15 February 2022
22204-00

Laurel L. Impett
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396 Hayes Street
San Francisco, CA 94102-4421

Subject: **Review of Idaho-Maryland Mine Project, Draft Environmental Impact Report, SCH# 2020070378**

Dear Ms. Impett:

At your request, Baseline Environmental Consulting has reviewed the Hazards and Hazardous Materials, Hydrology and Water Quality, and Air Quality, Greenhouse Gas Emissions and Energy sections (and associated technical studies) of the Draft Environmental Impact Report (DEIR) for the proposed Idaho-Maryland Mine Project dated December 2021 and prepared for the County of Nevada (County). In order to provide a meaningful context for the analyses of the sections listed above, we also reviewed the DEIR Project Description. Following are our comments on the DEIR, organized by topical sections.

DEIR SECTION 4.7 HAZARDS AND HAZARDOUS MATERIALS

Legacy Contamination, Project Segmentation, and CEQA Baseline

The types of geological materials/rock historically mined at the site contain heavy metals, and when excavated, the waste rock and mine tailings have been found to contain contaminants that pose a potential risk to people and the environment. The Centennial Industrial Site was historically used by the Idaho-Maryland Mine to deposit mine tailings and waste rock. The DEIR (page 4.7-3) confirms that:

> *Extensive site investigation, overseen by DTSC, has identified mill tailings, waste rock, and affected soil at the site that contain lead, arsenic, mercury and other metals at concentrations exceeding background soil metals concentrations and regulatory benchmark concentrations. Elevated soil metals concentrations present a potential human health risk resulting from routine, long-term exposures, as well as ecological concerns in terms of impacts to plant and animal species. As a result, under existing conditions, the majority of the Centennial Industrial Site cannot be developed due to unstable soils and/or contamination.*

Per the California Department of Toxic Substances Control (DTSC) EnviroStor database, the Centennial Industrial Site is characterized as follows:

> *Based upon information from existing documents, mining waste rock and mine tailings are present throughout much of the property. Results of sampling that has been completed to date indicates that the soil at the site contains lead, arsenic, nickel, and mercury at maximum concentrations of 35,111 milligrams per kilogram (mg/kg), 3010 mg/kg, 2100 mg/kg, and 41 mg/kg, respectively. These concentrations are above background and California hazardous waste levels.*

Based on this DTSC description, the existing waste rock and mine tailings that were generated from historic mining activities contain contaminants at levels exceeding regulatory thresholds, including California hazardous waste thresholds. These existing waste rock and mine tailings at the Centennial Industrial Site have been present (and have represented a persistent environmental hazard) since the former mining operation at the site shut down over 60 years ago (circa 1956). In 2019, the owner of the Centennial Industrial Site entered into a Voluntary Cleanup Agreement with the DTSC to address the hazard associated with the legacy waste rock and mine tailings generated from previous mining operations. It should be noted that cleanup actions were not initiated by the site owner until they were ready to reopen the mine.

The DEIR inappropriately establishes a future baseline condition (that may or may not actually exist in the future) for the DEIR hazards analysis as follows (DEIR page 4.7-1):

> *As discussed in Section 1.3, "Approach To Centennial Industrial Site Baseline," of this EIR, for the purposes of this hazards analysis, the environmental baseline for the Centennial Industrial Site has been adjusted to be consistent with anticipated site conditions at the completion of the separate Centennial Industrial Site Clean-up Project.*

This is clearly not allowed by CEQA. CEQA Guidelines Section 15125 states:

> *An EIR must include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, from both a local and regional perspective. This environmental setting will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant.*

In addition, the timing of the action related to the proposed cleanup of the legacy contamination (which began in 2019 – over 60 years after the waste was placed at the site) strongly indicates that the cleanup <u>is</u> related to, and part of the proposed mine reopening project (i.e., the site owner would not have entered into a Voluntary Cleanup Agreement unless they were planning to reopen the mine). Development of the Centennial Industrial Site for reopening of the mine is contingent on the completion of cleanup activities. However, the preparers of the DEIR have separated the project that would clean up the existing waste rock

and mine tailings contamination at the Centennial Industrial Site from the proposed new mining project. The DEIR asserts that these are two separate projects.

By separating the two projects (the waste rock cleanup and the proposed new mining activities), the applicant is violating the CEQA Guidelines (Section 15378). The CEQA Guidelines define a project under CEQA as "the whole of the action" that may result either directly or indirectly in physical changes to the environment. This broad definition is intended to provide the maximum protection of the environment. Piecemealing or segmenting means dividing a project into two or more pieces and evaluating each piece in a separate environmental document, rather than evaluating the whole of the project in one environmental document. This is explicitly forbidden by CEQA, because dividing a project into a number of pieces would allow a Lead Agency to minimize the apparent environmental impacts of a project by evaluating individual pieces separately, each of which may have a less-than-significant impact on the environment, but which together may result in a significant impact.

The DEIR should be revised to address the current baseline condition and segmentation of the environmental review process, which would require the project to include the cleanup of legacy contamination at the Centennial Industrial Site.

Project-related Waste Rock and Mine Tailings

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). Since Section 4.7 Hazards and Hazardous Materials of the DEIR contains almost no discussion of the impacts associated with generation and disposal of potentially hazardous mine waste, it should be revised to include a detailed description of waste rock and mine tailings, including all historic analytical data and chemical characterization of the waste, so that the reader can gain a better understanding of the nature of this waste.

