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"Technical Support for Grassroots Public Interest Groups"

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Re: Comments on the Draft EIR for the Idaho-Maryland Mine Project

From: David M. Chambers, Ph.D., P. Geop.

Background

David Chambers has 40 years of experience in mineral exploration and development – 15 years of technical and management experience in the mineral exploration industry, and for the past 30+ years he has served as an advisor on the environmental effects of mining projects both nationally and internationally. He has Professional Engineering Degree in physics from the Colorado School of Mines, a Master of Science Degree in geophysics from the University of California at Berkeley, and is a registered professional geophysicist in California (# GP 972). Dr. Chambers received his Ph.D. in environmental planning from Berkeley. His recent research focuses on tailings dam failures, and the intersection of science and technology with public policy and natural resource management.

OVERALL COMMENT

This is a rather unusual mine project proposal, a request for an 80-year operating permit, in that most regulatory agencies would consider the level of information presented for this environmental review of the project sufficient only to consider this as a proposal for advanced exploration, not for mine development. This mine development proposal lacks the economic and environmental data necessary to evaluate a full mine development proposal.

Unlike a typical mine that is being proposed for production, the Idaho-Maryland mine; (1) does not have an identified mineral reserve, or even a mineral resource; (2) the drilling core is not sufficient to provide the necessary information on the geochemistry of the waste rock and tailings; and, (3) there is no surface water-quality modeling. These are all elements that are critical in evaluating the potential impacts of a proposed mine.

As a result, it is not known whether the mine waste could leach contaminants into ground and/or surface waters. The design details of the "engineered fill" facility have yet to be done, so it not known if the proposed design is geotechnically sound. In addition, the long-term closure costs for the mine have not been analyzed.

