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City of Grass Valley Planning Department
Attn: Thomas Last, Planning Director
125 East Main Street
Grass Valley, CA 95945

January 20, 2009

Re: Idaho-Maryland Mine Project, Draft Environmental Impact Report (DEIR)

Dear Mr. Last:

The Northern Sierra Air Quality Management District (NSAQMD) has reviewed the above referenced document (DEIR). The NSAQMD appreciates the great amount of work that has gone into its preparation. These comments are intended to assist in the preparation of an EIR that adequately assesses and addresses potential air quality impacts from the project.

The NSAQMD's primary concerns regarding the proposed project are the increased emissions of ozone precursors and air toxics, including asbestos and diesel particulate. These emissions should be more thoroughly considered in the EIR.

The NSAQMD strongly recommends baseline and continuing air quality monitoring for NOx and PM2.5. Air monitors should be installed on or near the mining facility, preferably as near as possible to the estimated downwind site of maximum concentration/impact. Air monitoring should begin as soon as possible in order to establish a baseline level for both NOx and PM2.5. Additionally, temperature, wind speed and wind direction should be monitored. It is expected that an air monitoring trailer would be needed to accommodate monitoring equipment and meteorological instruments. The NSAQMD should run and maintain the site for a minimum of the first 2 years, after which the monitoring activity may be handed over to the mine or a consultant, at the discretion of the NSAQMD. Approximate first year cost of monitoring: \$70,000; approximate second year and ongoing annual cost of monitoring: \$15,000. Assuming this critical measure is included, the mine shall pay for all monitoring costs and data shall be made available for public review.

Emissions Analysis

Potential emissions of the project and especially its proposed alternatives should be much more thoroughly considered in the EIR.

The proposed alternative that involves incorporation of underground electrification (wherein carts, rails, cables, elevators, conveyors, etc. are able to replace a significant quantity of the underground activities that result in the emission of air contaminants) would significantly reduce project emissions. Air quality impacts under this scenario should be evaluated in order for decision-makers and the public to understand potential impacts.

Expected air pollutant behavior under the effects of a low inversion layer (daytime and nighttime) should be discussed.

The approach in the Air Quality section of Appendix B of determining significance is to compare each segment of operations with the District's significance criteria. This is not useful because under CEQA, impacts of the project as a whole are to be considered in determining significance.

During much of the public outreach for the project, an emphasis has been placed on support industries and associated businesses that the mine will draw to Grass Valley, yet these are not elucidated in the DEIR. If they are anticipated as a result of the project, their indirect air quality impacts should be appropriately discussed.

In many parts of the DEIR, equipment descriptions and emissions based on using Tier 1 engines are included (e.g. 4.2.1 including Table 4; 4.2.9 including Table 12; and some of the Appendix B "Detailed Calculations by Source" tables). Tier 3 engine emissions are added on at the end of Appendix B with no clear connection to the rest of the document. This makes it difficult to distinguish at which points Tier 1 is assumed and at which points Tier 3 is assumed. Additional clarification on this point would be helpful in understanding impacts. It appears that Table 4.2-6 (the criteria pollutant emission summary table) is based on using Tier 3 engines, but it is difficult to tell if this is truly the case.

The utilization factors and emission factors relied on in Appendix B of the Air Quality section should be substantiated through a brief discussion and the source of the emission factors should be cited. Assigning the same emission factor to a bulldozer as to a maintenance truck and a forklift, for instance, should be explained. Whether or not these calculations take into account the proposed DPF retrofits (APM 12) should also be clarified.

The plans committed to in the DEIR, including the proposed Energy Conservation Plan, the proposed Greenhouse Gas Reduction Plan, and the proposed Offsite Air Emission Reduction Plan should be finalized and included in the EIR, and the associated emission reductions should be specifically quantified and accounted for in the EIR. The dates by which each of these plans are to be implemented should be stated. Not only is this important for assisting the public and decision-makers in understanding the whole project; these plans could potentially trigger the preparation of separate environmental documents under CEQA if not adequately addressed in the EIR.

