door neighbor to the project, I feel baffled. It seems like some aspects of the project just have no actual standards for human health, for example: air quality or toxic waste storage facilities.

When I contacted the Nevada Division of Environmental Protection asking about releases, the answer was that:

"Current regulations do not allow for a mine to discharge contaminants that may degrade waters of the state for both surface and groundwater. The Bureau of Mining Regulation and Reclamation has the authority to issue water pollution control permits to mining operations that are able to provide the required scientific and engineering information to show that no discharge will occur to the environment." (personal communication, December 30, 2011)

Every year, mines are required to file Toxics Release Inventory reports. In an article titled *EPA: Nevada's toxic releases up 161 percent,* it states, "Toxic releases in Nevada were up in 2010 to 477 million pounds, a 161percent increase over the nearly 183 million released in 2009... Newmont's Phoenix site south of Battle Mountain released a little more than 208 million pounds. (Harding, 2012, pg. A1)"

How do these mines remain in compliance with the Division of Environmental Protection? That is not the same as "no discharge." What are the cumulative effects and were those mines shut down and the releases mitigated?

Division Response 10:

A thorough discussion of the federal Toxics Release Inventory (TRI) program is beyond the scope of the Permit and this Notice of Decision, however, mine waste rock and tailings may be reportable under the TRI program, but are not considered releases or discharges under Nevada regulations, provided that these materials are properly disposed of as approved by the Division.

When I tried to contact the Nevada Bureau of Health Protection Services about Mount Hope Mine's Radioactive Material License (p. 1-11, DEIS), the Bureau didn't seem to exist (how much radioactive material is going to be used at the mine, what is the half-life and where will it end up?).

Division Response 11:

The Division makes no attempt to represent the Nevada Department of Health and Human Services or any related regulations. Although Eureka Moly, LLC has not indicated to the Division any intention to use radioactive materials at the mine, the Permit requires that routine monitoring of ore, waste rock, tailings solids, process solution, and groundwater include analyses for uranium, radium (226 + 228), and gross alpha particles, to determine if there is any potential for degradation of waters of the State with respect to those constituents.

I think the theme of the DEIS is "The impact is not considered significant." Nearly every single study ended with that phrase. I honestly appreciate the effort put into the study and application process, but it feels like there will be "zero releases" "Designed as zero-discharge facility" (United States, 2011, p. 2-66, and Eureka Moly, 2011, pg. 1) and "The impact is not considered significant" really means that there are no releases nor are there any significant impacts to anything or anyone that is not considered expendable.

Environmental justice is about social transformation…. I believe this project does not use environmentally sound techniques, does not pass sustainability criteria, uses unfair subsidies….

If the Mount Hope mine Project goes forward with the plan represented in this Draft Environmental Impact Statement, ranchers, farmers, and the community of Eureka will be significantly affected. The Mount Hope Project Draft Environmental Impact Statement does not effectively represent where I live or those to the north, east, and south of the project. It does show some of the impacts, but does not show acceptable mitigation for those impacts.

Division Response 12:

Comment noted.

Leonard J. Fiorenzi, Written Comment:

We continue to support the Mt. Hope Project only if it is done right. It is important to us and our citizens that the permitting of this new facility, with a 44 year mine life and hundreds of years of impacts, meets all requirements, laws, regulations, and standards even as these are implemented, changed or modified over time in order to protect the resources and good health of Eureka County residents. It is especially important to us that that those requirements, protections, and potential water pollution impacts are understood by this Board and the public. We appreciate the efforts of NDEP to hold a public hearing regarding the Permit in Eureka so that County residents affected by the Project can more easily attend, ask questions and better understand how the Division intends to regulate and oversee the Mt. Hope Project.

However, we are concerned with the timing and date of the hearing. The hearing is scheduled to be held on October 30, 2012, the same day as the written comment. Further, the hearing is scheduled to begin one hour after the deadline for receipt of written comments. Individuals attend these hearings for clarification and to obtain a better understanding of concerns or issues that their neighbors and community leaders may have. From our experience, these public hearings often create additional comments that these concerned citizens wish to make but are uncomfortable providing or articulating verbally at the hearing. Some members of the public may learn new information at this hearing that could incite them to provide comment, but because of the timing, they will not be afforded the opportunity to provide written comment. We believe that the deadline for written comment must, at a minimum, be set for the Monday following the hearing, November 5, 2012. We respectfully request the adjustment of the written comment deadline as such.

Division Response 13:

The Division limited the time for public hearing comments to the hearing itself because it believes the written comment period plus the public hearing were sufficient for interested members of the public to provide comments, and because regulations prevent extension of a previously announced comment period without publishing a new Notice of Proposed Action, which would have resulted in further delays in the permitting process.

Specific Comments

1. Many of the facilities covered under the Permit are underlain by single or double liners of LDPE or LLDPE material depending on the risk associated with the fluids in these facilities. Obviously, proper installation of the synthetic and native material liners is the key to successful containment. Some facilities involve a single poly liner underlain by compacted low-permeability native material. A tear or seam failure of the liner in a pond with 10 feet of head (permissible in some instances for several days) will allow a flow of about 0.01 gallon per day per square foot or more than 450 gallons per day per acre to permeate the native material under layer with a design permeability of 1 x 10^{-7} cm/sec and some ponds are allowed to contain water for up to 20 days. Based on an investigation conducted by our consultant at a Nevada gold mine heap leach area, attaining a permeability of 1 x 10^{-7} cm/sec for native material can be very difficult, resulting in a significant release over a large area. The point of this discussion is, even under the best of circumstances, there is always a potential for a significant release and should be better disclosed and discussed.

