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Re: Comments on the Draft Environmental Impact Report (DEIR) for the Idaho-Maryland Mine Project (Project, Mine)

Note documents cited and submitted under separate cover:

- Baseline Environmental Consultant Report, Feb 15, 2022 (Baseline).
- Salter Report, March 9, 2022 (Salter).
- Comments on the Draft EIR for the Idaho-Maryland Mine Project - 16Mar22, Center for Science in Public Participation (CSP2).

Our review of the DEIR has identified significant issues regarding the adequacy, completeness, and conclusions of the report.

Aesthetics

Images of the facilities presented in the DEIR are not a fair representation of the actual visual character of the project; consequently, the DEIR understates the Project's visual impacts. The perspectives reduce the perceived size of the structures, and the viewpoints are often restrictive in terms of providing a full view. To provide an accurate representation of the project, the revised DEIR must provide better viewpoints that preserve a 1:1 accuracy with the true width to height ratios of the structures.

The use of an "erosion control seed mix" for reclamation of the mine waste piles will create the image of a dead zone, especially during the dry seasons. Native vegetation including deciduous and evergreen bushes and trees should be required as a mitigation to reduce the stark contrast between the disturbed site and the normal (current) vegetation.

Air Quality

The DEIR provides no evidence that the project's long-term NOx, ROG, and PM10 emissions will be mitigated to a less-than-significant level.

The DEIR fails to adequately mitigate the Project's air quality impacts. It relies on a bare minimum of mitigation measures recommended by the Northern Sierra Air Quality Management District (NSAQMD) to address air quality impacts, and these measures only address emissions during a one year period of construction. As we explain below, construction will certainly last longer than one year. In addition, the mitigation measures do not address the long-term emissions that will result from 80-years of mining operations associated with the Project. As a result, there is no evidence that the Project's long term emissions have been mitigated to a less-than-significant level, as concluded by Baseline Engineering Consultants (Baseline).

The revised DEIR must identify feasible and effective mitigation measures that address emissions from 80-years of mining to ensure that emissions are kept at less-than-significant levels. Otherwise, the EIR must identify these long term impacts as significant and unavoidable.

Mine exhaust moisture creates potential air quality, hazard, and aesthetics impacts.

The DEIR provides no information about the potential obstruction of the airspace surrounding the airport. (See also, "MineExhaustMoisture, attached as a reference to this letter). The Loma Rica Drive Industrial Area Plan states:

"Any proposed object or structure which would penetrate any imaginary surface is considered by the FAA to be an obstruction to air navigation and requires an FAA aeronautical study to determine whether a potential obstruction will have a substantial adverse effect upon the safe and efficient use of navigable airspace by aircraft." (Loma Rica Drive Industrial Area Plan, May 27, 2008, p38-39)

Although the DEIR does not disclose it, the mine ventilation system would discharge 200,000 cfm of saturated air at 68F degrees from the top of the headframe with an upward velocity of 7.7ft/sec. (DEIR Appendix E.1_AQ-GHG Report (p371 of 1938)) The headframe is located within the Loma Rica Airport Safety Zone 5. Under some weather conditions, the large volume of air exhaust may form a persistent cloud plume or fog. In addition, the large mass of air moving upwards may create turbulence, also a potential hazard. These are potentially significant and unavoidable impacts..

This plume and associated fog as well as the tall headframe will also result in potentially significant visual impacts in this rural area where this type of view is not expected.

The revised DEIR must evaluate the following relative to the headframe and moisture emissions:

- When will these conditions be present and to what extent?
- What are the aesthetic and aircraft hazard impacts?

Air Quality

Management of safeguard controls for asbestos is inadequate.

(See “ASUR Plan Analysis.pdf”, attached as a reference to this letter. Portions of that document are summarized here.)

The plan described in the DEIR for managing asbestos-laden mined materials is inadequate. Asbestos is likely to be released during underground blasting, crushing, and ore processing. It also is released during material handling, on-road transport, placement grading and compaction. The DEIR states that the Asbestos Management Plan would ensure that average mined material and engineered fill contains less than 0.01% asbestos. (DEIR 3-20) Testing the asbestos content, however, does not control the amount of asbestos in the actual material mined. To control the average amount of asbestos in output materials (and to avoid significant impacts related to asbestos exposure), the DEIR must ensure that asbestos levels do not exceed this threshold. Currently, the DEIR does not include any evidence that asbestos levels will not exceed this threshold.

The testing process may require up to two weeks before the results are known, yet the Project calls for daily mining activity to continue during this time. This daily mined material would have to be stockpiled while awaiting the test results, which could expose workers to dangerous levels of asbestos. The DEIR does not disclose this fact nor does it analyze the associated impacts.

In addition, if the running average of asbestos in the daily mined material exceeds the required threshold, batches containing higher asbestos levels would have to be stockpiled in order to be later paired up with batches having lower asbestos levels. The DEIR does not disclose this fact nor does it analyze the associated impacts or recommend mitigation measures.

The mineral processing described in the DEIR does not address the need for stockpiling materials or address the likely impacts of such efforts. The Asbestos Management Plan provided in the revised DEIR must detail all of the steps necessary to carry out the correct management of this hazardous waste, including the location and organization of stockpiled materials, and adequate safeguards to avoid fugitive dust emissions and potentially hazardous conditions.

These deficiencies point to potentially significant and unavoidable impacts and must be analyzed in the DEIR.

The management of fugitive dust after it leaves the mining facilities is inadequate.

In 1986, asbestos was identified by the California Air Resources Board (CARB) as a TAC. CARB also determined that there is not enough scientific evidence to identify an asbestos threshold level below which no significant adverse health effects are anticipated (17 CCR 93000,Implementation Guidance Document 2017, CARB pg 1) (See Health Risk Assessment Critique (HRA Critique), attached as a reference to this document.)

As a TAC, asbestos, as well as respirable crystalline silica, fall under the non-criteria air pollutant category because they lack an identified safe “threshold level below which no significant adverse health effects are anticipated.” There are no established limits for monitoring emissions of non-criteria

air pollutants, silica and asbestos, into the ambient environment. The Health Risk Assessment is based on 30 years of exposure, so the cumulative effects from 80 years have not been addressed. Both silica and asbestos are inert substances not subject to environmental degradation that will have potential impacts beyond the 80-year project permit (HRA Critique).

The revised DEIR should establish asbestos mitigation protocols and robust monitoring systems of waste rock during transport and disposal to ensure the protection of workers and the public from the adverse health effects associated with the TACs, asbestos, and respirable crystalline silica. Without identifying clear and achievable mitigation measures, the DEIR must identify this as a significant and unavoidable impact.

The DEIR Health Risk Assessment used invalid meteorological data to determine emissions and should be redone.

Toxic Air Contaminants (TAC) are toxins which may cause or contribute to an increase in death or serious illness from cancer and other acute or long-term diseases. TACs may cause health damage even at extremely low levels, and are found in, among other items, vehicles, off-road equipment, blasting emissions, and fugitive dust sources. (HRA Critique)

TAC ingredients include particulate matter from diesel emissions, asbestos dust, silica dust, heavy metals, ammonium nitrate fuel oil, hexavalent chromium, and radon – all of which will be produced by mining activity, and which can become airborne, traveling on wind currents toward population centers around Nevada County.

Many establishments are located within a two mile radius of the mine including the hospital, assisted living facilities, health centers, physicians' offices, non-profit organizations, business parks, county offices, shopping centers, apartment complexes, and hundreds of private residences. TAC releases from the mine have the potential to adversely impact these receptors.

In Nevada County, the mortality rate from Chronic Lung Disease is already – without the added toxic emissions from the mine – double the statewide rate. Nevada County also has higher-than-state-average levels of air pollutants, ozone and particulate matter, radon, chronic disease, an aging population, and poverty. Given the extent of health risk to so many and so wide a range of people, the DEIR's health risk assessment is completely inadequate.

The HRA relies on questionable assumptions. The model relies on meteorologic input data, with the quality, quantity, speed, and direction of travel of the air toxins dependent on these meteorological factors. Yet the meteorological data input used by Rise comes from a Blue Canyon site - not from a Grass Valley site - an area with a significantly different meteorological profile than that of Grass Valley.

Blue Canyon, located on Highway 80, bears little meteorologic resemblance to Grass Valley: it notably deviates from Grass Valley in elevation, temperature, rainfall, snowfall, wind speed, and wind

direction. Using Blue Canyon's meteorologic data will not correlate with Grass Valley meteorologic data under any circumstance, making any TAC statistic invalid.

Therefore, the DEIR's Health Risk Assessment must be revised using valid meteorological data, in order to accurately assess the potential health impacts of the mine's toxic air. Once the HRA is revised, the DEIR must also be revised and recirculated for public review and comment.

Radon levels need adequate assessment.

The DEIR does not disclose the background radon level of all homes and properties near the project. The DEIR also does not disclose the effect that dewatering or mining operations including blasting will have on radon levels. Nor does it describe the effect that mining operations will have on radon levels.

It also does not explain whether blasting operations will increase radon and, if so, the environmental impacts of increased radon levels. The revised DEIR must provide a comprehensive analysis of radon-related impacts.

Biological Resources

Proposed mine dewatering activities have the potential to have asignificant impact on dependent biological resources.

The DEIR fails to adequately address biological and aquatic resources, and hydrological impacts to those resources.

The DEIR's biological surveys exclude an entire reach of South Fork Wolf Creek (SFWC). Species of special concern are inadequately considered and qualitative data for benthic macro-invertebrates (BMI) is missing. (Wolf Creek Community Alliance (WCCA), Benthic Macroinvertebrate Analysis, 2007)

Aquatic resources are excluded through an inaccurate hydrological assessment of the full length of SFWC, ignoring the connectivity of the creek upstream and downstream of the culvert on the Mine property, thus failing to consider the movement of trout and other aquatic species.