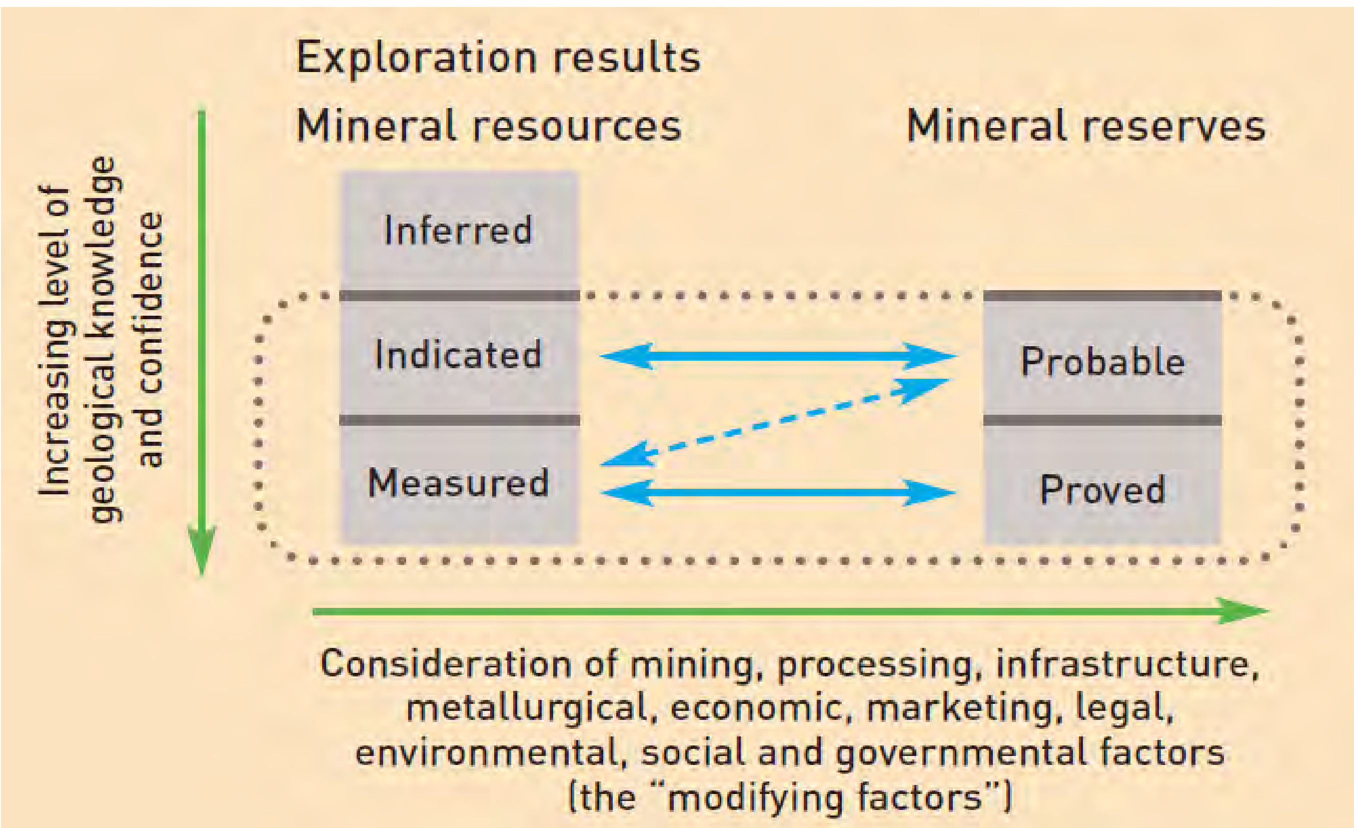
SECTION-SPECIFIC COMMENTS

3.6 Project Objectives

In order to have a credible mine proposal, a minimum amount of ore must be identified to warrant the economic investment to open a mine. It is possible that a mining company has enough capital to self-fund the hundreds of millions of dollars necessary to bring a mine property like Idaho-Maryland to the point where it is ready to produce its first ounce of gold, but this is seldom the case. And even if this were the case, a responsible board of directors would require a thorough economic analysis before committing this level of funding for a project.

A mineral property with no current mineral resources or mineral reserves has been described by the Canadian National Instrument 43-101 policy as an "early stage exploration property" (OCS 2011). This is the case with the Idaho-Maryland property's latest 43-101 compliant technical report (Rise Gold 2017).

A mineral resource is a concentration or occurrence of solid material of economic interest. A mineral reserve is the economically mineable part of a measured and/or indicated mineral resource (ICMM 2013). The figure below has presented in approximately this same format for quite some time as a way to illustrate how the concepts of mineral resource and mineral reserve are related – technically, economically, and legally.



Classification of Mineral Resources & Reserves (ICMM 2013)

Rise Gold does not have enough drill samples to satisfy the requirements to meet <u>any</u> of the mineral resource or reserve definitions described in the Classification of Mineral Resources & Reserves. This same lack of an adequate number of drill samples also results in the lack of data required to adequately characterize the geochemistry of the waste rock and tailings that will be produced, or to supply test data on the leachate from this waste that would allow modeling of potential impacts to surface water.

Geochemistry of the waste rock

The projected waste rock geochemistry analysis is summarized in the EIR Appendix K.2: Groundwater Hydrology and Water Quality Analysis Report for the Idaho-Maryland Mine Project Nevada County, California, EMKO Environmental, February 2021.

In Table 4-5 (below) from Appendix K.2, it is predicted that the 96% of the waste rock will produced will be Meta-Andesite.

Table 4-5 Estimated Daily Barren Rock Production

Material Type	Tons per Day	Percent of Material Produced
Meta-Andesite	481	96
Altered Meta-Andesite	12	2
Diabase	5	1
Serpentinite	2	1
TOTAL	**500**	**100**

Rise completed 19 drill exploration drill core holes, totaling 67,500 linear feet, from 2017-2019. From this drill core, Benchmark Resources collected six drill core samples that it used to characterize the geochemistry of the waste rock. These samples are listed in Table 4-6.

Meta Andesite, which constitutes 96% of the waste rock to be mined, was taken from three intervals of drill core – samples MA-1, MA-2, and MA-3. Sample MA-1 was from the near surface rock 167' - 177' below the drill level, so it not representative of most of the Meta Andesite that will be produced from mining, which will occur at much greater depth. As a result, the geochemical predictions for approximately 96% of the waste rock to be produced comes from one 10-foot interval of drill core (Sample MA-2 from 3959.7 ' to 3969.7'), and one 1-foot sample (MA-3 from 3265' to 3266').

Table 4-6 Core Samples Collected by Benchmark Resources

Sample Name	Description	Date	Time	Bag #	Hole #	Elevation Interval
MA-1	Meta Andesite/Porphyrite	29/10/2019	10:45 AM	Y973551	I-19-13	167'-177'
MS-1	Meta Sediment/Porphyrite	29/10/2019	11:00 AM	Y973560	I-19-13	1,067'-1,077'
MA-2	Meta Andesite/Porphyrite	29/10/2019	11:05 AM	Y973594	I-19-13	3,959.7-3,969.7
MAA-1	Meta Andesite Altered/Porphyrite	29/10/2019	11:20 AM	core box	I-19-13	3,357'-3,360'
S-1	Serpentinite	29/10/2019	11:25 AM	core box	I-18-11	4,725.6'-4,725.7'
MA-3	Meta Andesite Altered/Porphyrite	29/10/2019	11:45 AM	core box	I-18-10	3,265'-3,266'

Another way to describe this is that the geochemical characterization of the 2 million tons of waste rock produced during the first 11-years of mining, and nominally the waste rock production from the entire 80-life of the proposed permit, is represented by these two samples, which come from a total of 11 feet of drill core.