Division Response 14:

The facility as designed meets regulatory requirements. The single-lined ponds are not designed or authorized to store process solution continuously. With the exception of the South TSF, components that are designed for continuous storage of process solution (Tailing Thickeners, South TSF Underdrain Collection Ponds, various tanks in the mill area, etc.) feature double containment with a system for minimizing the hydraulic head on the secondary containment structure (e.g., a leak detection system between double liners). The South TSF will be single lined, which in itself goes beyond minimum design requirements for tailing impoundments, but it will also feature a full basin drainage blanket above the liner, which will reduce the hydraulic head on the liner and significantly decrease the magnitude of any leakage that may occur. The Permit requires the Permittee to inspect all process components weekly and to make repairs as warranted. Releases of process solution, hazardous substances, and petroleum products must be reported to the Division and cleaned up with Division oversight. The Permit requires an array of 28 groundwater wells to monitor for groundwater degradation downgradient of all process components. Finally, the Division will review quarterly and annual WPC monitoring reports and will perform quarterly inspections of the facility to ensure compliance.

2. Page 2 of the Fact Sheet, General Description, states:

"Tailings from the mill will be pumped to a synthetic-lined tailings impoundment for storage. A second tailings impoundment may be

constructed if on-going exploration results warrant, but would require a future permit modification."

This statement seems to be inconsistent with BLM's analysis in the Mt. Hope Project EIS. The EIS indicates the north impoundment is needed for the project as currently scoped/designed, not dependent on the results of exploration. Granted, it is not needed until fairly late in the life of the project.

Division Response 15:

The Fact Sheet has been revised to state, "A second tailings impoundment may be constructed late in the mine life, but would require a major modification of the Permit and a new public notice and comment period."

3. The second paragraph of page 23 of the Fact Sheet very ephemerally describes the regional hydrogeologic framework. Unfortunately, consistent with every regulatory review of this aspect of the project to date, the NDEP Fact Sheet downplays the potential for groundwater flow between Kobeh Valley and Diamond Valley, stating

"Groundwater not discharged in Kobeh Valley could possibly flow eastward into Diamond Valley, through Devil's Gate, although an interbasin hydraulic link has not been proven."

However, the Fact Sheet alludes to the Diamond Valley Flow System and indicates that agricultural pumping in Diamond Valley may affect groundwater conditions in Kobeh Valley, which is recognition of inter-basin [sic] flow.

All available technical references about the Diamond Valley Flow System—from USGS, the State Engineer, and Eureka Moly themselves—have concluded, using the best available data, that there is a [sic] interbasin link between Kobeh and Diamond valleys.

The groundwater flow model prepared by the Eureka Moly's consultants and used for impacts analyses in the EIS, which was based on the best available data, calculates more than 1,000 acre-feet of the groundwater that originates as recharge within Kobeh Valley flows to Diamond Valley north of Whistler Peak through the bedrock separating the two hydrographic areas, an amount that is not trivial. Furthermore, in a recent technical memorandum regarding potential impacts on a spring in Kobeh Valley due to well test pumping, Eureka Moly postulated that agricultural pumping in Diamond Valley represents a plausible explanations for the failure for water levels in the well (well 206T) to recover after it was test pumped and for the continued decline

in water levels in this well and Nichols Spring in the carbonate-rock terrain in Kobeh Valley.

Please amend the description of the regional hydrogeology to disclose that the analysis by the mine's consultants using the best available data suggests significant inter-basin [sic] flow between Kobeh Valley and Diamond Valley through the mountain block north of Whistler Peak. This inter-basin [sic] flow is in addition to the generally accepted interbasin flow in the Devil's Gate area by USGS and the State Engineer in addition to others.

Division Response 16:

The Fact Sheet has been revised to state, "Groundwater not discharged in Kobeh Valley could possibly flow eastward into Diamond Valley, through Devil's Gate or north of Whistler Peak, although the amount of flow through the postulated interbasin hydraulic link has not been quantified."

4. The permit is issued for a 5-year period and must be renewed in 2017. One of the conditions of the permit renewal or modification that is laudable (Specific Facility Conditions and Limitations, B. Schedule and Compliance) is ". . . an updated pit lake [geochemical] model and Screening Level Ecological Risk Assessment that includes all data collected since the previous submittal and any new methods or alternatives, as applicable, based on current regulations and best engineering and scientific principles and practices."

Division Response 17:

Comment noted.

5. The depth to groundwater beneath the South TSF becomes fairly large as distance from the valley floor increases. Any fugitive water escaping the under liner may take a long time to reach the saturated zone monitored by wells. For this reason, suction lysimeters should be placed beneath the liner and near the upstream toe of the tailings dam to monitor the vadose zone to provide warning of a release before it shows up in the saturated zone.