Hydrological impacts due to mine dewatering into SFWC are inadequately studied, mischaracterized, or not considered. The initial dewatering rate of 2500 gallons per minute (gpm) would be followed by 80 years of subsequent operational dewatering at 850 gpm and as much as 2500 gpm. The DEIR fails to adequately consider this long-term higher rate of discharge. Nor does the DEIR consider the seasonality of stream flow, loss of streambed or streambank habitat, changes in temperature, differences in Specific Conductance (EC), and habitat for BMI. Drawdown of the water table due to dewatering is also underestimated and its impacts to meadow, wetland, and forest habitats are not considered. Further, the DEIR fails to consider chronic and cumulative impacts to BMI, trout, and other aquatic species, including special concern amphibians. (WCCA)

Overall, because the DEIR does not adequately address biological and aquatic resources or sufficiently analyze hydrological impacts, this document must be revised.

Centennial Site - Biology

Removal of flora, fauna, topsoil, wetlands and overburden down to bedrock to prepare the Centennial site for mine waste dumping represents a significant impact.

The Project calls for the removal of flora, fauna, topsoil, wetlands and overburden down to bedrock to prepare the Centennial site for mine waste dumping. The DEIR fails to adequately address impacts to these resources. It must be revised to provide this analysis.

Baseline vegetation conditions are unknown.

The DEIR is required to identify all special status species within 5 mi of the site. Note that the 5 mile radius map on Appendix F.3, page 33, is located in the wrong spot, approximately ½ mile from the site. The 5 mile zone must be corrected to include the correct area, and any additional species within that area must be identified.

The Draft RAP is still under review by the Department of Toxic Substances Control (DTSC) and thus the baseline conditions for the evaluation of biological and other impacts are based upon speculation. For example, the following statements are provided:

- Biological, vegetation communities: "...because it cannot be precisely established for the baseline condition given that the baseline has been adjusted to account for the separate remediation efforts that will be conducted..." (DEIR 4.4-3).
- Biological, aquatic resources: "...the exact acreages of each aquatic resource type cannot be precisely established for the baseline condition given that the baseline has been adjusted to account for the planned remediation efforts that will be..." (DEIR 4.4-10).

Approval of the Draft RAP by DTSC is uncertain. Consequently, the revised DEIR must use a baseline of "existing conditions."

Wetlands will be unnecessarily destroyed.

The Centennial RAP remediation requires placement of four feet of topsoil as cover material over the treated areas. The areas will then be revegetated. This is a temporary fix. Later, the topsoil will be removed and engineered fill from the mine operations will be placed on this area, forming the new mining operation's tailings pile.

As stated in the RAP draft, the topsoil for the RAP remediation will be coming from onsite "borrow" areas, and to obtain it, wetlands will be destroyed, a significant impact. However, the destruction of the wetlands could be substantially reduced by not removing the soil from those "borrow" areas. This is a feasible mitigation which must be discussed in the revised DEIR.

In addition, the DEIR fails to identify where the cover soil will be placed after the remediation is completed in order to begin placement of mine waste from the Project operations.

- Will it be stored on site? Where?
- Will it be hauled off site? Where?

The revised DEIR must disclose this information and must analyze the associated direct and indirect environmental impacts.

Pine Hill flannelbush is not adequately protected.

The planned work to physically close the South Idaho Shaft and Tunnels on the Centennial site and the DEIR does not adequately document its phasing. This work is planned to take place before mine waste is dumped on the Centennial site and could conceivably be implemented prior to the DTSC Cleanup on that site. The DEIR fails to map the location of the shaft, tunnels, and all related work on the shaft as it relates to the Pine Hill flannelbush. The revised DEIR must analyze impacts to Pine Hill flannelbush caused by this phase of construction. Given the possibility that South Idaho work could proceed independently, and that the DTSC work could conceivably take place in conjunction with that work or be impacted by that work, the revised DEIR must include a clear work phasing plan to guarantee adequate protection of the flannelbush.

Within the DEIR's "Appendix F.3_The Centennial Impact Tech Memo" and Appendix F.4_Centennial HMP Pine Hill flannelbush.pdf", and others, the phrase "should be avoided" is used repeatedly as a guidance for protecting biological resources. The word "should" is unenforceable. It must be corrected to "shall" or "must".

The DEIR's Habitat Management Plan for Pine Hill flannelbush proposes to remove 18 plants. It also indicates that four plants are located within 30 feet of the edge of the engineered fill and could be impacted. The DEIR does not disclose why these 18 plants must be removed. The DEIR's mitigation should be revised to eliminate the need to remove these plants.

The DEIR must also include information on the relocated re-establishment time required for transplanted plants, and site activity phasing must be provided to ensure that the re-establishment time is included.

Impacts to the Pine Hill flannelbush as the DEIR is currently written are significant and unavoidable. The DEIR must be revised to evaluate these impacts and provide feasible and effective mitigation.

Centennial Site

The DEIR does not adequately define the Mine Project to include the Centennial site and accordingly, fails to identify all potential impacts.

The DEIR fails to adequately address impacts associated with the Centennial Industrial Site (Centennial). This site is the location of hazardous waste left over from past Idaho Maryland Mine operations. The DEIR assumes that the Centennial site will be cleaned up before the use of the site for

deposition of new mine waste. Yet the significant work which is needed to accomplish this clean-up is not disclosed nor evaluated in the DEIR. Rather, the DEIR assumes that the clean-up has already been accomplished, and uses the post clean-up conditions as the baseline for some of its environmental impact assessments.

The DEIR does not describe the current physical conditions of the Centennial site or include the necessary clean up of the existing contamination at that site as part of the Project because it assumes that Centennial will be cleaned up prior to the start of construction. As discussed above, the clean up for Centennial has not been approved by DTSC and it is unclear when DTSC might approve the clean up. Consequently, it cannot be excluded from this DEIR. As a result, any assumptions about baseline conditions for purposes of assessing impacts to the Mine Project are speculative at best, and at worst, significantly underestimate the actual impacts of the Project.

The current conditions of the Centennial site must be used as the DEIR baseline in order to meet the CEQA requirements for a full analysis of the impacts of the Mine Project. Moreover, the Centennial clean up should be included as part of the Project to address the whole of the action under CEQA. In order to accurately assess impacts, the existing conditions, or baseline, of the Project must be the current state of the Centennial site, not a speculative future condition.

The DEIR states that Rise intends to complete the site cleanup independently of the mine, but no final plans have been provided. Currently a Draft Remedial Action Plan (RAP) for the cleanup of the Centennial Site is being reviewed by the DTSC.

The assertion that Rise intends to complete the cleanup regardless of the status of the mine project is not credible. This statement was made to avoid addressing the impacts of the cleanup within the DEIR. It is clear that the RAP and the IMM Project are integrally related:

- The Draft RAP states that the site is being prepared for mine waste.
- The Draft RAP calls for preparing the site for mine waste, including removal of vegetation, removal of soil down to solid base to create a solid base for planned mine waste dumping.

Cumulative impacts to groundwater will result from Centennial site cleanup.

Groundwater recharge will be reduced by the proposed Centennial cleanup project as described in the Draft RAP. This is due to plans to move contaminated materials into the east portion of the site and cover with a cement and small aggregate (spread onsite and rotary mixed) impermeable layer of materials. In addition, the project would require that wetlands be removed. The DEIR fails to disclose that wetlands and marsh-like vegetation slow the surface flows and allow more water to percolate into the ground. The revised DEIR must take this into account when determining the project's effect on groundwater recharge combined with groundwater impacts from the remainder of the project.

Preparations for mine waste dumping is proposed to take place up to the boundaries for protected species, wetlands, and riparian setbacks. It is difficult for heavy equipment operators to perform tasks in close proximity to boundaries, and if excavation is involved, even hand work can create impacts. For example, on the Centennial site, the removal of top soil down to bedrock for mine waste dumping may involve pulling away of the supporting soil for protected areas. Soil can collapse from beyond the boundary, roots can be damaged, etc. The DEIR fails to analyze any of these impacts. The revised

DEIR must provide this analysis and identify feasible mitigation for these impacts. Mitigation must include, at a minimum, the establishment of an additional buffer zone between a protected area boundary and an allowed work area, with consideration of the particular activities governing the amount of buffering that is appropriate. This buffer zone must be mapped.

Nor does the DEIR disclose whether the soil, the vegetation, and the vegetation roots within the boundaries of the protected areas would be protected during excavation. It is imperative that excavation not cause soil loss or damage.

Economic and Housing Impacts

The mine will bring new employees, many of whom will likely be renters in the low and moderate income wage levels, worsening the already impacted housing market. Physical impacts can result from a tighter housing market: For instance, the numbers of middle and low income workers commuting into Grass Valley will increase. Also, the project may cause a trickle down effect of increased homelessness and a corresponding increase in homeless encampments in impacted wildland areas.

These issues and associated mitigation must be discussed in the DEIR. For example, mitigation should be identified to ensure that sufficient affordable housing is provided nearby for the project's employees.

Hazards and Hazardous Materials

Drawdown of groundwater within the mine workings may increase the potential for settlement or collapse of shallow workings which will affect individual property owners directly.

When the water level in the mine workings is located near the ground surface, the drawdown of groundwater within the mine workings may increase the potential for settlement or collapse of shallow workings that were not formally closed. These issues are discussed in "DEIR Appendix H.6_Geotech Review of Near-Surface Features.pdf"

The building at 125 Spring Hill Drive sits on top of the Eureka Shaft. Though it was studied in 1985 and design recommendations for closing the shaft were produced, the actual method of closure is unknown. The DEIR provides no documentation or explanation about how these shaft closures will be carried out. Mine water is 35 feet down at the 125 Spring Hill Drive site. Though the DEIR states that the water is "likely in bedrock", it is not verified and dewatering could cause settlement or other damage.

The DEIR states that the mine applicant will "assist" businesses that sit atop mine works which may be affected by mine operations but the DEIR does not identify a financial assurance mechanism to compensate the landowners (including 125 Spring Hill Drive) if the dewatering causes damage or loss.

The Eureka Vertical Shaft is under the sidewalk and pavement at Spring Hill Dr and IM Rd. The water level is 17' below this location. Again, the DEIR does not identify any assurance that the City and/or land owner would be compensated if the dewatering causes damage or loss.