Australian Guidance on Sample Numbers (adapted from Australian Government Department of Industry, Tourism and Resources, 2007 (GARD Guide Table 4-5)

Mine Phase	Number of Samples	Description
Exploration	(1) Prospect Testing – Include sulphur in list of elements being analyzed for all samples tested; include the full range of pathfinder elements as defined by ore deposit/exploration model; collect and record mineralogical data as per exploration/ore deposit model; where the geology of the deposit is known include static testing of at least 3 to 5 representative samples of each key material type (i.e., lithology, alteration type); analysis of ground water and surface water for acidity and representative pathfinder elements. (2) Resource Definition – All samples tested for sulphur and representative samples tested for mineralogy as per ore deposit model. **Static testing of at least 5 to 10 representative samples of each key material type.** ***(emphasis added)*** Collect groundwater and surface water data. Surface water and groundwater analysis to include acidity as well representative metal ions. All testing to include QA/QC samples.	By the end of the resource definition phase, there should be adequate information to accurately characterize the ARD potential of the ore body (high and low grade), although further test work will normally be required to characterize the ARD potential of waste rock and ore and hence tailings.
Pre-Feasibility	**Static testing of several hundred representative samples of high and low grade ore, waste rock and tailings**, the number dependent on the complexity of the deposit geology and its host rocks. ***(emphasis added)*** All drillhole samples analyzed must include sulphur analysis and identified representative metal ions. Sampling density is dependent on complexity of ore deposit and host rock geology interval of representative drill holes but should be restricted to single rock units or lithologies - include minimums. **Kinetic testing of at least 1 to 2 representative samples of each material type.** ***(emphasis added)*** Surface water and groundwater analysis to include acidity as well as pH, EC and representative metal ions, including Al, Fe, Mn. All testing to include QA/QC samples.	Where required, the number of samples must be sufficient to populate a "resource" block model of the ore and host rocks that will be affected by mining with a reliable distribution of NAPP[1] data (e.g., acid producing potential (APP), sulphur and acid neutralizing capacity (ANC) (or NPR data) on ore, waste rock and wall rock.
Mine Planning, Feasibility and Design	Where required, additional static testing as required for block waste resource model refinement – **increase density of NAPP (or NPR) characterization.** ***(emphasis added)*** Inclusion of confirmatory testing (e.g., NAG testing for comparison to NAPP (i.e. APP, or sulphur, and ANC) for metalliferous deposits; and mineralogy or NPR values). Continuation of kinetic testing. Upgrade drillhole database and waste resource model for new ore positions. All testing to include QA/QC sample(s). Apply QA/QC to all analyses, not only ore. Include wall rock.	Data set must be sufficient to assess ARD potential to support a management plan. If data are insufficient, additional testing will be required.

The widely accepted source of guidance for determining the number of samples for acid-drainage/metals-leaching prediction is the Global Acid Rock Drainage Guide (GARD 2018), published by the International Network for Acid Prevention. The GARD Guide has adopted the Australian Guidance on Sample Numbers for determining the number of samples needed to determine acid-drainage/metals-leaching potential (GARD Guide Table 4-5).

The number of samples used to predict the leaching potential of the tailings and waste rock for the proposed Idaho-Maryland Project does not meet even the lowest level of these criteria. The number of samples analyzed for this proposal would not even meet the requirements for the Exploration stage of sampling, let alone the Mine Planning, Feasibility and Design phase, which is the level of development being proposed for the Idaho-Maryland Project.

3.7 Project Components– Water Treatment

There is no discussion, or disclosure, of the operational water quality treatment needs or processes. The EIR merely requires that the applicant apply to the Regional water Quality Control Board for a discharge permit. The water quality discharge that will be required by the discharge permit should be disclosed in the EIR so that the public is able to assess and comment on the potential impacts. To simply assert that water quality standards will be met is not sufficient for reviewers to assess either the adequacy of the water treatment methods proposed, or the adequacy of the standards proposed for the discharge permit.

This completely circumvents any discussion or analysis of what the contaminants of potential concern might be, what contaminants would be monitored, what treatment methods are available, and where monitoring would take place. This information should all be disclosed in the EIR.

In addition, a Monitoring Plan should be included. The Monitoring Plan should incorporate all elements of monitoring, including surface water, ground water, air, and noise sampling. Sampling locations, frequencies, and constituents should be disclosed/discussed in the Monitoring Plan, and summarized in the EIR.