Division Response 18:

Based on data provided by the Applicant, groundwater surrounding the proposed South TSF footprint is approximately 60-380 feet below ground surface (bgs), with 213-263 feet bgs being most typical. The Division believes this depth range is appropriate for the use of groundwater monitoring wells. When groundwater depths are not too great, the Division prefers groundwater monitoring over vadose zone monitoring for the following reasons: when water is absent it is

difficult to verify that a vadose zone lysimeter or piezometer is functioning properly; when water is present the installation can create preferential paths for infiltration and/or fluid migration; and even when functioning properly, vadose zone instruments cannot indicate whether groundwater is degraded or not.

6. The draft permit lists a number of existing wells to be used to monitor the groundwater (see the table in D. Monitoring Requirements, 10. Site Monitoring Wells). No information was provided in the Fact Sheet as to how these wells were selected for this purpose. It would be useful for NDEP to document and disclose the procedure they used to evaluate the reliability of the proposed groundwater monitoring well array to detect degradation of groundwater quality. This is a statistical problem that is dependent on the hydrogeology of the area underlying the project. If through this process an existing well proposed for use as a monitoring well is found to be unsuitable for reliably detecting contamination, the permit should require installation of a new well or wells. Perhaps the appropriate analysis was performed, but not addressed in the Fact Sheet.

Division Response 19:

The Division used the expertise of staff and information provided by the Applicant to approve monitoring well locations. Locations were selected to representatively document upgradient (background) and downgradient groundwater quality in close proximity to process components. The Division retains the authority to require replacement or installation of additional monitor wells at any time during the life of the project, if the existing monitoring wells are found to be insufficient. As stated in Division Response 20 below, seven additional monitoring wells were added to the Permit in response to public comments.

John Hadder, Written Comment:

Great Basin Resource Watch (GBRW) has reviewed the permit, fact sheet, and various background materials related to the Mt. Hope Project, and has a number of concerns regarding this permit. There are two aspects which stand out as part of the monitoring plan; the number of monitoring wells does not seem sufficient, and many of the proposed monitoring wells are not located along anticipated flow paths. Much of the hydrological analysis of the monitoring plan contained in these comments was extracted from a technical memorandum by Myers prepared for GBRW.[1]

Basis for Critique of Monitoring Plan

A basic concept underlying the preparation of a groundwater monitoring plan is that a conceptual model for contaminant flow from a potential source be

established. This means estimating the flow paths in the vicinity of the mine. The application includes maps which show pre-mine groundwater contours and one that shows general flow paths among the three nearby basins. There are no detailed flow paths prepared or presented for the area near the pit where the waste facilities will be although they can be discerned from the contour map. The conceptual model must also consider potential dispersion of contaminants along the flow path; this was not presented in the studies prepared for this application. At a mine for which dewatering may change the groundwater contours, the flow paths may change. Although the fact sheet notes the pit lake will be terminal, meaning that it will capture flow, it does not address the contaminants flowing toward the pit; the applicant does not apparently rely on this capture to avoid monitoring for contaminants. 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. This information would make the selection of monitoring well locations more efficient; it does not make sense to monitor an area that will be quickly drawndown so as to be dry or from which the contaminants will be drawn toward the pit or dewatering wells.

The general groundwater flow paths near the proposed mine is away from the mine toward the three nearby valleys because of the mine's location near the intersection of the topographic divides among the valleys; Figure 1 shows that the crest of the groundwater divide is just north of the pit and that the flow direction under the PAG waste rock dump and the low-grade-ore stockpile (east of the pit) is to the east. The groundwater crest lies just northeast of the proposed tailings impoundment, so the flow across the tailings impoundment is to the southwest (Figure 2). The following consideration of the monitoring well locations relies on flow paths as described here.

Non-PAG (not potentially acid generating) Waste Dump Monitoring

The draft permit specifies the monitoring wells associated with different mine components (section I.D (10).) The non-PAG waste rock dump encircles the pit to the west and south (Figure 1). The draft permit states that well GMI-PDT-2 is upgradient of the facility; Figure 1 shows that that this well is existing and that a flow arrow through the well would be toward the pit, not under the waste rock dump. Well IGM-154 is considered downgradient but lies west of the dump and the flow path through it both up- and downgradient would not go under the dump. Well IGM-157 is on the southeast corner of the dump at a point where a flowpath would extend under the dump. At best, well IGM-157 is the only one that based on its location is properly located to monitor flowpaths that could actually transport contaminants from the waste rock dump. Even if IGM-154 is on a proper flowpath (it is not), it is separated from IGM-157 by several miles; a huge contaminant plume could advect south and

southeast from the waste rock between the monitoring wells without being detected. 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.

LGO (low grade ore) Stockpile Monitoring

The LGO stockpile lies east of the pit. The draft permit specifies that monitoring well SCP-1, IGMI-232P, and IGMI-233P are downgradient monitoring wells. Figure 1 confirms that all three lie on flow paths which flow beneath the stockpile. However, the IGMI wells appear to be at the same point. Well logs show these are both deep wells screened far below the water table. IGMI 232-P is screened from 1018 to 998 feet below ground surface (bgs) in shale with static water level at 763 ft bgs while IGMI 233-P is screened from 568 to 548 feet bgs in tuft with static water level at 85 ft bgs. Neither report indicates where water was first encountered nor are there geophysical logs in the application with which to determine saturated levels. These wells are apparently monitoring fracture zones in the respective lithologies. There is no discussion of how the monitoring depth was chosen, but it is reasonable based on the fractures and the dip of the formations that monitoring at this depth is warranted. However, 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.