There is potential for sinkholes to occur where undocumented mine features may exist, particularly in areas where current mine water levels are closer to the surface. One example was some settlement caused by an unknown feature that was observed approximately 5 years ago approximately 100' South of the Idaho Pump Shaft (DEIR H.6, pg5)

The DEIR makes no clear statement of liability about what happens if historic mine works settle around the near surface features as a result of dewatering. This leaves private business and local government vulnerable to assume the costs from failed mine infrastructure. This is a potentially significant and unmitigated impact. The revised DEIR must provide a full analysis of these impacts and identify feasible and effective mitigation.

The DEIR inadequately describes potentially hazardous waste rock and mine tailings management.

As pointed out by Baseline Engineering Consultants (Baseline), the legacy contamination from prior mining indicates that the types of rock historically mined at the site contain heavy metals and, when excavated, these waste rock and mine tailings have been found to contain contaminants that pose a potential risk to people and the environment.

"Neither the DEIR Project Description nor the Hazards and Hazardous Materials section adequately describes how future waste rock and mine tailings generated by the proposed project would be managed to ensure that they do not pose a health hazard to people or the environment (as the placement of similar waste materials from the same mine did in the past)" (Baseline).

The revised DEIR must provide adequate information about the potential risks of the waste rock tailings and all potential impacts.

Probabilities of collapse hazards are not adequately addressed.

In evaluating the potential risks due to existing near surface features, the DEIR makes the following claim and is used as the basis for the scope of the report:

"In addition, the underground mine workings focused on removal of quartz vein materials that are generally narrow, so the collapse of a deep (e.g., 100 feet bgs) mine feature is not likely to be expressed at the ground surface."(DEIR Appendix H.6, pg 2).

Note that "not likely" is an ambiguous metric that can be satisfied by a less than 50% chance of occurrence. This is not the same as "there is No Potential for collapse". The DEIR does not disclose the following:

- The estimated likelihood of occurrence: Is it greater than zero?
- Whether the mine workings would be confined to narrow quartz veins.
- Mine works include voids due to tunneling, stoping, etc. Given that the mine works were in a fractured rock geology and may contain additional mine features such as stopes near surface but below 100', what is the justification for this 100' determination?

In addition, the DEIR fails to analyze the potential for collapse from all existing mine features. It also fails to evaluate the effects upon legacy mine works due to combined destabilizing activities such as dewatering, earthquakes, and use of explosives. The revised DEIR must provide these analyses.

The DEIR's evaluation of seismic hazards due to faults and mining is inadequate.

The mine project would target potential ore bodies that are more or less bounded by the Morehouse fault, the 6-3 fault (Weimar), and the Idaho fault, as well as numerous lesser faults. While the faults in this area are designated as being in a type C fault zone, with low seismicity and a low rate of recurrence, the DEIR does not analyze the effect that a seismic event would have on the mine or workers in the mine. (See FaultingHazards, attached as a reference to this document.)

Throughout the 80 year life of the proposed project, expansion of mine works will remove 30 million tons of rock mass, and change the overall competency of the surrounding bedrock. In addition, several million tons of mine waste will be positioned over or near the faults. Finally, at the end of mine operations, the mine will re-flood, leading to an additional potential increase in seismic activity due to the re-introduction of hydrostatic pressures (FaultingHazards).

The seismic reports discussed in the Geology section of the DEIR are not up to date and, even if updated, would not meet the requirements for a probabilistic seismic site analysis. (CSP2, p7)

The revised DEIR must include a complete and comprehensive analysis of the potential hazards due to seismic activity as a result of the Mine Project.

Potential mine flooding and worker safety from groundwater occurrence in mine workings.

In the DEIR's discussion of the Union Hill Mine, it is noted, "The Union Hill Mine workings are within 95 feet to 180 feet of workings of the Brunswick Mine at three to four different levels. During the post WWII period, the combined Idaho-Maryland Mine workings were completely dewatered. In 1956, the water level at the Union Hill Mine was reported to be within 20 feet of the top of the shaft, suggesting that the complete dewatering of the adjacent mine workings resulted in no more than 10 to 20 feet of water level decline in the Union Hill Mine."

There are two important points to note in this discussion, (1) the Union Hill Mine is very close to the Idaho-Maryland at several levels; and, (2) there has been a possible weak hydraulic connection between the two mines, which is only logical.

There is no discussion in the DEIR of the potential impacts for the Idaho-Maryland Mine if flooding were to occur during mining. According to ITASCA's report (DEIR Appendix K.3, Figure 2-3), there are extensive abandoned mine workings above and adjacent to the Idaho-Maryland Mine that would remain flooded after the Idaho-Maryland is dewatered. If a conduit between these two mines were to open, for instance due to the widening of a fracture related to blasting vibrations or a seismic event, the flood of water into the Idaho-Maryland could be rapid and catastrophic for anyone working in the mine.

The DEIR must be revised to evaluate the potential risks of flooding during mining operations, including potential risks to mine workers. (CSP2)

Greenhouse Gas Emissions

The DEIR relies on an arbitrary threshold for greenhouse gas emissions.

The DEIR states greenhouse gas (GHG) emissions from mine operations would be just under 10,000 metric tons (MT) of GHG carbon dioxide equivalent (CO2e) per year. This number was chosen as a bright line threshold based on other air districts in California that included Placer County, Sacramento Metropolitan Area, the Bay Area and Southern California. Neither the Northern Sierra Air Quality Management District (NSAQMD) nor the County have adopted numerical thresholds of significance for GHG emissions that would apply to the Project. The DEIR does not discuss the justification provided by each air district for adopting the 10,000 MT CO2e per year threshold, nor does it provide substantial evidence for applying this threshold to the project to demonstrate how it will achieve a fair share of the statewide GHG reductions goals for 2030 and beyond.

The DEIR must be revised to identify and provide justification for a GHG threshold of significance that will achieve the statewide GHG reductions goals for 2030 and beyond over the proposed 80 year lifetime of the mining permit. (Baseline)

The DEIR underestimates GHG emissions from haul trucks.

The DEIR states that the Centennial Industrial Site will be used for mine waste dumping to form "engineered fill" during the first 5 years of mine operations. The DEIR's analysis assumes that the Centennial Site remediation to remove toxic mine waste would be completed before the mine opens. However, since the remediation of the Centennial Site is not included in the DEIR analysis and, as indicated in the Project Description, may not be completed in any specified timeframe, "...it is speculative at best to assume that the Centennial Industrial Site will be available for fill placement." (Baseline)

To accurately account for the Project's GHG emissions, the DEIR should have assumed an additional five years of off site hauling at the beginning of operations. This additional hauling would generate significantly more emissions than disclosed in the DEIR. This also holds true for criteria air pollutants as well.

The GHG emission should be updated in the revised DEIR to include the prospect of the Centennial Site being unavailable for mine waste dumping.

Mining energy requirements would eliminate gains attained through the Nevada County Energy Action Plan.

The Nevada County Energy Action Plan calls for a 51% reduction in GHG emissions for electricity use by 2035, which is in close alignment with state goals. The Plan calls for residential energy reduction savings from building efficiency of 42 million kilowatt hours per year (kWh/Yr).

The DEIR states the amount of electricity required to operate the mine would be approximately 49 million kWh/Yr (DEIR p. 4.3-59), which would erase any residential electricity savings attained by the Plan.

The total non-residential electricity use of the county in 2017 was 53 million kWh/Yr. So, GHG emissions from this one mining project alone would almost equal all other non-residential electricity use in the County and wipe out the projected 9 million kWhYr non-residential building efficiency savings.

Asking residents and business owners to cut down on their use of electricity while allowing the GHG emissions from the mine would be highly counter-productive and unfair. The DEIR must explain how the project intends to comply with the emission goals of the Nevada County Climate Action Plan.

The California Air Resources Board 2017 Climate Change Scoping Plan stated: "Achieving no net additional increase in GHG emissions, resulting in no contribution to GHG impacts, is an appropriate overall objective for new development." Given these facts, the DEIR must establish a net zero threshold for new GHG emissions from the Project and declare the project has significant and unavoidable impacts.

Cement manufacturing is not included in the DEIR's GHG analysis.

Cement manufacturing is a significant GHG source. The DEIR does not provide adequate information about the amount of cement that will be used for the cement paste backfill (CPB). Nor does it include GHG emissions from CPB. Based upon the number of cement truck trips, (468 trips/year, DEIR 4.3-53) and an 8 cubic yard payload of 9.2 metric tons, the emissions can be estimated.

The national weighted average carbon intensity for cement production is estimated at 0.97 metric ton CO2/ton cement. Thus, each cement truck would contain cement that released about 8.3 metric tons of CO2 when it was produced. Operationally, 468 truck trips would mean 3,884 metric tons of CO2 were released in a year of cement production for the mine.

Therefore, the amount of cement manufacturing needed to create the CPB with 500 tons of rock waste per day constitutes a major GHG source contributing emissions on the order of 3800 metric tons per year of GHG CO2e. The energy and environmental impacts of cement production used in the project should have been included in the DEIR.

The revised DEIR should provide adequate information to quantify these GHG emissions.

In addition, following initial onsite ore processing using sulfide flotation, the resulting gold concentrate would be shipped off site for further processing to extract the gold. The full energy and environmental impacts of further offsite transport and gold processing are not part of the DEIR and should have been included.

Hazardous Materials

Provisions for temporary storage of explosives on the surface are inadequate.

Several years of construction activities will require explosives prior to the construction of the longer term explosive storage facilities underground. Explosives will be needed for the construction of the new access shaft, reclamation of existing mine works, and development of storage areas and waste rock processing areas. The revised DEIR must identify the quantity, type and management of early phase explosives during construction.

The DEIR's emergency evacuation analysis is inadequate because it only discusses the haul trucks but not trips associated with the mine's employees.

The DEIR's analysis (Section 4.7-4) of emergency evacuation impacts is inadequate. For example, it focuses on haul trucks but fails to analyze the effect the evacuation of mine employees would have on the emergency evacuation of area residents.

The DEIR, Table 3.8, "Operations Workforce", shows there will be 111 employees per shift adding roughly an equivalent number of vehicles exiting on Brunswick Road during an emergency evacuation.