The DEIR provides little or no analytical data that demonstrates the chemical quality of the rock proposed to be mined would differ in any way from the rock that was mined historically. In the absence of data to the contrary, it is reasonable to assume that any newly generated waste rock and mine tailings would have similar chemical characteristics as the rock mined in the past. Therefore, the waste rock and mine tailings generated by the proposed project will almost certainly contain metals contaminants that could pose a health risk to people and the environment, and the DEIR includes no detailed plan as to how these contaminated wastes will be managed so that they do not create another environmental hazard. In fact, the DEIR appears to try to "rebrand" the waste rock and mine tailings as "engineered fill", apparently in the hopes that the waste material can be transported off-site for use at various unspecified

construction sites throughout the region as fill material, which would almost certainly result in numerous new contaminated wastes sites that pose a threat to the public and the environment. Unless it can be clearly demonstrated using substantial evidence that the waste rock and mine tailings can be safely used at uncontrolled constructions sites, this waste management option should be eliminated from the proposed project and the DEIR.

The only assurance provided by the DEIR (in section 4.8 Hydrology and Water Quality) that the project would not create another environmental hazard associated with placement of waste rock and mine tailings at the Centennial Industrial Site, which is already contaminated with previous placement of waste rock and mine tailings, is as follows (DEIR page 4.8-50):

> *Rise will be required as part of the project to submit a Report of Waste Discharge and obtain Waste Discharge Requirements from the Regional Water Quality Control Board for construction of the engineered fill areas.*

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.

DEIR SECTION 4.8 HYDROLOGY AND WATER QUALITY

Impacts to Groundwater Resources and Domestic Water Supply Wells

The proposed project would intentionally affect local groundwater resources by dewatering the aquifer in the project vicinity to lower 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.

As described on page 3-15 of the DEIR:

> *The Idaho-Maryland Mine would be dewatered using the Brunswick shaft to access the underground workings.*

And page 4.5-55 of the DEIR:

> *As dewatering occurs, the water level within the underground workings would decrease from its current depth of approximately 250 feet bgs down to the maximum depth of the New Brunswick shaft at about 3,460 feet bgs. These depths are equivalent to elevations of approximately 2,500 feet msl and -700 feet msl, respectively. Thus, the water level within the mine workings would eventually decrease as much as 3,200 feet due to the project. As previously discussed, the transmissivity of the fractured bedrock decreases by several orders of magnitude at deeper depths, due to a reduction in the number of*

> *fractures and a decrease in the width of the fracture openings caused by increased lithostatic pressures at depth. As a result, dewatering of deeper tunnels and drifts would have less impact on groundwater levels in the fractured bedrock than would dewatering of shallower mine workings.*

As described in the DEIR, groundwater levels within the mine would be lowered by over 3,000 feet. Under the proposed project, the mine workings would essentially act as an enormous groundwater extraction well that would be pumped continuously for generations (the requested permit term is 80 years – DEIR page 2-3).

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 where rural residences and businesses rely solely on private groundwater wells for their water supply. Per the DEIR (page 4.8-55):

> *…based on the variation in the transmissivity and hydraulic conductivity of the fractured bedrock, 99 percent of groundwater inflow would occur within 550 feet of the ground surface, as previously discussed. Based on the fractured bedrock aquifer properties and the maintenance dewatering rates, it is anticipated that the drawdown near the mine area would cause the water levels in several of the wells in the East Bennett area to be affected.*

Based on this groundwater model output, the DEIR concludes that the East Bennett wells area could be affected and that impacts in all other areas would not be significant (DEIR page 4.8-62):

> *Thus, in the perimeter areas and including a safety factor of 100 percent in calculations, the project would not have any significant impact on groundwater supplies.*

In Mitigation Measure 4.8-2(a) (DEIR page 4.8-67) the DEIR acknowledges that more groundwater level data is needed to assess the potential impacts of the project to groundwater levels. The DEIR inappropriately defers the collection of additional data (via a Groundwater Monitoring Plan) to the future.

Mitigation Measure 4.8-2(a)(4) (DEIR page 4.8-67) is internally inconsistent and not implementable as stated. The first part of the measure requires an assessment be conducted "once dewatering of the underground mine workings commences", as stated (DEIR page 4.8-67) [underline emphasis added]:

> *A projected water-level impact assessment for individual domestic wells shall be performed once dewatering of the underground mine workings commences, based on responses of the measured groundwater levels of the project monitoring wells. The*

> *projected groundwater drawdown shall be estimated for each domestic well in the project area. This impact assessment shall be performed by tabulating the variation of the measured water levels from the project monitoring wells over the monitoring period and during the dewatering of the underground mine workings and mining operations.*

The second part of the same mitigation measure refers to determination of "baseline groundwater level", which would be based on the assessment discussed above, "shall be developed prior to the initiation of dewatering of the underground mine workings", per the DEIR (page 4.8-67) [underline emphasis added]:

> *For each domestic well, a projected and seasonally averaged water level shall be estimated based on the domestic well location and the background potentiometric conditions, which will serve as a baseline groundwater level and shall be developed prior to the initiation of dewatering of the underground mine workings.*

It would not be possible for pre-dewatering baseline levels to be determined when they would be based on an assessment that would not start until after dewatering begins. Consequently, this Mitigation Measure 4.8-2(a) (DEIR page 4.8-67) would be impossible to implement.