PAG Waste Dump Monitoring

Wells IGM-152, -226P, and -227P are all called downgradient monitoring wells for the PAG waste rock dump. 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 (Figure 1) and the groundwater contours show that a flowpath intersecting this well would not be underneath the PAG waste rock dump. The wells as shown on Figure 1 and specified in the draft permit will not monitor the PAG dump. Basically, this permit will allow the PAG waste rock to not be monitored. 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.

Wells IGM-226P and -227P lie east of the milling facility and the LGO stockpile, and are probably good wells for monitoring those facilities. The assemblage of up- and downgradient wells, including the two specified for the PAG dump, at the mill facilities are probably sufficient. They are well space laterally and vertically. However, well IGMI-MY-177P is not useful because

the screen is too long; it spans 110 to 270 feet bgs, which allows dilution to minimize the observed concentrations.

Tailings Impoundment Monitoring
The tailings impoundment would be south of the pit. It lies southwest of the groundwater divide, therefore the groundwater flow will be to the southwest under the facility (Figure 2). The draft permit indicates that four upgradient and two downgradient wells will be used to monitor this site.

Figure 2 shows clearly that well TM-B is cross-gradient from the facility, although the draft permit refers to it as one of the two downgradient wells. A flowpath through this well would pass just east of the easternmost portion of the facility, therefore this well is not useful for monitoring contaminants from the tailings impoundment. Wells TM-D, TM-A, and TSF-2 appear to be adequate upgradient monitoring wells, but well TM-C is also too far east; a flowpath through TM-C would miss the tailings impoundment by a quarter mile.

The draft permit therefore 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.

Table II:3-2 in Volume 2 of the applications shows the well depths for wells near the tailings impoundments are very deep, with four of five wells 1000 or more feet deep. According to the well logs, however, they are screened at much shallower depths, in the order of hundreds of feet. Assuming the description of drill holes near the site is accurate, with no groundwater encountered in the upper 100 feet, the screen depths for the monitoring wells is appropriate. The required new wells should have similar screen depths.

Division Response 20:

The Division concurs in large part with the foregoing comment, and has added a Schedule of Compliance item to the Permit 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): two on the south side of the South TSF, three on the west side of the South TSF, one downgradient of the PAG WRDF, and one downgradient of the Tailing Thickener Emergency Overflow Pond. This brings the total number of groundwater monitoring wells required in the Permit to 28.

General Monitoring Well Requirements

The 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. The pit will require dewatering which will lower the water table in the nearby vicinity. It may be possible to argue that the pit will capture any contaminants so that monitoring wells become unimportant near the pit. 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, otherwise the methods used for sampling the wells may not be consistent and may not meet industry standards. Part II.E does not provide sufficient detail. For example, what are the requirements for purging the well prior to drawing a sample? What about taking field blanks? If indeed there is a standard, the permit should at least reference it.

Division Response 21:

At this time it would be speculative to include a list of specific steps that should be taken in the event that a monitor 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." In addition, a Schedule of Compliance item (Part I.B) in the Permit requires the Permittee to update the pit lake model with each Permit renewal, and with any application for a Permit modification that could affect the pit lake predictive model. The Division has the authority to require additional monitoring if site conditions warrant. Rather than including more detailed sampling procedures directly in the Permit, such procedures are more appropriately included in the monitoring plan portion of the WPC operating plans. Part II.B.2.e of the Permit requires an updated version of the facility monitoring and sampling procedures and protocols (i.e., a revised monitoring plan) with each WPC annual report.

Summary of Monitoring Well Requirements

The permit apparently utilizes existing wells for monitoring as much as possible. However, as shown in this memorandum, several proposed monitoring wells do not lie on a flow path from near a potential source of contaminants; monitoring them would be wasteful. 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 waste rock dump. 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. The PAG waste rock dump has no monitoring wells at all, because two of the proposed wells are actually east of the LGO stockpile and the other is northwest of the facility and not on a flowpath beneath it. 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. 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 22:

Please refer to Division Response 20 above regarding additional monitoring wells.

Pit Lake Monitoring

The draft permit contains requirements for monitoring water in the pit lake, but is not clear about monitoring of groundwater around the pit lake. The periodic updates to the pit lake model should include any current groundwater data that pertains to inputs for the modeling process. It appears as though a few of the proposed monitoring wells, which are on the periphery of the pit may serve this purpose in part. In addition dewatering wells could also be used here; however, GBRW could not find the locations of those wells. 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. The analysis presented in the Mount Hope Environmental Impact Statement (FEIS) claims that at “all times during the simulated recovery period … , including a [sic] 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”

(FEIS, p 3-115)[2]. 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 (FEIS 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 (FEIS 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 is aware that the Bureau of Land Management disagrees with our suggestion of the potential for flow-though conditions; however, appropriate monitoring of groundwater surrounding the open pit should be part of the monitoring plan to assure that groundwater is not being degraded.

Division Response 23:

As noted above, a Schedule of Compliance item (Part I.B) in the Permit requires the Permittee to submit an updated pit lake model and Ecological Risk Assessment with each Permit renewal and any application for a Permit modification that could affect the 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 may be required by the Division.

Miscellaneous Comments

The diversion channels will pass adjacent to the west side of the PAG waste rock dump, as shown in Figure 3. The flow in the diversion channel will apparently contact the PAG rock in the PAG WRDF where it could seep and cause oxidation conditions along the southwest portion of the dump. NDEP should require that this channel be rerouted or a barrier installed to prevent a hydraulic connection between the channel and the PAG rock.