The DEIR states that, "According to the Table 4.1 of the Circulation Element of the General Plan, Brunswick Road is considered a Minor Arterial, and thus, is not a primary evacuation route for the County." The DEIR neither addresses the safety plan for mine workers nor provides any mitigation if additional vehicles must use a minor arterial during an emergency evacuation.
Having to use a minor arterial for evacuations could result in a potentially significant emergency evacuation impact. The DEIR must be revised to provide a thorough analysis of these impacts. It must also fully mitigate for the Project's emergency evacuation impacts.

The DEIR provides no details about the transport and storage of any other explosive materials besides Ammonium Nitrate, specifically detonators, explosive magazines, and detonating cords.

The DEIR states the mine will use 257 detonators a day. Table 4.7-1, "Explosives Proposed to be Used at Project" lists nine different types of detonators. However none of these are listed on the Hazardous Materials Inventory Statement Form and there is no information about how detonators or detonating cords would be stored. Nor does the DEIR provide information about how many and often these explosive materials would be transported through Grass Valley. Only ammonium nitrate is included in the 28,000 pounds of explosives shown on the "The Brunswick Industrial Site Nevada County Department of Environmental Health Hazardous Materials Inventory Statement Form" submitted by Rise Grass Valley.

Without this information, it is not possible to evaluate the environmental impacts associated with the transport and use of explosive materials. The revised DEIR must specify the transport and management of all explosive materials used in mining operations, in addition to Ammonium Nitrate.

Curing of mass concrete can generate significant heat and needs to be managed.

The project would dispose of 500 tons/day of sand tailings back into the mine by using Cement Paste Backfill (CPB). The quantities of cement to be used in this process are not specified in the Cemented Backfill Study written by the consultant Itasca that was submitted by the applicant. The DEIR should provide a range of expected cement usage as a basis for determining the impacts of the CPB process.

No analysis of heat generated by CPB is provided in the DEIR. For example, using a standard 6:1 ratio of tailings material to cement would require 83 tons of cement per day. The curing of cement (hydration) is an exothermic reaction with heat emissions exceeding 230kJ/kg, depending upon the cement Type. Using a conservative value, the heat from curing 83 tons of cement/day would add over 17 million KJ/day* to the environment. The revised DEIR must address the thermal impacts of CPB, including the following:

- How much cement would be used daily?
- How much heat would the curing cement produce? Over what area?
- What would be the maximum temperature of the curing CPB?
- Would it exceed 158 degrees F?
- What would be the resultant average and maximum temperatures in the backfill areas over time due to the daily additions of CPB and the resultant heat generated by the curing of the CPB?
- What heat management mitigations would be put in place to avoid undesirable rapid curing conditions which could create long term problems in terms of chemical stability, permeability, and strength?
- What mitigations would be established to protect workers from excessive heat?

**[Heat of curing is dependent upon the cement Type. Here, we use Portland Type IV: Heat 55cal/g (note 1 cal/g == 4.184kJ/kg , 55cal/g * 4.184kJ/kg//cal/g == 230kJ/kg) (230kJ/kg x 907kg/ton == 208,610kJ/metric ton)*

Dewatering hazards are not discussed.

Upon initial dewatering, the physically sealed mine shafts such as the one under the Spring Hill Drive business will potentially experience a negative air pressure as the water level drops. The revised DEIR must address the structural impacts on existing infrastructure resulting from dewatering.

- How fast will the water level drop, and what volume of replacement air per hour would be necessary to equalize with atmospheric pressure within these sealed mine features?
- How will air enter the shafts as the water drops?
- How will this impact potential surface structures?
- Were the additional net load forces upon the sides and top of the shafts taken into consideration?

The DEIR does not address potential riparian and surface water impacts from physical closure of the East Eureka Shaft.

East Eureka Shaft and the East Eureka Drain are located under an existing building near Wolf Creek. Will work to physically close the Shaft precede the dewatering? If so, will construction be conducted underwater and/or below Wolf Creek top of bank?

When the water level in the mine workings is located near the ground surface, the drawdown of groundwater within the mine workings may increase the potential for settlement or collapse of shallow workings that were not formally closed. These issues are discussed in "DEIR Appendix H.6_Geotech Review of Near-Surface Features.pdf".

Potential impacts from dewatering could affect five mine shafts or mine features that are listed to be investigated and closed before dewatering begins: the East Eureka Shaft and the East Eureka Drain at 815 Idaho-Maryland Rd, the Idaho Drain Tunnel, the Idaho Pump Shaft, and the Idaho Shaft at 865 Idaho-Maryland Rd. These closures would affect businesses located above or near these mine features. The work at 815 Idaho-Maryland must take place under the Navo & Sons business building. The mine feature at 865 Idaho-Maryland Rd is in the middle of an operations yard.

The mine water levels at the five identified mine features are near the top grade and close to Wolf Creek. The DEIR fails to adequately describe the phasing of this repair work and does not disclose whether this work would impact water quality within Wolf Creek or its habitat. For example, in order to work on repairing, lining, and capping the East Eureka Shaft under the Navo & Sons building, either the work must be done underwater or the mine would have to be partially drained. Per DEIR Appendix H.6, *"The likely course of action will be to over-excavate surface soil in the areas of these features to determine where competent, native soil/rock is located and attempt to identify the trend of any subsurface mining-related structures (i.e. tunnel, shaft, drift, etc.)."'*

The mine water level is only slightly above Wolf Creek's normal flow levels and the mine drain is below the top of the bank. Some or all of the work is within the high water level of Wolf Creek. These conditions could result in environmental impacts but the DEIR provides too little information to understand the severity and extent of these impacts. The revised DEIR must provide the following information:

- Would the work be done before any dewatering of the mine and hence be underwater?
- Much of this work would be below the level of Wolf Creek. If work is done before partially dewatering the mine, how would concrete placement be achieved without interaction with the mine water discharge into the creek?
- If the work is done after partial dewatering of the mine, how would the risk of subsidence be mitigated, given that the repairs are prescribed to take place before dewatering in order to prevent subsidence.
- What are the required permits for work within a watercourse? None are listed.

A revised DEIR must specify how repair of the East Eureka Shaft (and the other near surface mine features listed) would proceed and include mitigation measures to protect Wolf Creek and the properties near to the proposed repairs.

Hydrology

Water quality related to cement backfill toxic discharge in mine water is not discussed.

The project plans to dispose of 500 tons/day of sand tailings back into the mine using Cement Paste Backfill (CPB). The use of cement and CPB could have serious effects on water quality, yet the DEIR does not analyze these impacts. Long term potential effects from CPB and leaching must be analyzed. The DEIR fails to identify the quantities of cement, or ratio of cement to sand tailings and fails to evaluate the potential short term and long term impacts on water quality.

Cement can contain hexavalent chromium, which is a toxic and carcinogenic substance that has been known to leach from cement in concrete, causing groundwater pollution. Safeguards to prevent the use of cement containing hexavalent chromium must be provided. How will this be accomplished?

The DEIR must be revised to provide a comprehensive analysis of the environmental impacts associated with the use of cement and CPB.

Assessments of the current mine water chemistry are inadequate.

The Hydrology Report (DEIR Appendix K.2, Table 4-10, p120) uses discharge screening limits and data from the New Brunswick shaft to define water treatment criteria. However, a more accurate sampling of mine water would be from the drains located along Wolf Creek rather than from the New Brunswick shaft, as described in the analysis of mine water flow (see DEIR Figure 4.8-7), which shows water entering the New Brunswick shaft then flowing downward through the extant mineworks to exit the drains at Wolf Creek (Eureka drain, East Eureka drain, etc.). Only a few samples taken from the drains were reported, but these samples are much more representative of the mine water chemistry and indicate higher levels of Iron, Manganese, Arsenic, Aluminum, and Zinc than the New Brunswick shaft samples (DEIR K.2 Tables 3-6).

In order to get an accurate assessment of the contaminants flowing out of the mine under varying conditions, regular testing must be conducted over time at the Mine drains. The testing must also be conducted seasonally during differing rates of outflow. Moreover, in order to provide the public with a conservative estimate of potential impacts, the DEIR should use the results from the drain samples rather than the New Brunswick shaft, which would show potential water quality impacts from higher level of metals, arsenic and zinc.

Additionally, because the water flowing out of the drains probably only comes into contact with a small portion of the 72 miles of mine tunnels, current drain water does not likely represent the chemistry of the mine water that will be pumped out once dewatering begins. The DEIR should be revised to provide a comprehensive evaluation of the current mine's water chemistry. As part of this analysis, the following questions/issues must be addressed.

- Are there potential impacts from existing timbers and shoring on mine water quality?
- Were treated or rot resistant wood products used in the mine at any time?
- How has existing water quality been affected from the miles of pipelines, ore carts, rails, wiring, equipment, spilled oil products, chemicals and other miscellaneous materials which may have been left in the mine works?

A list of expected materials based upon historical records should be provided, and an assessment of risk, potential for contamination of the mine water, and a plan for their disposal provided.

- If detected, how will oil products be removed from mine water?
- If detected, how will Mercury and other contaminants be removed?
- Will the treatment facility have to be modified for any of the potential contaminants?

In previous operations up until the mine closed in 1956, a significant volume of mine waste or tailings was disposed of by backfilling the mine stopes. Water contained in backfilled stopes needs careful analysis due to potential leaching of contaminants when dewatering takes place. The amount of water is approximately 25 million cubic feet, or about half of the total mine water volume. This is a significant possible source of water contamination. The finely ground materials have been subject to oxidation already, they have been submerged for 75 years, and now would be subject to oxidation again as water levels drop, creating an increased potential for leaching of metals and metalloids. In addition, residues from ore processing such as mercury may be present. As the mine is dewatered, frequent regular testing of discharge must be done. The revised DEIR must provide the following information in order to evaluate the project's impacts:

- What plans are in place to test mine water as it is pumped out?
- How often will tests be conducted?
- What is the policy for ceasing or modification of pumping operations in the event of unexpected issues with water quality?

Additional analysis of the issues described above must be conducted to ensure an adequate understanding of these impacts which are potentially significant and unavoidable.

Most of the samples that were tested to determine potential water quality impacts are unreliable.