3.7 Project Components – Backfill

It is noted that approximately 500 tons/day of tailings will be backfilled into the mine as cemented paste. The technical details of the process are contained in "Desktop Study of Cemented Paste Backfill, ITASCA Denver, Inc. February 24, 2020." In this report it is noted that no tests on the leaching characteristics of tailings have been performed, but that testing would be done when a cement had been selected. Even though the backfill is unlikely to turn acidic, the potential for neutral leaching of contaminants like arsenic need to be investigated.

The answers to several critical questions that should be addressed in Chapter 3 of the EIR are: (1) the grind size of the tailings used for backfill; (2) the type and amount of cement to be used; and, (3) the results of leach tests on the backfill.

This information should have been available for the EIR, and is another data gap in the EIR.

3.7 Project Components – Engineered Fill Transport

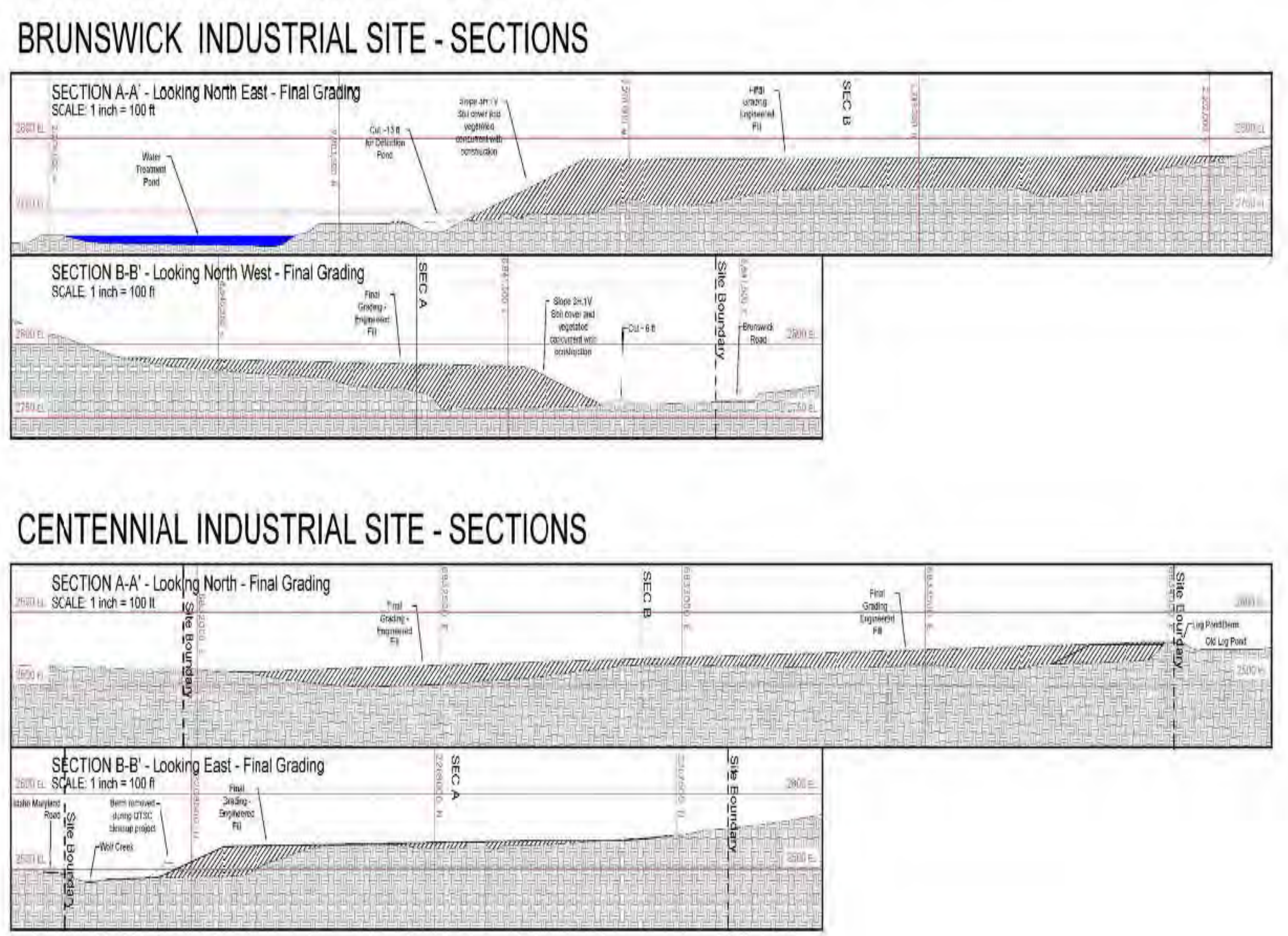
Even though this is nominally the section about the transport of the waste material, most of the technical information on the Engineered Fill is presented here.

