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First name: Jamie
Last name: Laidlaw
Organization:
Title:
Comments: Avalanches

[bull] According to DEIS 3.2.3.7.2, [ldquo]Avalanche paths were identified based on vegetation signatures and supplemented with slope calculations (30 to 45 degrees) using measurement tools in Google Earth and compared to data from Avalanche Hazard Assessment.[rdquo] This method yielded a total of 2 avalanche paths along the Burntlog Access Route and 12 along the Yellow Pine Access Route (DEIS Table 3.2-1).

Unfortunately, the methods used to identify Avalanche paths are flawed and only identify a small portion of the avalanche paths and thus areas of increased avalanche exposure and hazard. Using a combination of slope angle and vegetation clues only identifies defined slide paths, or paths that see repetitive avalanche activity that is large enough to destroy vegetation (AIARE Level 1 Student Handbook 2019 p.48). This leaves numerous poorly defined avalanche paths, ones with less obvious start zones, tracks, and run out zones (AIARE Level 1 Student Handbook 2019 p.50), unaccounted for.

As noted in section 3.2.3.7 of the DEIS, slope angle is the greatest determinant when identifying avalanche terrain. Using slope shading in CalTopo to identify slopes between 30 and 50 degrees along both proposed access routes, numerous undefined avalanche paths with few or no vegetation clues visible from satellite imagery become apparent. Moreover, both the Yellow Pine and Burntlog Routes often lie in the most dangerous portion of an avalanche path, the tracks and run out zones, and are very often in terrain traps such as confined drainage bottoms. This compounds the consequences of an avalanche. Small slides can have deadly results (AIARE Level 2 Student Handbook 2019 p.62). This was illustrated both in March 2014 and April 2019 when the Stibnite Road was buried. The latter event produced a debris pile 100 feet deep (DEIS 3.2.3.7.2.2).

There is significant risk of avalanche along both access routes. The Stibnite Road portion of the Yellow Pine Access Route is of special concern. Even if the Burntlog Route is employed, the Stibnite Road will be used for a period of 5 years during construction and again during decommission and restoration.

For personnel safety and as a part of a mitigation effort to minimize the risk of toxic spill it is incumbent upon Midas Gold to have a robust avalanche control program. As with all programs protecting roadways in Western North America, explosives will be required. Such a program needs to be detailed in the DEIS with potential environmental impacts for public scrutiny.

Seismic Analysis

[bull] According to 3.2.3.6.2 of the DEIS, a site-specific seismic hazard analysis for Midas Gold[rsquo]s proposed Stibnite Mine was conducted by URS Corporation in 2013. The Study concluded, [ldquo]Although numerous faults are present within the analysis area, none show evidence of recent active movement nor do historic records suggest this has occurred (DEIS 3.2.3.6.1).[rdquo] The Stibnite mine lies within the Meadow Creek Fault Zone (DEIS Figure3.2-1). 7 faults lie within the mine[rsquo]s boundaries (DEIS Figure 3.2-2). Faults run through each of the three mine pits and immediately adjacent to the tailings storage facility (TSF). Over the past year the region immediately to the southeast of the proposed mine site has seen a dramatic increase in seismic activity. According to www.volcanodiscovery.com, a website dedicated to compiling tectonic and seismic data, as of October 25, 2020 the State of Idaho has seen 262 magnitude 3.0 or greater earthquakes. All but 3 of these events have been in the Sawtooth Region, with a range of 25-75 miles from the proposed Stibnite site. The strongest tremor was a magnitude 6.5 on March, 31, 45 miles away (DEIS 3.2-18). For comparison, 2013, the year the URS Study was completed there were 0 earthquakes of a magnitude 3.0 or greater in the Sawtooth

Region (volcanodiscovery.com).

With the drastic change in nearby seismic activity wouldn[rsquo]t an updated site-specific seismic hazard analysis be required?

[bull] The summary of the seismic analysis states, [ldquo]The DSHA results can be described as a scenario: The maximum modeled event is a magnitude 6.9 earthquake 3.8 miles (6.1 kilometers) west of the TSF dam site on the Deadwood-Reeves Creek fault (URS 2013). This event would result in median calculated PGA of 0.43g. The PSHA results are presented in terms of PGA as a function of probability of occurrence. PSHA results indicate the PGA for 475-year and 2,475-year return period earthquake events are 0.10g and 0.14g, respectively (DEIS 3.2.3.6.2).

With the recent increase in seismic activity wouldn[rsquo]t the probabilistic seismic hazard analysis (PSHA) be inaccurate? Wouldn[rsquo]t this new data result in much lower return periods with higher PGA[rsquo]s?

Also, the maximum design earthquake, the earthquake that would produce the maximum level of ground motion (shaking) for which a structure (e.g., TSF dam) is to be designed or evaluated, was a 6.9. A magnitude 6.5 earthquake was recorded this year less than 40 miles from the proposed site. Since the TSF remains in place in perpetuity should it not be designed to withstand a much higher maximum design earthquake and thus PGA as the likelihood is experiences such a tremor is greatly increased?

Water Rights and Usage

[bull] According to the Executive Summary p. 24 the proposed SGP needs to maintain new water right. Currently, Midas Gold has water rights from four existing sources secured. These sources total 77.7 acre-feet of water. An Additional 1,740 acre-feet of water and 2.73 cfs are needed to conduct operations (ES-24). This means Midas Gold has secured just over 4% of its projected water usage, which totals just over 5,000 gpm (DEIS Table 2.3-5). Moreover, during drought conditions, which the entire Western United States has been suffering from much of the last decade, the SGP will require an additional 9.1 cfs of ground and surface water (ES-24). This is on top of the 1.28 cfs of water rights presently secured and 2.73 cfs still needed for operations under normal conditions. Finally, the Executive Summary indicates, [ldquo]No changes in water rights availability in the SGP area.[rdquo]

Where is the remaining 96% of the water needed for operations under normal conditions going to come from?

Why have water rights not been secured?

What are the environmental impacts of these additional water needs, especially under drought conditions when the proposed mine[rsquo]s water demands increase exponentially at a time when there is less water availability?