As detailed in "Sample QC Review", attached as a reference to this document, the environmental sampling data that was collected for determining potential water quality impacts fails to meet quality assurance standards, rendering the results unreliable. Most samples were received past hold times, and various samples were mishandled, mis-dated, submitted with temperatures exceeding the guidelines, and/or in too small a quantity to be measured. As a result, the consigned laboratories have denied certification of the data in several critical categories. In spite of this, the inadequate and often uncertified data was used in multiple consulting reports without any notation as to the validity of the compromised data.

For example all of the rock, tailings, soil, etc. samples that were used for the metals analyses were beyond their 6 months hold times, seemingly by at least 9 months, but records are inadequate. All 47

samples submitted to ACZ Laboratories were notated as “samples were received and analyzed past hold time.” The bulk of the results were not offered for certification.

Findings regarding water quality, air quality, and hazards that are based upon this data are unreliable. Conclusions based upon this data must be reassessed based upon reliable sampling and analysis.

Drill core testing for water quality impacts is inadequate.

Given the size and scope of the proposed Project, there was an insufficient quantity of drill core rock analyzed to determine the mine’s true impact on water quality.

By way of illustration, between 2017 and 2019, the applicant drilled for, and extracted, a total of 67,500 feet of rock core. But of these 67,500 feet of drill core, only 0.68% were submitted for analysis. And of the few samples that were submitted for analyses, a dearth of information is provided regarding the sample materials’ true weight, volume, particle size, and sampling technique. Nor are the drill logs for these core samples available for review, so the actual dates, precise locations, drift angles, widths, final depths, etc. are unknown. Several times the DEIR refers the reader to a “separate report” which will explain some of these omissions, but no such report is found in the document or its appendices.

In addition to the limited sample size and the inadequate sampling details, four different labs were employed to carry out the analyses of the submitted samples, but the samples did not have a proper chain of custodies (COC) processes. The COC is a process that tracks the movement of samples through their collection, safeguarding, and analysis lifecycle between the mine applicant and the labs, but the COCs do not reflect the written account found in the DEIR.

The revised DEIR must provide an explanation for the discrepancies in the chains of custodies for the samples submitted to labs and provide evidence that the samples are scientifically reliable

This insufficient and unreliable data affects the accuracy of any analysis based on this data, such as an analysis of the metal leachate content of rock. Since metal leachate from mine rock affects water quality, analyzing metal leachate is one of the key concerns regarding the rock tailings produced by the Project. The limited amount of core material sampled and the imprecise manner in which the details of the core samples are reported makes the metal leachate analysis unreliable and leads the DEIR to underestimate potential impacts.

The revised DEIR should include a full set of data and drill logs that can be reliably analyzed by the public.

Drill core testing for airborne contaminants is inadequate.

As documented in “Sampling Procedures” (Sampling) (attached as a reference to this letter), TACs silica and asbestos are insufficiently described in the DEIR. Even though several hundred tons of rock would be mined and surface-stored each day, none of the core samples taken from the exploratory drill cores were tested for the contaminant silica. It also appears that when the original core samples were taken, drilling was stopped when serpentinite, an asbestos bearing rock, was encountered and, since drill logs are not available for review, the depth and width of the asbestos-containing serpentinite deposits encountered cannot be determined.

The rock types identified in the mineralized zone contain substantial amounts of silica (silicon dioxide, quartz), and the tailings would contain fine particles of respirable crystalline silica, a TAC. The laboratory that the applicant used for all metals analyses, ACZ Laboratories, is certified to perform both silica and silicon dioxide tests yet not a single sample was analyzed for these parameters (Sampling).

The revised DEIR should provide a full set of data about the samples analyzed for silica and asbestos. To the extent this data set fails to analyze silica and asbestos, further analysis and revisions of the DEIR are required to adequately identify impacts.

The hydrology study incorrectly assesses the potential for long term acid mine type drainage.

The Empire Mine, adjacent to the Idaho-Maryland Mine, provides clear evidence of the potential for contaminants that could be discharged from the Mine and from tailings and mine waste intended to be deposited on the surface or back within the Mine as backfill. Mine water discharged from the Empire Mine has excessive levels of arsenic, iron, and manganese.

The EMKO hydrology study used in the DEIR dismisses the potential for acid drainage which could affect water quality in Wolf Creek. Instead, the DEIR claims "Any acid generated during the oxidation would be quickly neutralized by the carbonate minerals in the host rock" and cites neutral or high (non acid) pH values. (DEIR 4.8-49, 50) However, the short term method used by EMKO is not a reliable method for predicting the long term potential for contaminants to be discharged from mine waste. Results would be more reliable using long term tests, on the order of months rather than hours or days.

The waste rock's potential to produce poor quality effluent should be thoroughly characterized using appropriate tests to the satisfaction of the Water Board (e.g., ASTM D 5744) over a sufficient period, also to the satisfaction of the Water Board (e.g., 40 weeks).

Accordingly, more extensive testing of mine waste rock and tailings must be conducted to assess the potential for contaminant leaching from mine waste. Long term dynamic testing must be conducted to accurately identify potential impacts to water quality. Due to variations in geology as mining progresses, repeated testing of the mine waste must be done.

The revised DEIR must specify how long-term monitoring of acid mine type drainage would be accomplished and identify mitigation measures capable of ensuring that any unanticipated contaminants do not adversely affect water quality. Without providing such testing and identifying feasible and effective mitigation measures, the impact must be identified as significant and unavoidable.

It is not adequate to defer analysis of mine waste, a potential hazard, to some future date without providing substantial evidence that the proposed actions will not result in environmental impacts.

The mine waste has not been adequately tested and one must conservatively conclude that it has a high potential for causing water quality impacts, given that similar local historic mining activities resulted in

the detrimental environmental impacts that persist today. The DEIR fails to conduct the necessary impact analysis. Instead the document asserts that impacts will be remedied by obtaining an expedited General Order permit from the Water Board (DEIR section 4.8 page 50). As Baseline points out, this process is insufficient:

"*It is not adequate to state that the project will get permits without providing substantial evidence that the proposed action will not result in environmental impacts, particularly when very similar historic actions have been demonstrated to result in environmental impacts that have persisted for decades."* (Baseline)

The revised DEIR must provide a valid and reliable analysis of the mine's waste products and identify specific and achievable mitigation measures to assure these water quality impacts are reduced to less than significant levels. Alternatively the revised DEIR must identify such impacts as significant and unavoidable.

No provisions were made with respect to treatment of mine effluent beyond the 80 year project operations.

Water treatment would need to continue in perpetuity after the mine stops. Current discharges have exceedances in Arsenic, Iron, and Manganese that would likely continue in perpetuity The DEIR must address potential water quality impacts and how water treatment would be accomplished after the mining operations cease.

The natural outflow is at Wolf Creek at an elevation of about 2650 feet elevation. Natural mine water level at Brunswick site is approximately 250 ft below the surface. Treating the water at the Brunswick site and discharging into SFWC requires at least a 250 foot lift.

- After mining operations cease what would be the provisions for long term treatment?
- What would be the long term energy demands?
- Where would the treatment facility be located after mining operations cease?
- What will be the biological and hydrological impacts from the changes in mine water discharge upon ceased operations?

In order to fully evaluate the Project's water impacts, these questions must be answered.

Hydrology - Groundwater

The proposed project would intentionally affect local groundwater resources.

The proposed Project would significantly affect local groundwater resources by dewatering the mine, lowering groundwater levels. The dewatered groundwater resources would be converted to surface water that is discharged into existing creek channels and quickly conveyed out of the area. The applicant's consultants have prepared a numerical groundwater model to attempt to predict how this proposed long term dewatering effort would affect overlying and surrounding groundwater levels.

An incorrect assumption was made in the groundwater model used to predict dewatering impacts, which led the DEIR to significantly underestimate groundwater drawdown, both in magnitude and areal extent. The groundwater model was calibrated based on pumping rates from the historical Idaho Brunswick Mine and only one water level measurement collected from the flooded (i.e., inactive) Union Hill shaft in 1956. Using only one water level measurement from 64 years ago to calibrate a complex bedrock aquifer system over a large region is inappropriate and introduces a significant amount of uncertainty to the model. (Baseline)

The revised DEIR must rely on a corrected groundwater model in order to accurately predict the extent of the well drawdown caused by the predicted 80 years of mine-dewatering and dewatered maintenance. Based on existing reports, the Project is likely to impact significantly more wells than the number of wells identified in the DEIR. (see "Safeguards for Well Owners and the Idaho-Maryland Mine", CEA Foundation) This is a significant impact that will affect hundreds of Grass Valley residents and must be addressed in a revised DEIR.

The basic constructs of the DEIR's groundwater model have significant errors and omissions, making them unreliable.

The basic data needed to build a valid groundwater hydrological model are missing. The document "Review of the Idaho-Maryland Mine DEIR Groundwater Model" (Model Review) by Silberstein examines deficiencies in the model, as summarized here.

The mine water drains from several locations along Wolf Creek near Centennial Drive, and the DEIR provides only rough approximations of the mine water outflow rates from these areas. What's more, these outflow data are contradicted by more reliable records from previous studies which indicate ten times more outflow than the amount the DEIR discloses. (Model Review) Similarly, mine water inflow analysis is based on sparse mine water level data from the New Brunswick shaft. Only 12 water level measurements were taken at random times of the year between 2003-2007, and just 3 measurements in 2018-19). In addition, the utility of these measurements is incorrectly interpreted. The water level reaches a limit when it exceeds the level of the drains from which the mine water flows and doesn't reflect what could be substantial inflow. Without a measurement of the outflow, the amount of inflow cannot be determined by the water level in the New Brunswick shaft. Essentially, no water balance assessment is provided.

Furthermore, data from private wells within the area is old and limited to just a few years. No usage data is provided, so seasonal variations in water levels are of limited use.

Critical data such as reduction in groundwater recharge from precipitation are also incorrectly calculated, failing to include the 75 acres of low-permeable mine waste to be dumped on the two sites.

Moreover, the groundwater model does not include the new access shaft, which would create a local area of groundwater drawdown. In fact, it appears that numerous existing mine features that are within a few hundred feet of the surface were also not evaluated in the ground water model. These mine features would contribute to the downward transmission of ground water from the near surface fractured rock areas.