The fact sheet (p 6) indicates that a "3-foot wide, 3.5-foot high berm" will hydraulically separate the PAG waste rock dump and the LGO stockpile. The berm material should be specified, and it must have a low conductivity to maintain the hydraulic separation.

In summary GBRW does not see that the monitoring in the draft WPCP to be sufficient and is open to discussing possible modifications with NDEP staff and Eureka Moly, LLC.

Division Response 24:

The diversion channels around the PAG WRDF are designed to prevent upgradient water from contacting the waste rock in this facility. The Division has reviewed the design of the diversion channels and deemed them adequate to perform this function. Regarding the divider berm between the PAG WRDF and the LGO Stockpile, the Fact Sheet specifies that the berm is fully covered by the one-foot thick engineered low permeability subgrade. Therefore, the berm material and its hydraulic conductivity are of subsidiary importance, as the hydraulic separation between the two pads is provided by the overlying compacted subgrade.

Jake Tibbitts, Oral and Written Comment:

To expand on the question of Christine Smith and answered by NDEP; if the non-PAG WRDF is not expected by NDEP to have the potential to degrade the waters of the State, this proves inconsistent with the analyses of BLM in the EIS that discounted the partial backfill of the pit with the non-PAG material because of the potential to degrade groundwater. It cannot be both ways. If the non-PAG has the potential to degrade waters when placed in the pit, it must also have the potential to degrade waters when place [sic] adjacent to the pit as proposed. Please revise analysis and permit to ensure that containment structures and non-PAG placement (e.g., synthetic liner and diversion structures) are done in a manner to reduce or remove the potential to degrade waters.

Division Response 25:

The Permit application does not propose backfilling the open pit with waste rock of any character, so there is insufficient information to evaluate that scenario. However, data included in the application shows that the non-Potentially Acid Generating (non-PAG) waste rock has little potential to degrade waters of the State when placed on the proposed non-PAG WRDF. The Division does not concur that the same material in the two different scenarios would necessarily have the same potential to degrade waters of the State. The material may be fully immersed in groundwater in the pit, and exposed to more oxygen but separated from groundwater by a thick vadose zone in the non-PAG WRDF.

One very concerning aspect regarding the geology at Mt. Hope that we have is the lack of acid neutralizing capacity. We do not believe that the analysis is adequate to conclusively make the determination that there will not likely be acid generation, acid run-off, or acid drainage. From our review, we believe that acid generation is possible in the pit lake and has a higher likelihood in the PAG WRDF.

Without sufficient neutralizing ability, there is the potential for long-term water quality issues that must be addressed now to ensure enough financial funding is available and management options are contemplated to address this potentially perpetual problem. Our concerns with the potential acid generation are related to the geochemical modeling effort.

Division Response 26:

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. The pit lake model did not indicate a potential for low pH, but future data will help to constrain future versions of the pit lake model better. The Permittee will be required to mitigate acid conditions if they are predicted to arise in the pit lake.

We are concerned with how dissolved oxygen was handled in the model. To elaborate, the dissolved gas, carbon dioxide, was reasonably set fixed to sub-atmospheric equilibrium partial pressures. This was in contrast to dissolved oxygen, which instead of setting it fixed to a sub-atmospheric partial pressure, was tied to a fixed oxidation reduction potential (pe). This was done because setting the dissolved oxygen as an equilibrium phase resulted in extreme pe

values that are generally not reflective of natural systems. However, this modeling effort also resulted in dissolved oxygen concentrations that are generally 30 to 40 orders of magnitude less than would be predicted in a lake open to the atmosphere.

Division Response 27:

The following response was provided by the Applicant's pit lake modeling consultant from InterraLogic:

"The pE and dissolved oxygen content of the predicted pit lake were considered in multiple ways in the pit lake modeling. Left unchecked, the predicted pE is calculated at a level considered too high based on observations at other Nevada pit lakes. Therefore, the pE was adjusted down in the model to a reasonable value (4.5 V) so that excessive amounts of oxide and sulfate minerals did not precipitate. One way to adjust the pE is to allow oxygen to come out of solution (from a few mg/L to essentially zero mg/L (indicated as a very small value in the model results files)), by establishing the pE of the solution. So while dissolved oxygen was allowed to come out of solution, the overall lake redox potential was within a reasonable range. This resulted in a realistic and even slightly conservative estimation of mineral precipitation in that increasing the pE and/or oxygen levels would have resulted in additional metals mass being removed from the pit lake. The sensitivity to the results of the model was checked by varying the pE value between 2 and 10 V; it was verified that the model results were not sensitive to this parameter (compared to the other geochemical sensitivity evaluations), and were therefore not included in the modeling report."

Another potential modeling concern is that it was assumed that all of the ore (and reactive sulfides) would be removed during mining operations and that these ore materials would therefore not react with groundwater and surface water filling the lake. It is highly unlikely that all of the sulfides exposed during mining operations will indeed be removed.

Additionally, exposure of these sulfides to dissolved oxygen, at concentrations indicative of most surface waters, would result in additional acid generation, metal leaching, and reductions in the adsorption of trace elements onto precipitated solids.