The lack of clarity and implementability of the proposed approach demonstrates that the DEIR does not provide a clear and feasible methodology for protecting groundwater resources and domestic well users. A groundwater management plan that includes information gathering and data collection from a broad network of existing domestic wells (not monitoring wells - refer to additional discussion below under **Proposed Reliance on a Groundwater Monitoring Well Network**) should be implemented prior to preparation the DEIR.

CEQA does not allow the deferment of important studies that would allow full characterization of impacts and deny decision-makers information that would allow them to make well-reasoned decisions regarding the viability of the project. Groundwater monitoring networks should be established and resulting data included in the DEIR.

As described below, the approach that the DEIR takes to assessing and mitigating potential impacts to groundwater levels and existing water supply wells is flawed in numerous ways.

Uncertainty of Groundwater Model Predictions

Accurately characterizing the flow patterns and behavior of groundwater using mathematical equations (models) is a challenging endeavor in any geologic environment. The types of hydrogeologic systems that are most readily modeled accurately are uniform (homogeneous), isotropic (consistent structure from place to place) rock and or sediments, like a uniform unfractured sandstone where water flows slowly through pore spaces around the grains of the geologic material.

Groundwater occurrence and flow within complex fractured bedrock systems, like those that occur at the project site, are exceedingly difficult to model with accuracy or reliability. It is widely known by practitioners in the hydrogeologic community that accurate prediction of groundwater behavior in fractured bedrock using groundwater models, where most of the flow occurs within the unknowable sets of primary and secondary fracture patterns, rarely occurs.

The DEIR bases its entire approach to characterizing and mitigating the impacts to groundwater resources and water levels in existing domestic wells on the results of a numerical model for a complex aquifer system with many intricacies that can never be fully understood. Even the water resources firm hired by the applicant to conduct a peer review of the mathematical model expressed concerns about the reliability of the model results:

From Wes Yost (page 12)

> *A major assumption is that flow contributions from the workings are distributed uniformly across the mining areas after correcting for depth. However, the subsurface distribution and orientation of bedrock fractures is not uniform and is subject to uncertainty. Discussion of this uncertainty and the overall uncertainty of the model predictions with respect to groundwater level impacts on individual wells should be provided.*

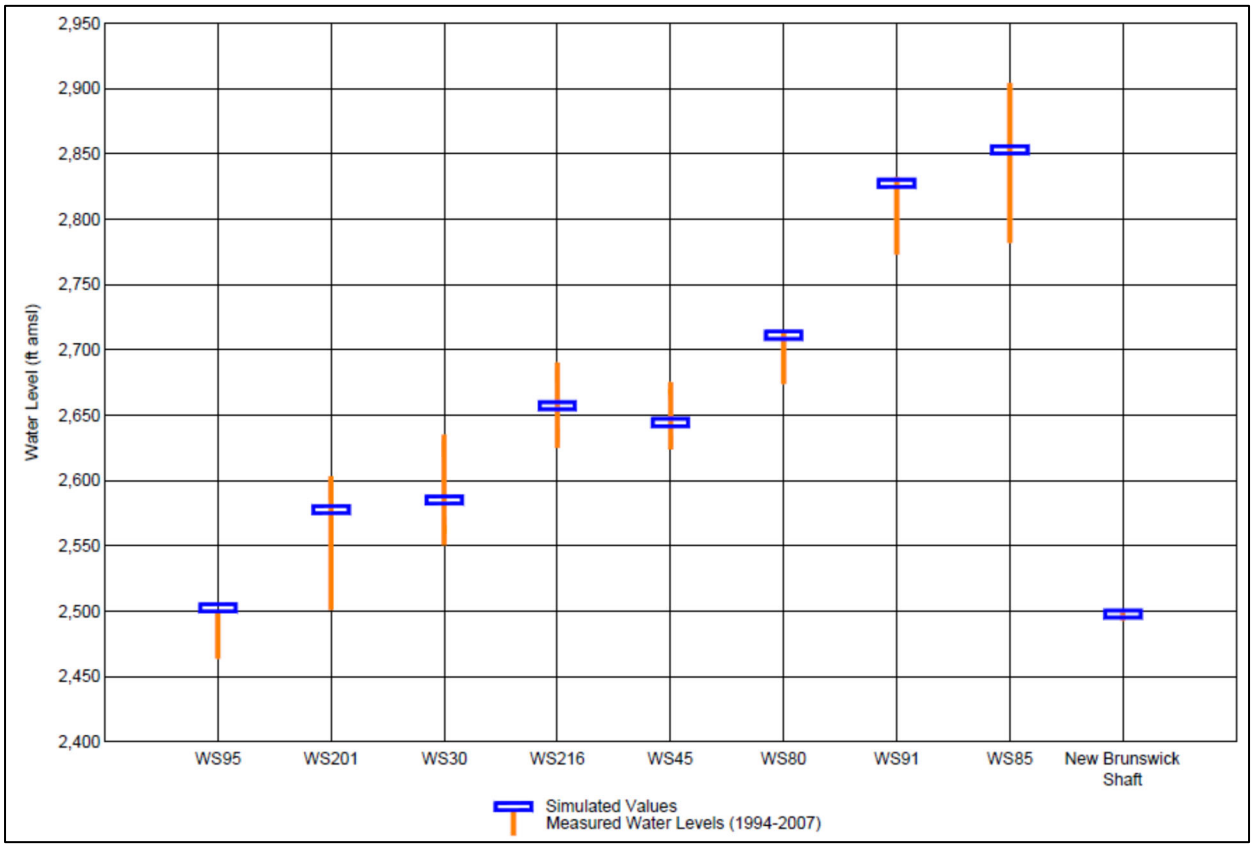
The DEIR does not explicitly acknowledge the concern related to the "subsurface distribution and orientation of bedrock fractures is not uniform and is subject to uncertainty" raised by Wes Yost.