The mine waste that is not backfilled into the mine will consist of 50% tailings (rougher tailings from flotation separation in the mill), and 50% waste rock from the mine. Approximately 4 million tons of waste would be placed at two sites near the mine during the first 11-years of mining. The number of samples utilized in the leach tests of this waste is not sufficient to properly characterize the contaminants that may be leached from the waste. Comparing the number of samples cited in the EIR to the sampling guidelines of the GARD Guide demonstrate the insufficiency of the existing tests.

In addition to testing for the contaminants that may come from the waste, as the term "engineered fill" implies, this will be an engineered mine waste facility. The EIR, and its supporting documents, imply that the required engineering analysis will be done at some future time, but provide virtually no engineering analysis or design specifications for these waste facilities as a part of the EIR.

It is stated in the EIR that, "*Engineered fill would continue to be placed, graded, and compacted in a series of lifts* …" The only drawings of the cross sections of the waste facilities in the EIR are from Rise Grass Valley, not an engineering company, and seems to show the mine waste being deposited as end-dump layers that cannot be compacted to generate further stability, not horizontally-deposited layers that could be compacted.

The new mine waste will be placed on top of portions of existing mine waste, which could provide a plane of weakness that could provide an additional failure plane for the significant weight of rock that will placed on top of it. The Brunswick facility is projected to be up to 90 feet in height, and the Centennial facility up to 70 feet high.



EIR Figure 3-14 (Rise Grass Valley)

There is no technical report to provide the detail needed to evaluate the geotechnical viability and safety of these facilities. The potential for this waste to fail under static or seismic loading needs to be professionally evaluated by a qualified engineering contractor. It would be inappropriate to issue a permit for the construction of these waste facilities without proper engineering analyses. To illustrate what could happen, the picture in Photo 1 comes from a waste rock pile at a Nevada mine that failed due to inadequate engineering. While not catastrophic, such failures can cause significant environmental and economic damage.

Photo 1: Waste Rock Dump Failure at the Gold Quarry mine (2005)

The seismic reports discussed in the Geology section of the EIR are not up to date, and even if updated would not meet the requirements for a probabilistic seismic site analysis. Mine waste facilities must be designed to withstand much larger seismic events than required by typical seismic building codes because of the long expected life of the water facilities. According to information provided in the Brunswick and Centennial Industrial Site Geotechnical reports (EIR Appendices H.1 and H.4), a probabilistic and/or deterministic seismic assessment has not been done for the Idaho-Maryland site.

In the geotechnical report for the Centennial Industrial Site the mine waste to be used as engineered fill is described as; "*We understand that proposed foundation structures will be constructed on import fill material that will primarily consists of medium dense granular soil composed of silty or clayey sand/gravel, with possible rock fill at depths*." The term "medium dense granular soil composed of silty or clayey sand/gravel" is not an adequate description of the tailings. Tailings, at a 75 um grind size, the most likely choice for grind size based on the flotation recovery testing done by McClelland Labs, are termed "silt" (see EIR Appendix H.4, Table 5.1-1, Particle Size Gradation, Historical Sand Tailings).

With an equal ratio of tailings to waste rock in the engineered fill, not only is a careful analysis of the geotechnical properties of the tailings important, and currently lacking, but how these two fill sources are mixed is also critical, since the tailings and waste rock have very different geotechnical properties. These analyses are lacking in the EIR and its supporting technical reports.

In the EIR, it is also proposed that an alternative for placing the mine waste in the proposed facilities is selling the waste in the local marketplace as fill material. There are several issues that make this proposal unlikely. First, there is liability associated with mine waste. Even if the waste is purported to be contaminant-free, and this waste is associated with mining sulfide mineralization that can release metal contaminants, it is seldom possible to guarantee that all of the waste will be contaminant-free. According the laboratory analysis for the six waste rock samples analyzed for Acid-Base Accounting, the sulfide sulfur content of the waste rock varies from 0.04 - 1.78 % Sulfide Sulfur (EIR Appendix K.2, EMKO 2021, Table 4-8 Tailings & Barren Rock Samples - ABA Results). There is significant variability in the amount of sulfide sulfur, and significant amount of sulfide sulfur (1.78%), recorded in the very limited number of waste rock samples tested. If any of the waste sold as clean fill should cause a problem, the sellers of that material, and the company that produced that material, would likely be legally liable. Just the possibility of legal entanglement keeps virtually all mining companies from selling its waste rock or tailings, and is very likely to make it very difficult to find an independent distributer that is willing to assume this risk.