Based on the NSAQMD's research, at some other mines the proposed cyanide process has been unable to extract much of the gold in gold ore, especially if it is bound with pyrite. In such cases, an ore roaster or a gold recovery process using mercury is typically employed. The EIR should discuss the potential for this to be the case, based on the chemical and physical characteristics of the ore. If it is possible that the process will have to be changed in such a manner, then associated equipment, controls and potential emissions should also be discussed.

General Regulatory Considerations

The Diesel regulations on page 4.2-11 are referenced ARB, 2004. Since this time, additional diesel regulations have been developed and implemented, and will apply to the project. These can be accessed at <http://www.arb.ca.gov/diesel/diesel.htm>.

If the project is implemented, at least several air pollution permits issued by the NSAQMD will be required. At least one federal Title V operating permit could also be required (typically issued two years after a source commences operation) if the source has the potential to emit more than the threshold quantity of air contaminants, based on western Nevada County's attainment classification at that time. Other permits may also be required, such as federal New Source Performance Standards (NSPS) permits for some aspects of the project. The EIR should include a discussion of the applicability of NSPS (including 40CFR Part 60 Subparts LL, OOO, UUU, IIII) to the project and incorporate any additional controls required under NSPS into project planning and calculated emissions. Further, if after considering all toxics emissions the project is found to be a Major Source of air toxics (as defined in NSAQMD or federal regulations), additional requirements will apply and should be discussed.

Emission controls (e.g. Best Available Control Technology, or BACT) and monitoring not yet proposed for the project may be required for permitting, and it is possible that emission offsets could be required, especially for Phase II and Phase III. Further, if monitoring results reveal high pollutant levels, additional controls may be required. The NSAQMD recommends that BACT for the ceramics plant be researched and included in the EIR. Among potential BACT requirements is ammonia injection technology for NO_x reduction. If ammonia is to be used, the potential for "ammonia slip" (unintended ammonia emissions) and its potential health impacts should be discussed.

NOX and Ozone

Emissions of NO_x from the project are determined in the DEIR to be Significant and Unavoidable. NO_x is undesirable because of its direct health effects, its quality of giving the air a brownish appearance, and its role in the formation of ozone.

Based on animal studies, NO_x concentrations above the State standard (0.030 ppm annual average and 0.18 ppm one-hour average) are capable of damaging cells lining the respiratory tract, causing biochemical, structural and cellular changes in the lung tissue. Exposure to NO_x is associated with human respiratory symptoms, episodes of respiratory illness and impaired lung functioning, and clinical studies suggest that NO_x exposures lower than the State standard may worsen the effect of allergens in allergic asthmatics, especially in children. The health effects of NO_x should be discussed in the EIR.

Ozone is formed by the reaction of NO_x and ROG (ozone precursors) in the presence of sunlight, and the reaction is encouraged by high temperatures. Most of western Nevada County's ozone is transported from the Sacramento valley. The highest ozone concentrations in western Nevada County, as in most of the nation, occur during the summer months. According to the DEIR, the proposed project would increase total NO_x emissions in western Nevada County more than 15% above the current planning inventory by the year 2015. Increased NO_x would react with local ROG (mostly from natural vegetation) to form ozone. However, the degree to which increased NO_x emissions would translate into increased ozone is unknown. It should be noted that when the sun goes down, a phenomenon called "NO_x scavenging" of ozone takes over, in which NO_x actually reduces ozone, although the degree to which scavenging would take place in this instance is unknown. Western Nevada County generally sees its highest ozone concentrations in the late afternoon and nighttime hours because that is when ozone formed over the Sacramento valley reaches Nevada County. That is also when air movement is generally down the Wolf

Creek drainage. In summary, under certain conditions (especially clear, still, hot afternoons) the project could potentially result in increased local ozone concentrations.