Additional uncertainties in the groundwater model are evident based on review of the groundwater model report included in Appendix K.3 of the DEIR. The groundwater model was calibrated based on pumping rates from the historical Idaho-Brunswick Mine and one water level measurement collected from the flooded (i.e., inactive) Union Hill shaft in 1956. Using only one water level measurement to calibrate a complex bedrock aquifer system over a large region introduces a significant amount of uncertainty to the model. In addition, page 6 of Appendix K.3 states "…there is a poor hydraulic connection between these two mines", which suggests the water level measurement collected from the Union Hill Shaft is not ideal for calibrating the groundwater model.

According to groundwater model report in Appendix K.3, the model was further calibrated or verified by terminating the pumps in the historical Idaho-Brunswick Mine (represented in the model by drainage nodes in the mine workings) and allowing the groundwater levels to recover from 1957 to 2019. The simulated groundwater levels at the end of the recovery period (2019) were then compared to water levels measured in eight domestic wells in the project vicinity from 1994 to 2007. As shown in Figure 4-8 from the groundwater model report (see below), the

simulated water levels recovered within the range of measured water levels in the select domestic wells; however, the variation in measured water levels for each domestic well ranges from about 40 feet (well WS95) to 120 feet (well WS85). Demonstrating that the simulated groundwater levels can recover within a 40- to 120-foot range of measured water levels does not provide much assurance regarding the accuracy and reliability of the groundwater model. This is particularly true when the model is being used to predict that the project will have a maximum groundwater level drawdown of 10 feet in the project vicinity.

Figure 4-8 of Appendix K.3: Simulated Water Levels Compared to Select Domestic Wells



As summarized on page 4.8-19 of the DEIR, groundwater currently appears to be seeping into the existing mine shafts and then discharging to several drains located along Wolf Creek. As stated on page 4.8-19 of the DEIR:

> *The elevation of the water in the New Brunswick shaft averages 2,497 feet msl. This elevation is about 25 feet to 265 feet below the static water level in the domestic supply wells in the East Bennett area. Thus, the underground workings connected to the New Brunswick shaft must have a connection to a point that allows the workings to be*

> *drained, resulting in a lower water level in the shaft than in the wells in the surrounding bedrock.*

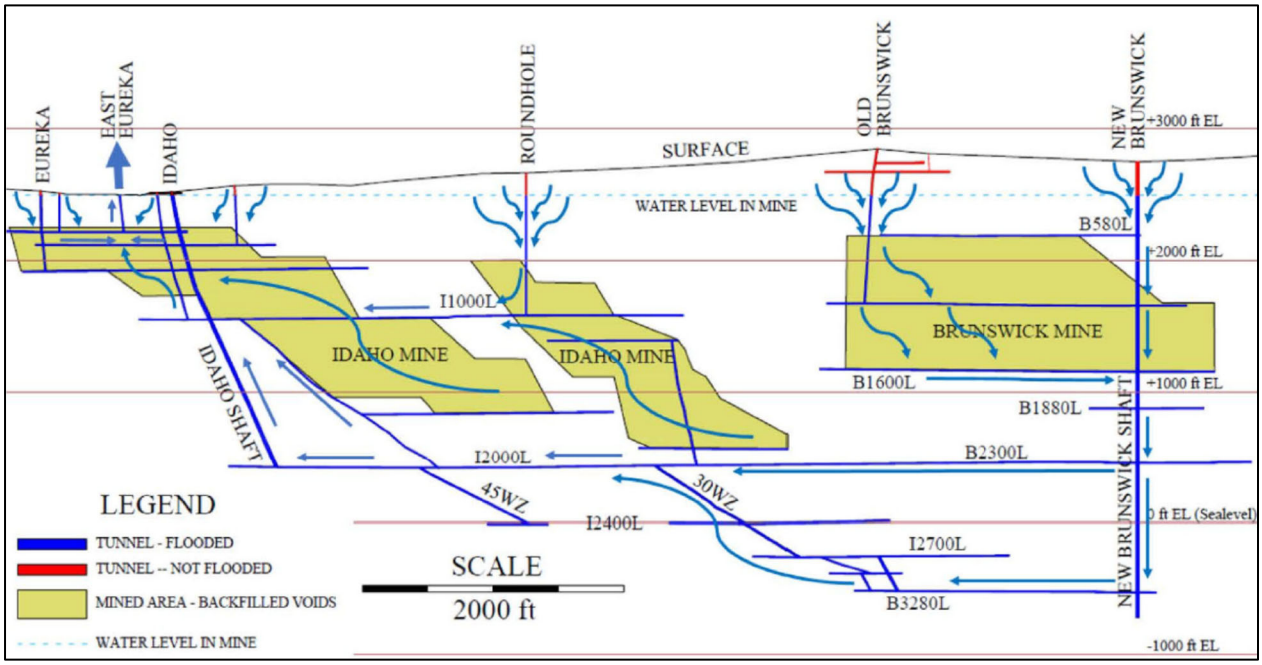
Page 4.8-19 of the DEIR also states the following:

> *Because the water level in the shafts appears to be consistently below the static groundwater levels in the wells in the East Bennett area, groundwater will continually seep into the shafts. As a result, the shafts act as "wells" that constantly draw groundwater from the surrounding shallow bedrock (i.e., above a depth of 500 feet, where the transmissivity is highest).*

As a result, there is currently a groundwater depression created by constant drainage from the existing mine workings. This groundwater movement is generalized in Figure 4.8-7 of the DEIR shown below. The groundwater model report in Appendix K.3 of the DEIR also simulated this existing groundwater depression. However, the groundwater model report provides no discussion of how this condition was simulated. Since the static water level in the mine workings remains at about 2,497 feet msl, the model should apply boundary conditions (e.g., drainage nodes or pumping wells) along the mine workings located above 2,497 feet msl to create the specified head of the current water level in the mine workings. There is no discussion of such a boundary condition being applied to the groundwater model to simulate the current drainage of the mine workings. Calibrating the groundwater model without incorporating the proper mechanisms to simulate the drainage of groundwater from existing mine workings could introduce substantial error to the overall modeling results.

In summary, there is a high level of uncertainty associated with the groundwater model that was used in the DEIR as justification to identify a very small subset of the domestic wells in the East Bennett area that are likely to be adversely affected by the project, and to characterize impacts to a vast number of other domestic wells in the project vicinity as less than significant. This is a flawed approach and provides no assurance that residences and businesses that rely on groundwater wells in the region will have a reliable water supply if the project were to be approved.

Figure 4.8-7 of DEIR: Groundwater Movement in Mine Workings (Existing Condition)



Arbitrary Impact Criteria of 10% Drawdown

DEIR Mitigation Measure 4.8-2(b) states that:

> *If, based on the GMP, it is determined that mining operations are resulting in a significant impact to any well(s) (i.e., a 10 percent or greater reduction of the water column of any well), pursuant to Nevada County General Plan Policy 17.12, the project applicant shall be responsible for providing a comparable supply of water to such homes or businesses whose wells are significantly impacted…*

This mitigation measure attempts to establish this "10 percent or greater reduction of the water column of any well" as a criterion of significance which would trigger a significant impact requiring mitigation. Nowhere is the arbitrary groundwater level of 10 percent reduction justified in the DEIR. It is certainly possible that of the hundreds of supply wells in the region, that some of them are just barely satisfying the well owners needs under existing conditions, and that a water level reduction of 10 percent could lead to water levels dropping below the well pump intake, adversely impacting the quantity of water available from the well with the existing pumping system. The DEIR presents no details related to the characteristics and function of the existing domestic wells that the project may affect and allow for the development of a fact-based criterion of significance. The DEIR needs to disclose this fact and gather the data needed to make such a determination, then discuss and mitigate the impacts.

The mitigation measure also does not describe how drawdown would be determined relative to baseline conditions. As stated on page 7 of Appendix K.3, private domestic wells in the project vicinity have seasonal fluctuations that may vary from 10 to 50 feet between wet and dry seasons. It is not clear how these seasonal water fluctuations would be distinguished from project-related drawdown.

Also, it should be noted that the General Plan policy referred to (Policy 17.12) says nothing about a 10 percent reduction criterion. Verbatim, this General Plan policy states:

> *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, 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.*
>
> *Where water quantity and quality problems occur, an immediate water supply shall be provided by the operator until the source of the problem is determined. The burden of proof shall be on the operator to show that the mining operation did not create the water problem. If it is determined that the operator is at fault, impacted owners shall be compensated by the operator.*

According to the General Plan policy, the correct criterion for mitigating potential impacts to water resources from mining projects is based on expert opinion and not an unsubstantiated 10 percent reduction criterion. For the reasons stated within this letter, 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. The DEIR criterion of impact should be revised to be consistent with General Plan policy 17.12 and Mitigation Measure 4.8-2(c) should be revised to include all wells that may be affected instead of only the 30 wells in the East Bennett area.