Division Response 28:

The following response was provided by the Applicant's pit lake modeling consultant from InterraLogic:

"It was not assumed that all reactive sulfide material will be removed from the pit at the end of mining. …Figure 2.2 of the pit lake modeling report indicates the areas of the final pit wall that have been defined as potentially acid-generating material (PAG) based on the reactive sulfide material content. The water quality of runoff/submergence from these PAG areas is included in the pit lake modeling; furthermore, the model included oxidation of the wall rock within a rubble zone to account for increased surface area contact with these pit wall rock materials."

During the sensitivity analysis, this concern was partially addressed through the use of groundwater inflow indicative of water quality collected from a well installed within the mineralized zone of the ore body, which resulted insignificantly lower pH and generally higher metals concentrations. Although direct oxidation of sulfides was not considered, the use of this groundwater may provide an indication of direct ore interaction with the resulting pit lake, provided the groundwater system is at a similar redox state as that expected for surface water.

Division Response 29:

The following response was provided by the Applicant's pit lake modeling consultant from InterraLogic:

"Site-specific, mineralized zone groundwater quality data were used in the model. These data represented water chemistry that could potentially result from reaction with mineralized portions of the ore body. As noted above, oxidation of pit wall rock was considered separately in the model."

Additionally, we fully recognize that predicting the volume of such remaining sulfides is problematic, but some attempt to quantify the impact of any remaining acid generating material should be considered in the context of oxygenated waters.

Division Response 30:

As stated above, oxidation of wall rock, including sulfide material, was considered in the pit lake modeling.

In addition to the question raised above, the sensitivity analysis indicates that the predictive pit lake geochemical model is sensitive (some larger than others) to the scaling factor used, early and late stage leaching results, and the occurrence of mineralized water (from the ore body). Whatever the outcome of the model, it is our request that significant monitoring efforts be employed to assess the lake geochemistry, once mining operations have

ceased, and that funding be reserved for corrective actions that may be required.

Division Response 31:

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 II analysis, lake surface elevation, maximum depth, and lake surface area. If acid conditions occur, mitigation will be required to neutralize the pit lake.

Additionally, once mining operations begin, the dewatering chemistry should be tracked and the model revised, incorporating these "real" data, providing the mine, NDEP, and the people of Eureka County better foresight into how this system may look after mining operations have ceased.

Additional efforts into quantifying the impacts of the effects of realistic dissolved oxygen concentrations within the pit lake and how this may affect pit lake geochemistry and potential sulfide oxidation should be considered, or at least the assumptions employed explained further and in more detail. At this time it is unknown as to whether such efforts will or will not result in a significant departure from the conclusions presented and we request further evaluation and discussion.

Division Response 32:

Please refer to Division Response 23 above.

And I discussed earlier that I have multiple comments, and they have to do with the county. And I don't know if there is a time frame that you want to do that, but I just decided that I would just provide them all….

There is a water quality nexus to impacts of springs due to groundwater lowering tied to the Project. There are predicted decreases in riparian and wetland vegetation which are known to directly affect water quality, primarily silting, sedimentation, temperature, and pH.

Also, decreases in flows of springs are often correlated to degradation of water quality through constituent concentrations and increased temperatures. These must be included in the Permit.

Division Response 33:

Potential impacts to surface water quality resulting from groundwater drawdown are currently somewhat speculative. However, as dewatering commences, if this appears to represent a valid concern, the Division may consider requiring monitoring and possible mitigation, as warranted.

The draft Permit allows for usage of water that exceeds Profile I constituents for dust suppression. Given the very long mine life—44 years plus—and the large amounts of water that will be applied for dust suppression over this timeframe, many of the constituents in the water, including heavy metals, will accumulate and concentrate over time. A precipitation or road/surface watering event that causes run-off could result in degradation and water pollution.

Division Response 34:

Permit Part I.A.2 requires that all process fluids be contained within the fluid management system except for those resulting from a storm event that exceeds design requirements. This requirement precludes the use of process solution for dust suppression. Permit Part I.G.13 authorizes the use of water for dust suppression only if it does not exceed Profile I reference values (drinking water standards), or if the Division otherwise approves its use. Non-process water that exceeds Profile I reference values may be approved for dust suppression only if it is demonstrated that there is no potential to degrade waters of the State. In general, dust suppression activities are not allowed during precipitation events and run-off must be prevented.

Another question is the baseline water quality that they compared the project to. It is not clear to us who established this baseline. Was the data (indistinct) or by NDEP, or was it taken at face value?

Division Response 35:

The baseline water quality data was provided to the Division by the Applicant. Until mining and ore processing activities commence, the Permittee will continue to collect and report additional baseline water quality data to the Division, as part of the routine monitoring required by the Permit.

I think, this was discussed some. And we're not quite clear on the different modifications that may come to the permit. It was discussed as major modifications with a public process, but also there may [b]e some minor modifications. And we weren't clear if that would be done through a public process or something (indistinct).

Division Response 36:

Per regulation, a minor modification to an existing permit does not require a new public notice, but a major modification or renewal does.

There are many items in the draft Permit that are being "kicked down the road" for some later time. Examples include:

- Design specifications for PAG WRDF cover material
- Design specifications for North TSF
- Other modifications.

What type of public process is involved in these things to come? What are the criteria for determining if a modification is major or minor? We believe it is dangerous to have so many unknowns and items to be determined at some time in the future which may undermine the transparent public process by allowing only NDEP and the Permittee to work on the modifications.