A second issue is one of logistics. The mine waste is produced at a constant rate – 1,000 tons per day, 365 days/year, for the life of the mine. Markets for fill material are typical episodic. For example, there is much more fill material placed during the summer than during the winter. In order to handle surges in the demand for fill material, temporary storage for a significant amount of material would be required by a vendor of this material. If the mining company is going to provide this service itself, then the storage facility should be evaluated as a part of the mine proposal. If the material is to be sold to an independent user, then the viability of that operation should be demonstrated with at least a contract that someone is willing to accept 1,000 tons/day of mine waste.

3.7 Project Components – Reclamation Plan

Most reclamation plans submitted as a part of a mine proposal are largely conceptual in nature, including the reclamation plan accompanying this EIR. However, for those tasks that can be clearly identified as being necessary for mine closure, these tasks should be described with enough detail that the engineering feasibility and cost can be analyzed.

In order to protect the public from incurring the costs associated with an unplanned mine closure, or bankruptcy, the funds should be available to public agencies that are sufficient for those agencies to take over and complete reclamation of the mine, and to perform any water treatment that may be required.

At the Idaho-Maryland Mine, it is known that mine openings must be closed, drains must be prepared to collect the seepage that has been coming from the mine, and that will presumably resume after mine closure, and that the mine waste facilities can be closed and safe configuration. However, there are no reclamation engineering specifications, work plans, or cost estimates made for the EIR.

The potential costs for post-closure water treatment, if required, should also be included. However, there is insufficient information on seepage water quality to conduct this analysis.

Financial Assurances for mine closure runs tens to hundreds of millions of dollars, so ignoring these costs puts taxpayers at significant risk of miscalculation at a later date. Because these sums are so substantial, the public should be informed about these costs, and how the costs were estimated.

This is a significant omission in the EIR.

4.8.2 Existing Environmental Setting – Groundwater Occurrence in Mine Workings

Mine Flooding and Worker Safety

In the 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.

The EIR notes that the Union Hills Mine will not be dewatered. The EIR suggests there is no significant hydraulic connection between the mines, but the discussion from the EIR quoted above suggests there could be some connection, and what is not known is whether this hydraulic connectivity could increase in the future.

There is no discussion in the EIR of the potential impacts for the Idaho-Maryland Mine if flooding were to occur during mining. From ITASCA Figure 2-3 (attached as the last page of this document), it can be seen there are extensive abandoned mine working above and adjacent to the Idaho-Maryland mine that will remain flooded after the Idaho-Maryland is dewatered.

If a conduit between these two mine 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.

This issue must be thoroughly addressed before anyone is permitted to enter the dewatered mine.

4.8.4 Impacts and Mitigation Measures – Water Within Underground Mine Workings

Geochemistry of the tailings

Even though this is nominally the section about the underground mine water, most of the technical information on the geochemistry of the tailings samples is presented here.

Approximately 50% of the mine waste, also referred to as "engineered fill", disposed on the surface will be tailings. The geochemistry of these tailings is important because meteoric waters will infiltrate through the waste, and any leachate products will end up in groundwater, and potentially surface water.

Tailings produced in the milling process are generally homogeneous because the physical and chemical processing of the ore remains relatively constant, and the ore is typically blended to maintain a consistent ore grade to facilitate gold recovery. Because of this, fewer tailings samples than waste rock samples are required for leach testing, but those testing samples must be representative of the tailings that will be produced during mine operation.

While Appendix K.2 states that the tailings samples were generated from a "46 kg metallurgical sample". The ore sample used to create the four tailings samples contained 1.6% Sulfur (EIR 2021, p. 4.8-46). The four tailings samples had a sulfur content of 0.06 – 0.12% Sulfur (EIR 2021, p. 4.8-46), with Net Neutralization Potential greater than 100 for all samples (EIR Appendix K.2, EMKO 2021, Table 4-8 Tailings & Barren Rock Samples - ABA Results).

The drill hole intervals this material came from is not stated in the EIR, nor is the time when the metallurgical sample was generated. Again, if an NI 43-101 compliant report that reported a mineral resource and/or reserve were available, this basic information would have required and would have been available for the EIR.

In Appendix K.2, EMKO notes that the four samples are of different grind sizes. The size of the tailings particles could have an effect on the rate of leaching. Smaller grain size leads to more rapid leaching of contaminants. Based on the results of the metallurgical testing, a final grind size is generally selected before geochemical testing is done, but a final grind size has not been selected for this project. The different grind sizes of the tailings could have an unquantified effect on the leach testing of the tailings samples.

Because the size specification has geotechnical and geochemical implications for both the tailings disposed on the surface, and cemented backfill in the mine, the size specification needs to be disclosed in the EIR. The limited test results available from preliminary tailings tests are not sufficient to make long-term predictions for the geotechnical stability or water quality implications of the tailings.