These are all elements that are critical for constructing a reliable groundwater model to identify dewatering impacts.

In addition, there are three major faults and numerous minor faults in the mineral rights area. These impact the transmission of water and introduce a high level of uncertainty in the accuracy of a model which, as stated in the Groundwater Model report (DEIR Appendix K.3), assumes the geology is homogeneous. Common assumptions such as the correct anisotropic ratio for the groundwater transmission calculations may not be accurate.(Model Review, 3.g.)

Taken together, the groundwater model is seriously deficient with respect to data reliability, initial conditions, and modeling assumptions, calling into question its ability to accurately depict the Project's impacts.

Finally, use of modeling in a fractured rock system has limited value. Modeling that relies upon uniform rock, which is consistent from place to place, behaves in a more predictable fashion than rock that is in bedrock systems having multiple faults and irregularities. It is critical to provide for long term monitoring and extended protections due to the challenges inherent in modeling groundwater in this complex hydrogeologic setting.

The revised DEIR must provide accurate and adequate information and comprehensive analysis to determine the extent and the severity of the impacts upon groundwater resources and wells. Without this analysis, the revised DEIR must identify such impacts as significant and unavoidable.

The DEIR inappropriately defers the collection of additional water monitoring data to the future.

The DEIR acknowledges that more groundwater level data is needed to assess the potential impacts of the proposed Project on groundwater levels. Mitigation Measure 4.8-2(a)(4) (DEIR section 4.8 page 67) states that this needed water assessment be conducted "once dewatering of the underground mine workings commences." This is internally inconsistent and would not be achievable. Once dewatering begins, it will be impossible to measure baseline levels. Consequently, this mitigation measure is impossible to implement. Mitigation measures under CEQA must be achievable, enforceable, and must be capable of actually reducing the Project's impacts.

The DEIR inappropriately defers the collection of additional data (via a Groundwater Monitoring Plan) to the future. CEQA does not allow the deferral of important studies necessary to characterize impacts because it denies decision-makers the information they need to make well-reasoned decisions regarding the viability and impacts of a Project.

Groundwater monitoring networks will need to be established in advance of the Project, and the resulting data will need to be included in the revised DEIR. The consequences of not committing to full compliance with General Plan Policy 2.17 are dire for local property owners who rely on groundwater. (Baseline)

Hydrology Modeling

Hydology Model Initial Condition Issues

Dr. June Oberdorfer, Certified Hydrogeologist and Professional Geologist, reviewed the Ground Water Model and related hydrology documents for the Project. (See "Comments on Itasca GW Modeling Oberdorfer.pdf", attached as a reference to this letter.) Several key assumptions were identified in the model which minimized the groundwater drawdown results. For example, an incorrect assumption was made for the initial water levels for the model. As described,

"Rather than taking present day water levels as the starting point for predicting the effects of mining for 25 years starting in 2019, they chose to use the water levels at the end of mining in 1956 (Sec. 5.1). Those water levels don't reflect the fact that there's no current dewatering, but rather reflect dewatering at a rate of 700 gpm."

As a result, Dr. Oberdorfer concludes:
"This incorrect assumption minimizes both the magnitude of drawdown shown on the Figure 5-7 and the extent of the area affected. In addition to underestimating the number of domestic water supply wells impacted and requiring mitigation, this assumption also underestimates the extent of the area requiring groundwater monitoring (Itasca, 2020b). That area needs to be expanded."

The revised DEIR must re-evaluate the area of potential groundwater impacts.

Inflow and Transmissivity

The groundwater model was created to simulate potential impacts to wells and groundwater levels. One of the key factors in modeling the groundwater is a determination of how readily water is transmitted from the surface into the mine. An analysis of water levels in the New Brunswick Shaft and possible correlations between precipitation was undertaken but it is flawed in several ways, further calling into question the basis for the groundwater model.

The analysis failed to consider that the level of the water in the New Brunswick Shaft had an upper limit because the water was flowing out of the drain, thus hiding potential increases in mine water inflow. Sparse data and poor granularity of data further undermine the utility of the New Brunswick Shaft water levels and corresponding precipitation amounts.

In addition, well monitoring was conducted in 1995-2001, 2003-07 (DEIR Appendix pg 4.8-11). Well log records show seasonal variability but no data is provided that shows how much of the well water level changes is due to irrigation season water usage and how much is a reflection of the actual lowering of the ground water level overall. No recent well monitoring was conducted during drought years, and no assessment was made on the long term predicted impacts of climate change. These impacts include warmer weather, changing rainfall amounts, shifting of rainfall periods, as well as consideration of water usage changes by property owners due to drought

The following minimal steps are necessary to accurately model the Project's groundwater impacts:

- Year-round logging of mine water levels and outflow should be collected. Data should be collected for several years, including at least one year with normal rainfall and one year each with low and high rainfall, in order to establish a baseline for groundwater modeling and impact assessment.
- The data from the outflow and the data showing changes in mine water level should then be compared with granular rainfall data to assess the amount of seasonal variation in mine water inflows. The data could then be used to provide an estimate of transmissivity from the surface.
- Adequate wells data should be collected. The wells data is old, limited to a few years, and lacks information about well water consumption. A comprehensive well monitoring program including water level and water comsumption must be established.
- If the mine is approved, monitoring must continue throughout mining operations and at least 5 years after the mine is closed and reflooded.

Groundwater Model Elements

A new access shaft is proposed close to the creek, but a cone of depression of groundwater levels like the one indicated at the New Brunswick Shaft is not shown in the DEIR. The failure to show this brings into question whether the new shaft is actually included in the DEIR groundwater model and subsequent analyses. The revised DEIR should provide the following information:

- Was the new access shaft included in the Itasca groundwater model? If so, what is its precise location? The shaft should be located on all maps.
- How far is it from South Fork Wolf Creek, a perennial stream? Is it within 100 ft?
- Was there analysis of the impact of the groundwater caused by the significant 50 ft deep excavation needed to build a permanent access shaft? If so, which specific pages of the DEIR provide this analysis?
- Will the new access shaft lead to more drawdown of near surface groundwater?
- How will the creation of a large excavation and a new access shaft impact the near surface ground waters that feed SFWC?

The model assumes that the areas to be mined will be confined to very limited areas at depths greater than 1000' (DEIR Appendix K.2, pg x, xi). However, the mineral rights provide no restriction to mining anywhere within the 2585 acres and to within 200' of the surface. No conditions are imposed to guarantee that the mine applicant doesn't drill, excavate, or mine above 1000 ft from the surface, which would invalidate the assumptions of the groundwater model.

The model simulations were constructed based on an assumption that mining would occur for only 25 years. From page 23 of "Appendix K.3_Groundwater Model Report" by Itasca: "The predictive numerical simulations were conducted to assess the potential inflows to the mine workings, the effect on nearby domestic wells, and the potential effects on the creeks in the Mine area during mine development and production between the assumed years of 2020 and 2045 (Year 1 to Year 25), which is the current mine plan." The model was subsequently extended to simulate an additional 40 years, providing a 65 year total run time. The model was not run for the full 80 year term of the proposed Project Use Permit.

All computer models that attempt to simulate real world conditions are based upon assumptions. Even minor differences between input data and actual real world conditions can result in errors that increase exponentially over time. The longer the computer model is run, the greater the potential for deviation from actual outcomes.

The DEIR should justify the additional run times of the groundwater model, along with an analysis of the reliability of the model over such an extended period of time.

All of these issues must be resolved in the revised DEIR.

Wells and Well Mitigations

Relying on fifteen monitoring wells to estimate the impacts on all water supply wells around the mine area is inadequate.

The DEIR relies on fifteen monitoring wells to estimate impacts on water supply wells but it does not explain how it arrived at this number of wells or their location. In complex fractured bedrock spread out over thousands of acres, monitoring water levels at fifteen locations could not possibly provide the needed data to ensure that groundwater impacts to hundreds of existing water supply wells in the Project vicinity are immediately identified and mitigated. (Baseline,p12)

The revised DEIR must provide reliable data regarding the Project's monitoring regime in order to provide an accurate accounting of groundwater impacts.

Potential impacts to wells are underestimated and proposed mitigations are inadequate.

The DEIR relies on a Well Mitigation Plan to allegedly protect wells from mining impacts. The Nevada County General Plan (Policy 17.12) item 1) states that:

"*In approving mining projects which **according to expert opinion** may threaten the existing quality or quantity of surface or subsurface water which supply adjacent homes and businesses:*

1) The County shall require the operator to guarantee a comparable supply of water to such homes or businesses through accessible forms of security or alternate sources of water. "

In contrast to the opinion of the DEIR consultant EMKO (DEIR Appendix K.9, p1), numerous experts have stated that there is the potential for a significant threat to water supply for wells in the area beyond those identified in the DEIR. Notably, Baseline Engineering unambiguously states that, *"...it is Baseline's expert opinion that the project may threaten the existing quality or quantity of surface or subsurface water which supply adjacent homes and businesses in a much wider area than is indicated in the DEIR."* (Baseline)

The DEIR relies on a Well Mitigation Plan to purportedly protect wells from potential mining impacts. Yet, the Well Monitoring Plan does not demonstrate that impacts would be mitigated. The Well Mitigation Plan is an aspect of the DEIR which designates protections for wells from potential mining impacts. The Nevada County General Plan states that if expert opinion indicates that there may be a

threat to the quality or quantity of water that supplies domestic wells, then the mine operator must provided an immediate and comparable supply of water, and will be held accountable for all expenses incurred unless the operator can prove that they are not at fault.

The Well Mitigation Plan asserts that, "*Expert opinion has determined that there is no threat to water quality to domestic water wells...*" and that, "*Domestic wells outside [the E. Bennett Road] area will not be impacted.*"

By stating such, the mine applicant is downplaying the Project's impacts on area wells so that he can avoid having to comply with most of the County's Well Mitigation requirements.

Outside experts have determined that the DEIR's hydrology model is unreliable because there were so few well-monitoring measurements collected and because the quantity of data-input was insufficient to calibrate any reliable conclusion. As one expert noted,

"*Even a well-calibrated model has a large uncertainty in its predictions. It turns out that this model [Rise'] is not well calibrated, so the uncertainties are almost certainly larger [than the norm].*"

Six of the experts who have assessed the potential threat to local wells from mining activity repeatedly emphasized the uncertainty of the predictability of the mine's impact to domestic wells.