Division Response 37:

The Division has not yet determined which type of Permit modification will be required to construct the large-scale drainage lysimeters for the cover test facility (Permit Schedule of Compliance item Part I.B.3), but it will likely be either an Engineering Design Change or a minor modification, neither of which requires public notice. Construction of the North TSF will require prior Division approval of an application for a major modification to the Permit including a detailed engineering design report and public notice.

There are examples in the State, and in the BLM District in which the Project lies, that have acid generation and/or drainage in many cases that was unexpected. Would the requirements of the draft Permit, if applied in these other circumstances, have been sufficient to prevent acid generation and drainage? If not, these lessons learned must be applied to ensure that the PAG WRDF and pit are managed in a way to be very risk averse and avoid the potential for acid generation and drainage.

Division Response 38:

This is a somewhat hypothetical question that does not lend itself to a definite answer. Knowledge gained from experience with previously permitted operations is used by the Division to improve the technical evaluation of proposed mining operations. However, each project has a unique mix of environmental concerns, which requires evaluation on a case by case basis. The Division retains the

authority to require additional operational, design, or monitoring changes to ensure the protection of waters of the State and human, avian, and terrestrial life.

> Under *Monitoring Requirements* (I.D) in the draft permit, many of the monitoring parameters are not accomplished frequent [sic] enough. For example, under *3. Foundation Drains,* which monitors many of the components that the County is concerned about (i.e., PAG), the flow measurements are to be taken weekly. When flow is encountered, there is a trigger to move to Profile II analysis on a quarterly basis. Flow from the foundation drains will be dependent on the amount of water in the system influenced primarily on precipitation events and amount of water present in the waste material being placed. This flow and associated water quality will fluctuate based on these influences. We request that the frequency for running Profile II be increased to match the monitoring frequency of weekly when flow is present.

Division Response 39:

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 believes 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.

> The Fact Sheet states that "Virtually all surface water flows are ephemeral and contain water only during storms of periods of intense snowmelt" (pp. 22-23). We disagree and argue that the springs and associated stream channels in the area are intermittent rather than ephemeral. This is evidenced by the fact that most of these springs have certificated water rights that could only have been certificated by proving a quantified flow exists and was placed to beneficial use.

Division Response 40:

Comment noted.

> Historical documentation including historical photographs of the area highlights that the pinion-juniper woodlands have greatly expanded and

infilled. Research has shown that this increase in woodland cover and density has a direct effect on the amount of water available for recharge to springs and streams (the research being done by UNR and ARS at the Smith Creek Ranch Porter Canyon watershed in Nevada has provided tremendous evidence of this—many springs that have never flowed for decades now flow perennial after trees were removed).

We believe that this is the major contributing factor to the springs being intermittent rather than perennial. With this in mind, the Permittee will be removing the pinion-juniper woodlands from a large portion of the site, especially around the area where the springs are present. NDEP needs to take into account that the amount of water available to the system, springs, and stream channels will be increased when these trees are removed and ensure that the engineering and capacity of drains, diversion structures, and holding ponds are sufficiently upsized to take this into account.

Division Response 41:

The foundation drains and stormwater collection channels associated with the non-PAG WRDF, the PAG WRDF, and the LGO Stockpile are designed to contain the 100-year, 24-hour storm event, which should be sufficient to manage any additional flow due to the removal of piñon and juniper trees.

One other comment, it talks about that the applicant can ask for adjustments in the different elements of monitoring after collecting four quarters of complete monitoring. They can't base that justification of cost.

And I'd like you to address -- does the mine complete monitoring so it's (indistinct) that means four quarters complete monitoring, the entire table for monitoring at different (indistinct). And then again, if there's adjustments in that, we request a public process to make sure that the public concerns are addressed if there are any changes (indistinct).

Division Response 42:

A reduction of monitoring requirements may be considered if requested by the Permittee in an application for a permit modification after collection of all required monitoring data for four consecutive quarters, and if the collected data indicate that the monitoring frequency, monitored parameters, or monitoring locations can be reduced without compromising the ability to monitor potential sources and waters of the State. Each request will be evaluated on a case by case basis. Such requests are typically considered either Engineering Design Changes, or minor modifications of the Permit, neither of which requires a public notice.

Additionally, under *9. Mined Materials*, the frequency is monthly for any quarter generated. Keep in mind that the mill is designed to accommodate 80,000 tpd of ore. There will be a tremendous amount of waste material and tailings slurry being placed in the various facilities on a daily basis only being tested monthly.

Division Response 43:

The monthly samples of mined materials are used to check the Permittee's predictions against the actual material generated, and to allow additional testing if warranted. They are intended to be representative composite samples for the period generated, but clearly they will represent more of an average composition rather than indicating the full range of included compositions. Much more frequent sampling will be performed to segregate PAG waste rock from non-PAG waste rock for placement on the two WRDFs. Extensive waste rock characterization was also included in the Permit application. Therefore, the Division believes that the monthly analyses of the LGO, Coarse Ore Stockpile, PAG waste rock, non-PAG waste rock, tailing cyclone underflow, and tailing cyclone overflow materials (six samples per month) will be adequate. This is consistent with other permitted mines in Nevada.