The federal Clean Air Act's Reasonable Further Progress (RFP) criteria require ozone nonattainment areas to reduce ozone precursor emissions by 3% per year until attainment is reached, although excess upwind reductions (beyond those committed to in those areas' federally approved attainment plans) can be included in the calculations. It is not expected that the project alone would preclude western Nevada County from demonstrating RFP, although it could potentially increase the burden on future industry, businesses and the public to reduce emissions.

Because of the harmful effects of NOX, the NSAQMD recommends that all feasible NOX mitigations be employed on site and that offsite mitigations (see Mitigations section of these comments) be employed to bring net NOX emissions down to the 136 pounds/day significance threshold of the NSAQMD.

Finally, the DEIR lists federal the 8-hour ozone standard as .08 ppm, but it was actually revised to .075 in the spring of 2008.

Dust

The NSAQMD recommends that all driving areas with more than 5 vehicles per day be either paved or supplied with an installed watering system, as opposed to using water trucks, where reasonably possible.

The NSAQMD recommends that a wheel washing facility, subject to NSAQMD approval, be installed at all New Brunswick and Idaho-Maryland site exits, and used during all construction and operations by all vehicles that have operated on an unpaved surface on site or have visible dirt on their tires, to prevent vehicles from tracking mud or dust onto public roadways.

Asbestos

As discussed in the DEIR, naturally occurring asbestos (NOA), a carcinogen with no safe exposure level, is present on parts of the site and in underground tunnels. Thus, NOA emissions could occur from surface vehicle operation, crushing and screening processes, material transport, underground blasting, underground mobile equipment operation and other activities. The DEIR states, "the NSAQMD requires that all projects that will disturb more than one acre submit an Asbestos Dust Mitigation Plan...." As a point of clarification, this is not an NSAQMD requirement; it is a State requirement for projects located in areas mapped as having or known to have serpentine, under the Statewide Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying and Surface Mining Operations (California Code of Regulations, Title 17, Section 93105), commonly called the Asbestos ATCM. The DEIR does not evaluate the potential for NOA emissions. Instead, it states (page 4.2-26) that implementation of an approved Asbestos Dust Mitigation Plan (ADMP) will result in less-than-significant impacts.

If an ADMP is developed for the project, it will contain substantially different requirements than those specified in the ATCM because the ATCM does not apply to some aspects of the proposed project, such as the underground mining operations and the vent shafts. It is possible that a fine spray misting system will be required for blasting in any tunnels where

ultramafic rock may be present. The EIR should discuss the availability of technology for removing asbestos fibers from the proposed 377,000 CFM of air exiting the mine, and include it in the EIR if it is proposed. The EIR should also discuss the methods by which asbestos-containing material will be identified and emissions minimized.

The objective of an ADMP as outlined in the standards incorporated into the ATCM is to prevent visible emissions from crossing the property boundary. However, the prevention of visible emissions does not preclude the crossing of the boundary by less-than-visible concentrations of asbestos fibers, and nighttime emissions would likely not be visible. Because of this and the fact that it is not possible to continually observe the boundary, and because of the proximity of populated areas and the carcinogenic nature of asbestos, the District recommends a regular asbestos monitoring program at strategic locations on the perimeter of the sites – specifically, upwind and downwind from the air vents and near the Idaho-Maryland mine site. The details of the monitoring program could be worked out as part of the ADMP, but it should be mentioned in the EIR in order to assist the public and decision-makers in evaluating the whole project.

All aggregate production for surfacing materials is subject to the Asbestos ATCM for Surfacing Applications (California Code of Regulations, Section 93106). All unpaved driving areas, trails, landscaped areas, or other surfaces addressed in the Asbestos ATCM for Surfacing Applications are subject to that regulation. All unpaved driving areas mapped as ultramafic should be paved or covered with at least 3 inches of material containing less than 0.25% friable asbestos.