The method selected for leach testing the tailings and waste rock used distilled water, which is the least aggressive of the leach testing methods. For mining waste, waste rock and tailings, short-term tests typically use a weak acid solution for leach testing in order to simulate the generation of some acid in the waste due to sulfide decomposition. Long-term leach testing, which runs for months rather than hours or days, typically uses distilled water, because natural sulfide decomposition and the accumulation of oxidation products has sufficient time to stabilize.

From Table 4-7 Tailings & Barren Rock Samples - Total Metals and DI-WET Results

Constituent	Test Type	Units	Tailings Samples				Rock Samples					
			F-1	F-2	F-3	F-4	MA-1	MA-2	MA-3	MAA-1	MS-1	S-1
METALS												
Aluminum	Total	mg/Kg	16100	16300	16300	16300	23000	24400	31100	421	22900	41300
	DI-WET	mg/L	0.17	0.18	0.26	0.28	0.94	1.08	0.6	0.49	0.99	0.32
Antimony	Total	mg/Kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	1.1	<0.2	0.6
	DI-WET	mg/L	0.0018	0.0015	0.0031	0.0020	0.0006	0.0041	0.0016	0.0104	0.0021	0.1050
Arsenic	Total	mg/Kg	1.7	1.4	2.000	1.2	0.2	6.1	0.5	34.8	0.7	36.8
	DI-WET	mg/L	0.0018	0.0013	0.0019	0.0014	<0.0002	0.0051	0.0014	0.0148	0.0005	0.1690
Copper	Total	mg/Kg	86	86	87	84	141	43	87	27	89	30
	DI-WET	mg/L	<0.01	0.01	0.02	0.09	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Iron	Total	mg/Kg	35500	36000	35200	35200	45600	42100	54900	15500	33700	36800
	DI-WET	mg/L	<0.03	<0.03	<0.03	<0.03	0.05	0.08	0.20	<0.03	<0.03	0.33
Manganese	Total	mg/Kg	1000	1010	990	994	604	747	1230	311	696	176
	DI-WET	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
GENERAL CHEMISTRY PARAMETERS												
Nitrate	DI-WET	mg/L	0.06	0.08	0.28	0.24	<0.02	<0.02	0.05	<0.02	<0.02	<0.02
Sulphate	DI-WET	mg/L	8.40	6.30	8.50	8.70	3.3	1.4	6.60	1.9	1.1	2.8

In reviewing the leach test results from Appendix K.2, Table 4-7: Tailings & Barren Rock Samples - Total Metals and DI-WET Results, the following observations are noted:

- Aluminum levels in the leachate are high. Even though the measurement was probably done as Total aluminum, these levels suggest that aluminum leaching could be an issue, and that Dissolved aluminum should be monitored.
- There is antimony present, and the water quality standard for antimony is low. Waste rock sample S-1 shows a level of antimony that is well above the water quality standard. Even though there is only a relatively small amount of S-1 rock in the waste, antimony should be monitored.
- Arsenic is measured at about 20% of the water quality standard, and is known to be an issue with the existing mine waste. Arsenic could become an issue if localized acidic conditions, or longer exposure time, drive the oxidation reactions.

- Copper being detected at levels that could exceed water quality standards, but the measurement level for the sampling was too high, so we don't know enough about what is going on with copper.
- Iron and Manganese are both know to be present in existing mine water and the mine waste at levels that exceed water quality standards, but they are not showing elevated levels in the test data. This strongly suggests that the oxidation taking place in the mine itself, and in the mine waste on the surface, is more aggressive than that being simulated in the leach tests using distilled water.
- Nitrate, a residual from blasting, will almost certainly be present at levels significantly higher than projected in these tests.
- Similarly, sulfate will be higher than projected once the waste has time to oxidize.
- An important constituent, sulfide-sulfur, is not reported on a per-sample basis

In the summary of the report (Appendix K.2), EMKO notes that Potential Contaminants of Concern include ammonia, arsenic, hexavalent chromium, iron, manganese, pH, total suspended solids, TDS, and cis-1,2-DCE. To this list, I recommend adding antimony, copper, and nitrate.

Leach tests for the paste backfill also need to be completed. It is not appropriate to grant a mining permit that allows the use of this backfill without evaluating the potential long-term effects on water quality.

6.3 Selection of Alternatives – Alternatives Considered in this EIR

The mining project as proposed in this EIR has a fundamental lack of information on the economic viability of the mine, and potential environmental impacts related to geochemistry and water quality.

The data submitted in support of this EIR is only sufficient to support an application for dewatering the mine, and for underground exploration drilling. This would provide not only the information that will be required to perform a preliminary economic analysis of the orebody, but would also supply the samples needed for geotechnical and geochemical testing, and for water quality modeling.

The EIR should analyze an Alternative that provides for dewatering and underground exploration. That is the only Alternative that the information provided in this EIR will support.