Further, when static testing of these materials provides results of potential acid generation then there are 10 days allowed to move forward with kinetic testing which will run a minimum of 20 weeks. If the results of the kinetic testing show acid generation, then there are 30 days allowed to come up with "methods proposed for providing containment of these materials." This does not even take into account any timeframe with implementation of the methods. This process allows for over 6 months going by without addressing the acid generation containment. We request that the process be streamlined and tightened up to allow for quicker response and management options if acid generation begins to result.

Division Response 44:

Although the required tests can take several weeks or months, they are considered to provide the best indication of the potential character of solutions generated by meteoric water contacting the mined materials. The tests are designed to simulate exposure of the material to the environment, and the geochemical changes that take place under such conditions are long-term processes. Unless and until faster tests are developed that provide comparable utility, the Division will continue to require these tests.

Dale Bugenig, Oral Comment:

Okay. And then this slide, through your presentation, you said that the wells are primarily downgradient wells. But I only see one large well that will be downgradient to the south….

Yeah, it's not -- I wouldn't say that that's downgradient completely. So you think one large well downgradient of a 3.75-square-mile tailings impoundment is -- is adequate to protect a release that gets past your leak collection system?

Division Response 45:

See Division Response 20 regarding additional downgradient monitoring wells for the South TSF.

The Division has considered the flow paths, locations of facilities, and timing of facilities' development over the projected duration of this project. Based on this i…I work for Eureka County. And I'd like to go back to monitoring, groundwater monitoring program for a minute, and particularly how -- curious as to how the monitoring wells were selected.

Now, the Mount Hope Project is in the mountains. It's in fractured rock terrain. Hydrology in fractured rock terrain is, to say the least, a little more complicated than an alluvial situation, where things like and (indistinct) and fracture densities and orientations and stuff have a huge impact of the actual groundwater flow direction, which may be dramatically different than the hydro gradient.

So that it's extremely important that the locations of monitoring wells be very, very carefully selected, so that you can have a little bit of confidence that that well could actually detect a release from a particular area of the project. And if you detect something, you can figure out where in this 9,000-acre area the release might be occurring.

And I would like to see the documentation that supports the decision to use these existing monitoring wells report in lieu of new wells that did, in fact -- their analysis shows that a well has the location or is located so that it has a reasonable chance of detecting a release that's occurring. But I think that it has to be very carefully looked at.

I know, in other jurisdictions where the level of analysis is, quite frankly, a level that is almost overwhelming, because it can be -- the complexity of

these fractured rock terrain makes it very difficult to be able to understand whether that well is in the right location or not.

Division Response 46:

The Division has considered the flow paths, locations of facilities, and timing of facilities' development over the projected duration of this project. Based on this information, and in response to public comments (see Division Response 20 above), seven additional monitoring wells were added to the Permit to provide more comprehensive monitoring of the uppermost reliable zone of saturation downgradient of major facility components. The resultant 28 monitoring wells identified in the Permit provide a reasonable approach to developing information on hydrological details, baseline water quality, and water quality downgradient of planned facilities. The Division may require installation of additional monitoring wells as information is gathered on this project and conditions change.

The other thing, I think -- and I appreciate Mr. Gray's presentation. I thought he did a really good job.

I think, one of the things that gets lost here is that the groundwater flow model that was done on behalf of the mine show generally the area south of the Mount Hope Project upwards of 1200 acre-feet of groundwater flow from Kobeh Valley through the bedrock in the east despite the presence of groundwater divide. There is calculated to be a fairly significant groundwater flow component, so that your monitoring network really needs to take that into account.

And I realize it's no easy task to identify wells that would be useful. But I think you need to recognize that relatively significant intervasive [sic] flow through that generally (indistinct) the south end of their site.

Division Response 47:

The Division recognizes the uncertainty and differences of opinion regarding interbasin flow through the Whistler Range between Kobeh and Diamond Valleys. However, the South TSF is located on the west flank of the Whistler Range in an area where the groundwater gradient is toward the southwest. With the five additional monitoring wells added to the Permit in that area (see Division Response 20 above), the South TSF will now have adequate monitoring wells both upgradient and downgradient to verify that the South TSF and associated ponds and piping have not degraded groundwater. Aside from this primary focus, the question of whether the groundwater flowpaths further southwest of the South TSF eventually curve around to the east toward Diamond Valley or not is largely outside of the scope of the Permit.

Carolyn Bailey, Oral Comment:

Hi. I'm Carolyn Bailey. And I'm a rancher and farmer. And we have the private property that is closest to this project in two directions, to down (indistinct) and also to the south.

I want to thank Bruce Holmgren and Tom Gray for accepting the comments that I sent them already, 30 some pages. I hope you guys read my comments.

And the other thing I want to do is talk about the video that I posted on YouTube, which is of flash flooding that happened on August -- I think, it was August 12th, 2012, coming from Mount Hope mine. And I would invite anyone that's interested to go onto YouTube, and the videos are called "Flash flooding, Garden Pass, Mount Hope" or "Flash floods in Garden Pass," comma, "Mount Hope," then parenthesis, number one, two, three, four and five. And they are graphic video of flash floodwaters coming down Garden Pass in the Mount Hope area into that valley.

So if you haven't seen those videos, I would like you to look at them. And I believe that that needs to be addressed.

As far as in my comments, I point out that I think there's a big difference between a flash flood and a 24-hour, 100-year storm event, which I go into some detail in my comments.

Division Response 48:

Please refer to Division Response 3 above.