Health Risk Assessment

The Health Risk Assessment (HRA) lists naphthalene and ethylbenzene as non-carcinogenic. However, in 2004 and 2007 respectively, these chemicals were classified as carcinogens by OEHHA and should be evaluated as such in the HRA. Solvent tank emissions should also be specified (by chemical) and included in the HRA.

The modeling for toxics dispersion is based on wind direction recorded at Blue Canyon, which differs substantially from wind direction at the mine site. Blue Canyon data is heavily influenced by the American River canyon, probably resulting in much more north wind than the mine site experiences. If the applicant cannot find more appropriate wind direction data, the NSAQMD would be willing to assist in this.

The HRA assumes three emission points for underground emissions (Idaho Maryland Shaft, Round Hole site, and Mine Decline). The approach taken in the HRA is to simply divide total underground emissions equally among these three points, but this approach doesn't account for air entering the mine anywhere. This should be corrected to a more realistic modeling approach (i.e. based on fan ratings and flow direction), with enough discussion to make all assumptions clear. The ventilation rate described in the HRA is 377,000 CFM. A brief discussion of the expected plume behavior under such a rate would assist in at least qualitatively evaluating the expected pollutant dispersion patterns.

Assay lab emissions, considered “negligible,” should be discussed in more detail, including the chemicals to be used and numbers to substantiate the claim that emissions are negligible. If they include toxics, then these should also be included in the HRA.

All of the items mentioned by the NSAQMD in comments regarding the preparation of the DEIR, particularly concerning the potential for emissions of toxics, should be further discussed. Specifically, the potential to emit sulfuric acid, nitric acid, lead, arsenic, chromium, mercury, cyanide, antimony, cobalt, copper, ethylene glycol, manganese, vanadium, zinc and nickel (as well as hydrofluoric acid and hydrochloric acid) from construction activities, generators, mobile equipment, portable equipment, stationary equipment, motor vehicles, the ceramics manufacturing and glazing process, blasting, combustion of fuel, unpaved roadways and parking lots, haul roads, exposed areas, stockpiles of excavated material, the assay lab, clearing and grading for site development, operation of machinery, landscape maintenance/vegetation management activities and pavement sweeping, heating, any kilns, furnaces or dryers, and miscellaneous surface disturbances, as well as from water contaminated with heavy metals or other substances (including both process water and water pumped out of the historic mine workings); from mining, crushing and processing rock material; from the assay lab; and from the toxic components of other project-wide dust emissions should be more thoroughly analyzed to enable project impacts to be understood.

Odors

The DEIR states (p. ES-10), "...the proposed project would not result in odorous emissions that could affect nearby sensitive receptors." It is difficult to establish a level of significance for odors because individual sensitivity is highly variable. However, based on the proposed amount of diesel equipment usage and diesel vehicle traffic, the NSAQMD believes it is possible that odors from diesel exhaust could generate public complaints, particularly when there is little air movement and a low inversion layer, and particularly during the summer months, when people like to leave their windows open at night. This applies to areas near the vent shafts and the main site. Considering that the best available technology is already proposed for on-site equipment, the only odor mitigation that the NSAQMD can think of (while keeping proposed production rates intact) is to use underground electrification rather than diesel equipment (proposed as a Project Alternative).

Mitigations

The NSAQMD supports the applicant-proposed mitigations, especially the incorporation of exclusively Tier 3 mobile equipment.

MM 4.2-1d limits idling to 5 minutes. Since this may not be enough time to ensure proper operation of the equipment, particularly in cold weather, or satisfy all normal safety requirements, the District recommends modifying the measure to reflect allowable usage as specified in the State's Offroad Diesel ATCM (which will apply to offroad equipment used in the project) so that equipment can idle for longer than 5 minutes if necessary.