Proposed Reliance on a Groundwater Monitoring Well Network

The DEIR and associated Groundwater Monitoring Plan (GMP) (Itasca, Feb. 2021) does not propose to monitor water levels in the actual water supply wells at overlying and nearby residences and businesses that may be affected by the project, but proposes to install monitoring wells to (GMP page 1):

> *…provide data for assessing groundwater conditions during dewatering of mine workings and mining operation at the Project. The GMP includes the installation of monitoring wells across the Project site at 15 different locations.*

It is not explained in the DEIR or GMP how 15 monitoring wells in complex fractured bedrock spread out over thousands of acres could possibly be relied upon to provide data to ensure that groundwater level impacts to the hundreds of existing water supply wells in the project vicinity are immediately identified and mitigated. For example, a monitoring well could be placed in proximity to an existing supply well and respond very differently to changing water levels in the mine during dewatering if a water-bearing bedrock fracture intersects one of the wells, but not the other. To comply with the requirements of General Plan Policy 17.12, the applicant should, at minimum, do the following:

- Complete a detailed water supply well inventory for all wells within the Mineral Rights Boundary (plus a substantial buffer zone);
- Investigate all available details about each well such as the construction design (i.e., depth, diameter, screened interval); type and use of the well (e.g., domestic, irrigation, industrial, etc.); water demand (installing totalizer meters if necessary to determine water use); and recharge rates (installing pressure transducers if necessary to monitor drawdown and recharge); and seasonal variations in water levels.
- Develop a plan for each well to ensure that an immediate alternate water supply can and will be provided should an impact to that well occur. This plan should include provisions to ensure alternate water supplies will be provided throughout the 80-year life of the project and beyond. For example, if the project causes a domestic well to go dry, and the well collapses or partially collapses (which older wells often do when they go dry), the applicant should be required to replace the well at no cost to the owner.

We understand that this well identification and mitigation planning will be a substantial effort and need to be funded by the applicant, but the consequences of not committing to full compliance with General Plan Policy 2.17 are dire for local property owners who rely on groundwater.

It should be noted that the County has already required a similar program for a previous mining project. Please refer to the Conditional Use Permit (File Number: U94-017) for the Extension of Time for Emperor Gold (U.S.) Corporation dated March 28, 2001 (Attachment A), in which the County required: 1) a monitoring program to establish baseline data on local wells and the collection of at least 12 months of baseline data from these wells. The proposed project should be required to at least implement as rigorous of a well protection program for the proposed project as was previously required in the use permit of a previous mining project. DEIR Mitigation Measure 4.8-2 should be revised to more fully address potential impacts to water supply wells and meet or exceed the requirements previously required by the County.

Impacts to Groundwater Dependent Biological Resources Not Adequately Characterized and Mitigated

For similar reasons as described above for potential impacts to water supply wells, proposed mine dewatering activities could, and likely will, have a significant impact on groundwater dependent biological resources by drying up springs and reducing or eliminating groundwater discharges to certain creek segments. This is not addressed at all in section 4.8 of the DEIR. The applicant's own consultant identifies this problem (West Yost, page 18):

> *Baseflow in the South Fork of Wolf Creek and Wolf Creek is from bedrock fractures. The reported hydrogeologic conceptual model for groundwater flow acknowledges this, but the numerical model necessarily assumes a relatively uniform distribution of hydraulic properties in the subsurface. The subsurface distribution and orientation of bedrock fractures is not uniform and is subject to uncertainty. Discussion of this uncertainty and its impact on the model's predicted impacts of mine dewatering on stream flow should be provided.*
>
> *Based on the data and analysis presented in the Itasca Report and EMKO Report, it is possible that mining activities, including blasting, backfilling with CPB, and sealing of drains or areas of the underground workings, could activate leaching and groundwater flow in new subsurface areas, potentially resulting in impacts to neighboring wells, and discharges to surface water of groundwater with water quality exceeding applicable standards. These impacts could potentially occur during the mining or post-mining periods. Because of the uncertainty inherent in the bedrock fracture flow system, monitoring will be needed, as mining activities progress, to assess potential impacts, design appropriate solutions and attain necessary permits to mitigate these potential impacts. These efforts should be addressed in the monitoring and mitigation requirements for the mining and post-mining phases of the Proposed Project.*

This potential impact needs to be fully addressed and mitigated.

DEIR SECTION 4.3 AIR QUALITY, GREENHOUSE GAS EMISSIONS, AND ENERGY

Underestimated Emissions of Criteria Air Pollutants and GHGs from Haul Trucks Transporting Engineered Fill

The air quality analysis for the DEIR assumed that waste rock and mine tailings would be used as engineered fill at the following locations over time:

- Years 2022–2026: Fill placement at the Centennial Industrial Site;
- Years 2027–2032: Fill placement at the Brunswick Industrial Site; and
- Years 2033–2102: Fill placement at off-site locations.

The DEIR estimated the annual average emissions of criteria air pollutants and greenhouse gases (GHGs) for the haul trucks that would transport engineered fill from the Brunswick Industrial Site to the Centennial Industrial Site (1.8 miles per trip) from 2022 to 2026 and then to off-site locations (60 miles per trip) starting in 2033. The DEIR analysis assumed that remediation of the Centennial Industrial Site would be completed and approved by the DTSC prior to the opening year. However, since remediation of the Centennial Industrial Site is not included as part of the CEQA analysis for the project, there is no assurance that remediation of the site will be completed prior to the opening year of the project or within the lifetime of the project. As a result, it's speculative to assume that the Centennial Industrial Site will be available for fill placement.

A more reasonable analysis is to assume the Centennial Industrial Site is not available for fill placement and the haul trucks will need to travel to the more distant off-site locations for an additional five years starting as early as the opening year. Since the fleetwide air pollutant emissions from haul trucks are expected to improve over time as older equipment is replaced with newer technology (e.g., cleaner engines), estimating haul truck emissions to off-site locations in the opening year also provides the most conservative analysis. To illustrate the severity of impacts that could result under this assumption, Baseline prepared an updated analysis of the project's daily nitrogen oxide (NOx) emissions in the opening year related to haul trucks transporting engineered fill to the off-site locations.