Given the opinion of outside experts, it is imperative that well owners both within and beyond the area of mineral rights owned by the mine applicant be guaranteed an equivalent, uninterrupted, permanent, quality of water, supplied and paid for by the company in advance of any mining operations.

The DEIR must be revised to provide an adequate analysis of impacts to wells. Once this analysis is provided, the applicant and the County will be in a better position to identify feasible and effective mitigation for these impacts. As a first step, the revised DEIR must accurately define the area of potential impact to domestic wells. The revised analysis must provide the quality and quantity of data needed so that the hydrological model can calibrate a more reliable prediction of threat. The data collected must cover all the seasons (over an extended period of time), and include a large enough quantity of representative wells - over a long enough period of time – to establish a baseline usage of the wells in all the neighborhoods whose wells could be threatened by mining activities. The monitoring should be managed by a qualified and independent third party.

Then a fair and accurate domestic well monitoring program must be designed and implemented. This well monitoring program must include full financial assurances covering all well owners in the area that addresses bonding, warranties for NID services, damage reimbursements, etc. Additionally, a community relations program should be established to handle any problems that might emerge over the eighty year permit being requested.

Hydrology - Surface waters

Mine water discharge will overheat the South Fork Wolf Creek.

Mine water temperature ranges between 14 and 15 degrees Celsius. The Project must not change the temperature of water discharged into the South Fork Wolf Creek by more than 5 degrees Fahrenheit (2.8C) per NPDES requirements. (DEIR Appendix K.2, p108) Water from the mine will be pumped into the seven acre treatment pond. From there it will be run through the treatment facility and discharged into the creek. The DEIR's Hydrology study provides only a few data points (April and August of 2019 and Jan 2020) to determine the range of values for the creek flow and temperature, reporting lows of 9 deg F in the winter to 15 deg F in late summer (DEIR Appendix K.2, pg 108).

However, over 15 years of monitoring by (WCCA) provides data indicating that the temperature of the creek often falls substantially below 10C, and that these temperatures commonly occur during low flow times.

The revised DEIR must include studies that reliably predict the mine water's outflow temperatures from the treatment pond into SFWC. To do this, the EIR must include thermal modeling of the treatment pond, including the temperature impacts due to the treatment processing plant, flow through rates, cooling under different weather conditions, solar gain, evaporation, precipitation, etc. In order to avoid impacts to the SFWC and the species that inhabit the Creek, the revised DEIR must demonstrate that the discharge temperature and flow rates, combined with the temperature and flow rates of the stream over a range of conditions would not result in temperature changes in the stream in excess of 2.8C (5F) degrees.

The Hydrology report states that:
"During the winter and early spring, the temperature of the water in the mine would be more than 2.8 degrees C warmer than the creek. However, after being pumped from the mine, the water would be stored within a surface pond before treatment and discharge. During the winter and early spring, ***the ambient temperature should cool the water in the pond****. In addition, the rate of discharge would be less than the typical flow rates in South Fork Wolf Creek during the winter and early spring, such that the discharge* ***should not alter the temperature in the creek by more than 2.8 degrees C****. Therefore, the discharge would comply with the temperature criteria in the NPDES permit."* (DEIR Appendix K.2, pg 108)

The section of the Hydrology report addressing creek temperatures is speculative because it is based on incomplete data. It is not sufficient to say "the ambient temperature should cool the water" and "the discharge should not alter the temperature of the creek by more than 2.8 degrees C." Advisory language such as this does nothing to ensure that resources will be protected.

The low flow periods of the stream in the fall and early winter often have low temperatures and would be potentially the worst case for temperature impacts due to mixing. This is not adequately assessed in the DEIR. The revised DEIR must address the following:

- What are the predicted high and low temperatures of the discharge from the treatment pond in all seasons of the year, and considering varying weather conditions?
- Which specific temperature scenarios were considered in the DEIR?
- What are the corresponding flow rates of the stream and what would be the resultant temperature change of the mixed waters?

To accurately predict the outflow temperatures, the revised DEIR must conduct thermal modeling of the treatment pond, including the temperature impacts due to the treatment processing plant, flow through rates, cooling under different weather conditions, solar gain, evaporation, precipitation, etc. The document must then undertake calculations to demonstrate that the discharge temperature and flow rates, combined with the temperature and flow rates of the stream over a range of conditions would not result in temperature changes in the stream in excess of 5 degrees F.

Hydrology - Surface Waters

Impacts from using the 7 acre freshwater pond for treating minewater are not adequately assessed.

The 7 acre pond will be filled with untreated mine water. The outflow of the pond is to South Fork Wolf Creek. It has been modified to increase capacity. Currently it provides habitat for abundant waterfowl and is surrounded by riparian vegetation.

The proposed treatment process will cause Iron and Manganese to precipitate via oxidation in the pond. These oxides will accumulate. Also Arsenic and other contaminants will accumulate. Concentrations of contaminants will exceed the contaminant levels from the discharged mine water due to additional oxidation, mine water recirculation, evaporation, and treatment plant residues from backflushing. What is currently a healthy freshwater pond with good water quality and abundant wildlife will become contaminated. The revised DEIR must address these impacts:

- What will be the impact of the contaminated water on waterfowl and surrounding riparian habitat?
- What mitigation will be provided to replace the habitat and to protect wildlife from exposure to the contaminated water?
- Water for mining operations will be recirculated into the mine. How will the concentrations of contaminants in the pond be monitored to prevent addition of metal to the mine waste stream?
- Will mine workers be protected from exposure? How?
- Will water be tested to assure it will not increase the risk of future groundwater contamination when it is used in the cement paste backfill?
- What impacts will the contaminated mine water have when used for dust suppression and Asbestos management?
- Aeration of water in the treatment pond can cause odors and toxic substances to become airborne. What are the air quality impacts?

There will also be potential leaching of contaminants from mine waste that will be exported as engineered fill or sold offsite. Untreated water that may be used to control fugitive dust emissions and/or increase water content in “engineered fill” may increase those contaminants. The revised DEIR must address the following:

- What safeguards will be used to prevent additional contaminants present in the untreated water from increasing the total levels of contaminants present in the exported materials?
- How often will the water used on exported materials be tested?

- In the event that the total level of contaminants in material destined for export exceeds the thresholds for toxic contaminants, how will the material be managed? Where will it be placed?

Periodic removal of treatment pond precipitants.

The treatment pond would be used to remove some or all of the Iron, Manganese, and other contaminants in the mine water by oxidation. Periodically, the pond must be drained and the accumulated precipitants must be removed. There are number of impacts from this process that are unaddressed in the DEIR:

What are the impacts on the surface waters from draining the 40 acre foot treatment pond?
How will the dewatering maintenance process be managed during this operation?
Will testing be conducted on the precipitants?
How will the precipitants be classified, and where will they be taken?

These impacts must be addressed in the revised DEIR.

Land Use, Zoning, Population and Housing

A variance for proximity to geological faults is not supported.

Industrial development must be located at least 200 feet from any fault line. The DEIR fails to provide a map showing the location of all of the faults and the 200 foot setbacks along with the locations of the proposed industrial buildings. A drawing showing these relative locations is necessary in order to evaluate the potential impacts of the fault (See map, DEIR Appendix H.2, Figure 1 and 2).

There seems to be an attempt to obfuscate the issue of variances by noting the location of the existing New Brunswick Shaft within the 200 foot setback. As an existing structure, a variance for use of it as a secondary access to the mine is a lessor potential impact than a variance for proposed new industrial buildings.

Pg 5 states: “Because the proposed Project includes development of industrial facilities associated with underground mining operations utilizing the New Brunswick shaft, construction within the building setback fault zone is necessary and unavoidable. There is no alternatively feasible location that would have less impact on the Site and surrounding areas.”

This statement is not valid. First, the site of the historic Idaho-Maryland Mine main access and processing facilities was at the Centennial site on Idaho-Maryland Road. This would be a suitable site for the industrial facilities. In fact, it is a more suitable due to the nature of adjacent land use and fewer impacted residential properties. To further support this point, note that in 2008 Emgold Mining Corp. submitted an application to open the mine at the Centennial site, including all of the processing facilities. The Brunswick site and the Round Hole site were to be for additional access, ventilation and emergency access. Having multiple access points from different parts of the mine works also provides better emergency access and ventilation. The current proposal by Rise Gold has all of the access to the

entire mine works located at two shafts within a short distance of each other, which lacks those benefits.

Thus, the statement that "There is no alternatively feasible location that would have less impact on the Site and surrounding areas…" has not been established as valid. At the very least, evidence should be provided supporting this claim.

Furthermore, as noted in FaultingHazards, the impacts of mining will change the mass balances on either side of the faults with the potential to induce seismic activity.

This variance should be denied.

Alternative Land Uses are not adequately discussed.

The DEIR Alternatives chapter discusses only an alternative use that would result in an industrial project on the Brunswick site at maximum buildout potential. It is then dismissed for evaluation because impacts were concluded to be greater than the mine project. This is a severe inadequacy in the DEIR.

In order to adequately address project alternatives, the DEIR must discuss an alternative use that would be more likely at this site - such as a project consistent with the site zoning, not requiring a use permit, and of a scale which is designed to avoid significant mine project impacts. An alternative industrial use appropriately scaled at this site would be more likely to meet the community character and aesthetic related policies in the General Plan and result in reduced impacts compared to the mine project in virtually every impact area including visual, traffic, air quality, and noise/vibration.

The DEIR is also deficient in not mentioning or analyzing the mine project's inconsistencies with the Grass Valley General Plan. The mine project is within the Grass Valley Sphere of Influence. The Centennial site is within Grass Valley's first phase annexation area. A portion of the Centennial site is also zoned by Grass Valley for Urban Medium Density housing. The Nevada County General Plan requires the county to designate lands within the cities' Spheres of Influence consistent with the city land use designations. The county has not done this; thus the Industrial designation and the mine project's operations are clearly inconsistent with its own General Plan and the Grass Valley General Plan. Physical land use compatibility impacts (industrial uses next to medium density housing) will also result. In addition, the DEIR should evaluate the City's and the County's General Plan land use policy text and zoning texts for consistency. These are potentially significant impacts which must be discussed in the DEIR.