Mitigation Measure 4.2-1d specifies that ultra-low sulfur diesel (15 ppm sulfur) shall be used in all equipment, and assigns a diesel particulate matter (DPM) reduction factor of 15% to this mitigation measure. The 15% reduction appears to be reflected in Table 4.2-6. California requires 15 ppm sulfur diesel, and this may already be included in the emission factors, so the applicant should make sure the reductions are not double-counted.

Mitigation Measure 4.2-5 proposes a Greenhouse Gas (GHG) Reduction Plan to be developed for approval by the City. The NSAQMD should also be involved in the approval process since statewide GHG regulations and standards are principally channeled through

local air districts. Note that GHG regulations are currently under development by the State, and it is not yet known if additional requirements for GHG reductions will apply by law to the project. Also, one of the items listed as a possible GHG reduction measure is “recycling of heat in the ceramics plant.” If this is feasible, then it should be explored further in the EIR, and if it would result in reasonably cost-effective pollution reductions (particularly NOx reductions) then it should simply be designed into the project.

MM 4.2-1e commits to an Offsite Air Emission Reduction Plan to reduce air contaminants by at least 10% of the remaining emissions after the other proposed measures are incorporated. The EIR should state how the proposed 10% figure was derived and explain why this is appropriate. As stated in the General Comments section, the NSAQMD recommends that NOx emissions be 100% mitigated. In order to quantify what this amount will be, the District recommends that the EIR include a specific goal for the reductions to be achieved via the other measures, including MM 4.2-1c. Without a definite target, the offsite mitigation program could be bogged down by uncertainty or conflicting estimations of the reductions achieved by the other measures. MM 4.2-1e should also include a date by which the Offsite Air Emission Reduction Plan will be implemented.

Location of Nearest Existing Air Monitors

The NSAQMD maintains air monitoring equipment for ozone, PM 2.5 and NOx at the Litton Building across from Sierra College, at an elevation of approximately 2,800'. The approximate distance and direction from each of the project sites to the monitors is:

Idaho-Maryland Mine Site – 1.0 mile northwest, elevation gain of 300'.

Round Hole Site – 1.7 miles west-northwest, elevation gain of 120'.

New Brunswick Site – 2.5 miles northwest, elevation gain of 50'.

The dominant wind direction, especially during the summer but also during other seasons (unless overwhelmed by a weather system), is from the southwest during the day. At night, when winds tend to decrease, the dominant airflow is down-slope. Thus, it is expected that air pollutants from the sites would travel predominantly to the northeast during the day and follow the Wolf Creek drainage to the southwest (and toward Grass Valley) at night. It would theoretically only be during unusual weather events that pollutants from the project would reach the air monitors at the Litton Building.

Project Alternatives

The discussion of air quality impacts under the “**Electrification of Mine Operations**” alternative does not mention the significant toxics emission and odor reductions this alternative would yield. Under the Proposed Project, diesel particulate matter from underground equipment operation would be considerable, and underground mobile equipment tires would stir up dust containing asbestos and heavy metals. These toxics would then be emitted to the community through the air vents. With the electrification option, dust on the floor of the mine, which would likely contain at least some quantity of asbestos as well as traces of heavy metals and other toxics would not be stirred up by frequent vehicle traffic. **The NSAQMD strongly encourages the incorporation of this alternative as a significant air quality mitigation measure.** Additional air quality benefits would include better air quality for underground workers, reduced odor generation, and greater likelihood of meeting ozone reasonable further progress goals.

The NSAQMD has discussed some aspects of the project with Idaho-Maryland Mine officials. Based on these discussions, consideration of the following additional measure is recommended: Reducing ceramics plant operations June through September, especially in July and August, when the potential for NOx emissions to react with ROG to create ozone is highest because of typically higher ambient temperatures and the frequent presence of summertime atmospheric inversions.

Please contact either Sam Longmire or myself with any questions concerning these comments at 530 274-9360.

Sincerely,

Gretchen Bennitt,
Executive Director