Thank you for the opportunity to comment on this Draft EIR.

Sincerely;

David M Chambers

David M. Chambers, Ph.D., P.Geop.

References:

EIR 2021. Idaho-Maryland Mine Project Draft Environmental Impact Report, Raney Planning & Management, December 2021

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GARD 2018. Global Acid Rock Drainage (GARD) Guide, published by the International Network for Acid Prevention, Chapter 4.0 Defining the Problem – Characterization, (http://www.gardguide.com/index.php/Chapter_4)

ICMM 2013. Responsible reporting of mineral assets, International Council on Mining & Metals, Committee for Mineral Reserves International Reporting Standards, April 2013

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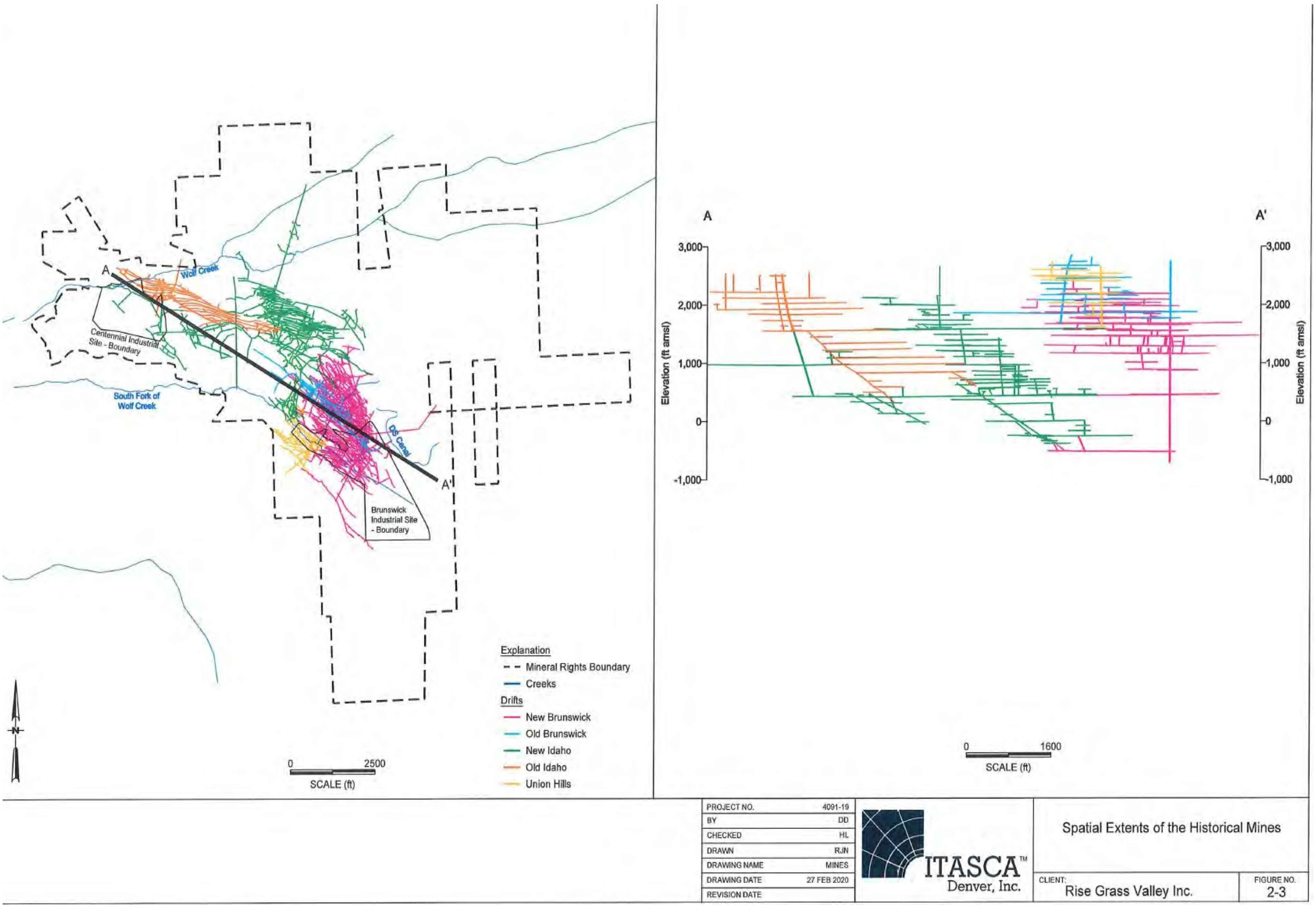

Figure 2-3, from Predictions of Groundwater Inflows to the Underground Mine Workings at the Idaho-Maryland Mine, ITASCA, November 2020