The revised DEIR must also determine whether the dumping of mine waste is a heavy industrial activity.

Maps and Plans

The Brunswick site shows a 100 ft building setback and an NID spill easement on an open creek, South Fork Wolf Creek. The map also shows a fault line. The map is dated 1987. Apparently this perennial stream was buried in a culvert since 1987, based upon the map's date.

- Was the burial of SFWC done under an authorized permit?
- What is the status of the NID spill easement?
- Have the 100 ft setback and NID spill easement been waived or reconveyed to the land owner?

Any existing easements or setbacks which may be encroached by the Project must be waived or modified by the consent of the entitled party.

What is presumably the Weimar fault, also known as the 6-3 Fault, (See https://www.risegoldcorp.com/uploads/content/I-M_Tech_Report.pdf) runs through the project site, although, surprisingly, the DEIR does not actually refer to it by name. The site map showing the Fault Line and Setback Zone (DEIR Appendix H.2, Figure 1) for this is inadequate. None of the proposed structures for the Project are shown.

A map with South Idaho Shaft precisely located and with the Pine Hill flannelbush locations shown must be provided to safeguard inadvertent intrusion into the flannelbush protection areas

A map showing the mineral rights zone and all the parcels identified by address must be provided to adequately inform the public regarding the location of residences and businesses in the area with respect to the mine.

Noise and Vibration

Nighttime noise impact is not adequately addressed.

The analysis "Acoustical Comments on Draft Environmental Impact Report, Salter Project 22-0039" (Salter) provides comments on the DEIR's analysis of the noise and vibrations for the Project.

Salter determined that nighttime noise is not adequately addressed in the DEIR. The DEIR outright dismisses the potential for noise impacts due to sleep disturbance and inappropriately excludes this consideration from the DEIR analysis. The combination of nighttime industrial activities amongst a community that currently enjoys low ambient noise levels represents a significant risk for Project noise to impact the community, annoy residents, and cause sleep disturbance.

A revised DEIR should provide a comprehensive analysis of nighttime noise impacts, identify these as potentially significant impacts, and identify appropriate mitigation, including limitations on nighttime noise, to protect nearby residents (Salter).

Engineered fill operation noise is underestimated.

The DEIR underestimates operational noise from the Project's engineered fill operations (Impact 4.10-2). This 5 to 6-year long activity could generate noise levels at least 10 to 18 dB higher than predicted in the DEIR. This is a significant deficiency in the impact analysis. As such, the project's noise levels could be 20 to 35 dB louder than current median/background ambient noise levels, causing a severe

impact. In addition, in several instances, the DEIR fails to adequately address impacts to sensitive receptors located farther away from existing roadways that currently have a lower background noise (Salter).

These are potentially significant impacts. The DEIR must be revised to correct these deficiencies and omissions.

Blasting vibration impact is not adequately addressed.

The DEIR fails to adequately evaluate blasting vibration impacts (see Impact 4.10-4). Blasting operations have the potential to subject nearby residents to "strongly perceptible" and borderline "unpleasant" vibration on a regular basis for the rest of their lives. These perceptible and unpleasant vibrations must be considered a significant impact in the DEIR.

In particular, the DEIR fails to include crucial guidance from the U.S. Office of Surface Mining Reclamation and Enforcement Blasting Guidance Manual restricting blasting vibration during evening and nighttime hours. If blasting must be allowed at these sensitive times, the DEIR must incorporate adequate mitigation with a notably stricter limit at all sensitive receptors (Salter).

Stoping and the new access shaft construction requires noise and vibrations analysis.

In addition to the vibrations of the blasts, the DEIR fails to analyze impacts associated with long hole slope blasting, i.e. the landing impact shock from long hole stope rock falling. Long hole slope blasting has the potential to create significant shock waves.

The DEIR fails to evaluate the vibrations from the rock falls during the construction of the new access shaft. The top 60 feet of the shaft will be built from above by excavating and forming a concrete structure. The remainder of the shaft will be excavated by tunneling from below. The analysis of the construction noise for this shaft did not include blasting from below, and shock waves from that near surface blasting, and the shock waves when volumes of rock drop vertically up to 1000 feet.

The shaft excavation which is proposed to be constructed from below cannot begin until the mine has been dewatered to over 1000 feet and mine works have been restored from the New Brunswick shaft entrance to the location of the bottom of the new access shaft. In light of this information, the revised DEIR must answer the following questions:

- What is the total time that the new access shaft will be under construction?
- How long after the initiation of the site construction will this new access shaft excavation phase begin?
- How long after the initial dewatering of the Mine will the construction of the new access shaft begin?

The DEIR's Appendix M_Blasting Report.pdf recommends that "...IMM hire a blast consultant to assist with the development of a 95% confidence level equation for the site-specific ground vibration. This consultant would take the data acquired by the seismographs set-up on the mine, run a linear regression and log-log confidence model to develop an equation that the mine can use to modify blasting, as needed, to ensure vibration levels remain at acceptable levels." (DEIR 7.2, p28)

In order to mitigate the risks of vibration impacts, this must be a requirement, not a recommendation. In addition, in order to protect the public from vibration impacts, the revised DEIR must add as a requirement or a condition of approval that the applicant cease operations if vibrations are in excess of 0.5 in/sec. Absent these additions, the impact must be considered significant and unavoidable.

Other Issues

The DEIR has not demonstrated that mine waste disposal by off site sales would be viable.

The DEIR indicates that the applicant (Rise) plans to sell waste rock on the open market if it is still being produced after the two proposed waste rock piles reach capacity (DEIR Project Description). The Regional Water Board has jurisdiction over the disposal location requirements for mine waste rock. Although the DEIR does not disclose this, the concept of selling waste rock is an unrealistic and infeasible proposal unless the Water Board has determined that such discharges would not pose a threat to water quality. Accordingly, the Project should not rely on this concept and the DEIR should identify all impacts associated with alternative disposal methods.

Even if the mine waste can be sold, the market for aggregates varies significantly by season. During rainy seasons, it may be necessary to stockpile the aggregate onsite, but there are no provisions for onsite storage in the DEIR or an assessment of impacts related to such storage. As reported by the Center for Science in Public Participation (CSP2), dispersing waste rock and other mine waste over large areas without containment often results in contamination (e.g., Calcine mercury mine tailings used for road construction in San Luis Obispo County).

The absence of provisions for temporary waste rock storage (and the associated analysis of its impact) creates strict operational constraints and potentially significant impacts on all phases of processing have not been addressed in the DEIR. The DEIR should be revised to include an analysis of these impacts.

Construction time estimates are inadequate and affect noise, traffic, air, and other impact areas.

Construction time estimates in the DEIR are contradictory and inadequate. For example, the DEIR states in several instances that the Project is estimated to have a twelve month construction phase, but also states that the construction of the water treatment facility alone would take eighteen months.

Furthermore, neither of these estimates - twelve or eighteen months - is sufficient to capture all phases of construction. As just one example, the applicant would have to complete significant grading and underground development before initiating the eighteen month construction of the water treatment facility. Similarly, the water treatment facility would have to be completed before dewatering of the mine could begin. Dewatering is a six month process. After dewatering has been completed, the new shaft for ventilation and emergency access would have to be constructed to the 1000’ depth by working upwards from below. Then, before beginning any actual new mining, the tunnels would need to be restored sufficiently to allow for construction of the underground rock crushing facility. All of these activities must happen sequentially, not in parallel. Therefore, a more reasonable estimate of

construction length for the Project would be four to six years, clearly resulting in significantly different annual and cumulative impacts than the ones identified in the DEIR.

The DEIR should be revised to provide an accurate description of each construction project, including its intended duration. This revised description must also include the sequencing of construction projects. Until this information is provided, the DEIR preparers will be unable to properly assess the annual and cumulative impacts on air, noise, traffic, aesthetics, and other resource areas.

Permits

Construction phase repairs to the 7 acre pond on the Brunswick site will require draining the pond, repairing the pond berm, and lining the pond with a membrane. Impacts to surface waters and the wet meadow below the pond must be assessed.

The Project includes a 165’ tall headframe which requires a height variance. Several other buildings are over the county limit for building height as well. Consideration should be given for putting a substantial portion of those structures underground to reduce the visual impacts and mitigate the excessive height.

Conclusion

As documented throughout this letter, the DEIR lacks critical information necessary to identify all potentially significant impacts associated with a large underground mining project close to a populated area. The Adocument lacks he DEIR lacks an accurate project description, relies on an incomplete baseline for evaluating the project’s environmental impacts, lacks data and analyses needed to make informed determinations, underestimates or omits impacts and fails to provide effective and feasible mitigation measures. For these reasons, the document is inadequate under CEQA. The DEIR must be revised accordingly and recirculated.

**This document was produced by the contribution of the CEA Foundation Research Team, including Barbara Rivenes, Bill Lawrence, Dianna Suarez, Don Rivenes, Gary Griffith, Gary Pierazzi, Greg Thrush, Isabelle Langone, Jeanne Wilson, Jillian Blanchard, Jonathan Keehn, June Oberdorfer, Laurie Oberholtzer, Mike Shea, Pam Heard, Paul Schwartz, Ralph Silberstein, Ray Bryars, Rhea Williamson, Robert Hubbard, Suzanne Smith, William Clark, and others.

References

Documents attached as a reference to this letter:

- Review of the Idaho-Maryland Mine DEIR Groundwater Model.pdf
- Comments on Itasca GW Modeling Oberdorfer.pdf
- MineExhaustMoisture.pdf
- FaultingHazards.pdf
- ASUR Plan Analysis.pdf
- Health Risk Assessment Critique.pdf
- Sampling Procedures.pdf

Documents cited and submitted under separate cover:

- Baseline Environmental Consultant Report, Feb 15, 2022 (Baseline).

- Salter Report, March 9, 2022 (Salter).
- Comments on the Idaho-Maryland Draft EIR - 16Mar22, Center for Science in Public Participation.