As shown in **Table 1**, the project's daily NOx emissions for haul trucks transporting engineered fill to off-site locations (89.6 pounds per day [lbs/day]) would be substantially higher than the results of the DEIR analysis of haul trucks transporting engineered fill to the nearby Centennial Industrial Site (4.0 pounds per day [lbs/day]). The updated analysis would result in the project's total NOx emissions (193.1 lbs/day) exceeding the Northern Sierra Air Quality Management District's (NSAQMD's) Level C threshold of significance (136 lbs/day) in the opening year, which would result in a significant and unavoidable impact if emissions are not mitigated below the NSAQMD's Level C threshold.

Table 1: Comparison of NOx Emissions for Haul Truck Transporting Engineered Fill to the Centennial Industrial Site and Off-Site Locations in the Opening Year (2022)

Haul Truck Destination in Opening Year (2022)	Haul Truck Annual VMT	NOx Emissions (lbs/day)		
		Haul Truck Emissions[1]	Total Project Emissions[2]	NSAQMD Threshold Level
Existing Analysis for Centennial Industrial Site	65,700	4.0	107.5	Level B (24-136 lb/day)
Updated Analysis for Off-Site Locations	2,190,000	89.6	193.1	Level C (>136 lb/day)

Notes: VMT = vehicle miles traveled; NSAQMD = Northern Sierra Air Quality Management District
[1] Haul truck emissions were estimated based on the annual VMT, trips, idling, and emissions factors reported for Haul Trucks in Appendix E.1 of the DEIR.
[2] Total project emissions were estimated based on the unmitigated NOx emissions from other project sources summarized in Table 4.3-17 of the DEIR.

Emissions of other criteria air pollutants and GHGs would also similarly increase if the Centennial Site is not available for fill placement. The project analysis for criteria air pollutants and GHGs should be updated to assume that remediation of the Centennial Industrial Site may not be completed within the lifetime of the project and, therefore, off-site locations may be needed for fill placement for an additional five years starting as early as the opening year. As demonstrated in Baseline's updated analysis of daily NOx emissions, this is expected to result in more severe air quality and GHG impacts than disclosed in the DEIR.

Failure to Evaluate the Effectiveness of Applicant Proposed Measures to Reduce Air Quality, GHG, and Energy Impacts

As described on page 4.3-65 of the DEIR, the following three applicant proposed measures (APMs) will be implemented during construction, operation, and reclamation of the project:

- APM-AQ-1: Exhaust Emission Controls
- APM-AQ-2: Surface Fugitive Dust Controls
- APM-AQ-3: ASUR Plan

Similar to mitigation measures, these APMs are intended to reduce the project's air quality, GHG, and energy impacts. The DEIR included the APMs in the project's unmitigated analysis of air quality, GHG, and energy impacts. It appears that the preparers of the DEIR intended to incorporate the APMs into the project design; however, the APMs were not identified as features in the project description. Therefore, there is no assurance that these APMs will be implemented as a part of the project.

Based on the *Lotus v. Department of Transportation* (223 Cal. App.4th 645) decision, the DEIR should first evaluate if the project's air quality, GHG, and energy impacts would exceed the

thresholds of significance without implementation of the APMs, and then evaluate how the APMs would reduce the impacts to or maintain them at a less-than-significant level. Furthermore, the APMs need to be analyzed for their effectiveness in reducing the impact and a mitigation monitoring or reporting plan needs to be adopted to ensure these measures are implemented.

The DEIR should be updated to properly incorporate of APMs into the project design or convert the APMs into CEQA mitigation measures and include them in the Mitigation Monitoring and Reporting Program. More importantly, the DEIR analysis of unmitigated air quality, GHG, and energy impacts should be updated to evaluate the effectiveness of the APMs in reducing impacts to a less-than-significant level.

Inadequate Mitigation of Criteria Air Pollutant Emissions

According to Table 4.3-17 in the DEIR, the project's unmitigated emissions of NOx would exceed the NSAQMD's Level B threshold during the 1-year period of construction and over the entire 80-year period of the mining permit, while unmitigated emissions of reactive organic gases (ROG) and respirable particulate matter (PM10) would exceed NSAQMD's Level A threshold during that period. Therefore, the project would have a potentially significant air quality impact that should be mitigated to reduce emissions from both short-term and long-term sources. The DEIR analysis has incorporated the minimum mitigation measures recommended by the NSAQMD; however, these mitigation measures only reduce project emissions during the 1-year period of construction. The mitigation measures do not address any of the long-term NOx, ROG, and PM10 emissions over the 80-year permit of the project. As result, there is no evidence that the project's long-term NOx, ROG, and PM10 emissions have been mitigated to a less-than-significant level. The DEIR analysis should be updated to identify and evaluate feasible mitigation measures that would reduce long-term criteria air pollutant emissions from project operations, not just construction.

Health Risk Assessment Fails to Provide Essential Information and Lacks Substantial Evidence to Support Conclusions

The DEIR prepared a health risk assessment (HRA) for nearby sensitive receptors exposed to concentrations of toxic air contaminants (TACs) generated by the project. TACs of concern include diesel particulate matter (DPM), asbestos, silica, and trace heavy metals, as described on page 4.3-79 of the DEIR:

> *Project construction, operations, and reclamation activities would produce DPM emissions (with PM10 exhaust modeled as surrogate) due to off-road equipment and haul truck trips, and other TAC emissions from mining and soil movement. The TAC emissions associated with blasting and crushing, ore processing, and earthwork and material handling would include asbestos, silica, and trace heavy metal TACs including arsenic, beryllium, cadmium, copper, lead, manganese, mercury, nickel, selenium, and vanadium. In addition, for purposes of the HRA, diesel emergency generators were assumed to operate for up to 100 hours per year in accordance with CARB's ATCM for Stationary Compression Ignition Engines.*

The methodology and input parameters used for the HRA are documented in the *Health Risk Assessment for The Idaho-Maryland Mine Project* included in Appendix E.1 of the DEIR. The HRA included air dispersion modeling of 25 unique sources of TAC emissions during construction and operation of the project, such as ore processing exhaust fans, diesel generators, diesel storage tanks, and fugitive dust from off-road equipment. Based on the air dispersion model results, the HRA estimated the health risks for a sensitive receptor exposed to 33 different TACs of concern, such as DPM, asbestos, and silica. Consistent with guidance from the Office of Environmental Health Hazard Assessment (OEHHA), the sensitive receptor exposure was assumed to begin in the 3rd trimester of pregnancy for a duration of 30 years.

The estimated unmitigated cancer risk at the maximally exposed individual resident was reported to be 10.4 in a million, which is above the threshold of significance (10.0 in a million). With implementation of higher-tier engines during construction, as required by Mitigation Measure 4.3-1(b), the DEIR estimated that the project would result in an incremental cancer risk of 7.6 in one million. This 27 percent reduction in cancer risk is surprising, because Mitigation Measure 4.3-1(b) only reduces emissions during 1 year of construction and does not reduce any of the emission sources over the 80 years of operation. However, there is no way to review the validity of the HRA results and effectiveness of Mitigation Measure 4.3-1(b) because the results of the HRA analysis are poorly documented and non-existent in most cases.

For the HRA results, the DEIR only presents the total cancer risk, chronic health risk, and acute health risk for a sensitive receptor exposed to 33 different TACs from 25 different sources at different times over a 30-year period. The individual health-risk contributions from each

emission source, TAC, and year of exposure are not documented or summarized anywhere in the DEIR. In addition, no graphics are provided to show the location of the modeled emission sources, sensitive receptors, and results of the air dispersion modeling. As a result, there is no reasonable method for the public or decision makers to review the validity of the HRA findings and evaluate the effectiveness of proposed Mitigation Measure 4.3-1(b). According to *Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal. 4th 412, 442, the data in an EIR must be presented in a manner to adequately inform the public and decision makers. Here, the DEIR air quality analysis lacks substantial evidence to support its conclusions and should be revised to properly document and summarize the findings of the HRA.

Unsubstantiated GHG Threshold of Significance

Neither the NSAQMD nor the County has adopted numerical thresholds of significance for GHG emissions that would apply to the project. Therefore, the DEIR uses a bright-line GHG threshold of 10,000 metric tons of carbon dioxide equivalents (MT CO2e) per year for operations based on the following justification described on page 4.3-43 of the DEIR:

> *For operations, because the project is an industrial project that includes stationary sources (i.e., diesel generators used for emergency power), the project's GHG emissions were compared to the 10,000 MT CO2e per year quantitative threshold, which, as described above, is used by SMAQMD, PCAPCD, BAAQMD, and SCAQMD for industrial and/or stationary source emissions of GHGs. The substantial evidence for this GHG emissions threshold is based on the expert opinion of various California air districts, which have applied the 10,000 MT CO2e per year threshold in numerous CEQA documents where those air districts are the lead agency.*

The justifications for adopting this threshold are unique to each air district. These air districts have prepared detailed GHG inventories to identify and evaluate strategies for achieving the statewide GHG reduction goals within their air district. While these air districts have adopted the same bright-line threshold of 10,000 MT CO2e per year for stationary sources, the justification for adopting this threshold is not the same for each air district. Furthermore, these air districts originally adopted the stationary GHG threshold to achieve the 2020 statewide GHG goal under California Assembly Bill 32, which was to reduce GHG emissions to 1990 levels by the year 2020. In September 2016, Senate Bill 32 established the State target to reduce GHG emissions 40 percent below 1990 levels by 2030. The Bay Area Air Quality Management District (BAAQMD), which is referenced above, is in the process of updating their GHG thresholds to address California's long-term GHG goals for 2030 and beyond, and is proposing a new stationary source threshold of 2,000 MT CO2e per year or compliance with Cap-and-Trade.[1]

[1] Bay Area Air Quality Management District (BAAQMD), Air District Update to CEQA Thresholds of Significance for Greenhouse Gases; Public Workshop. December 9, 2021.

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 should be updated 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.

CONCLUSIONS

Based on our review of the DEIR and supporting appendices for the proposed project, Baseline recommends that the County revise and recirculate the environmental analysis to address the environmental concerns related to the issues described above.

Sincerely,

Patrick Sutton, PE
Senior Environmental Engineer

Bruce Abelli-Amen, PG, CHg
Principal

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