Air Quality Permitting
Response to Public Comments

June 17, 2022

Permit to Construct No. P-2019.0047

Project No. 62288

Perpetua Resources Idaho, Inc.
Stibnite, Idaho

Facility ID No. 085-00011

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AIR QUALITY DIVISION

FINAL

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BACKGROUND

The Idaho Department of Environmental Quality (DEQ) provided a third public comment period on the proposed permit to construct (PTC) for Perpetua Resources Idaho, Inc. (PRI) from January 13 – March 16, 2022, in accordance with IDAPA 58.01.01.209.01.c. During this period, comments were submitted in response to DEQ's proposed action.

DEQ appreciates all of the comments received concerning this project during the third comment period. Substantive comments were provided, particularly concerning the representativeness and uncertainty of emissions, the preconstruction demonstrations of compliance with toxic and mercury standards, and the PSD classification for the lime plant. These topics and DEQ's responses to each comment pertaining to air quality are provided in the sections that follow, and updates to the proposed permit and technical review have been made. As described in the responses that follow, the following conditions have been updated in Permit to Construct No. P-2019.0047 Project 62288:

- Permit Conditions 1.2 (Table 1.1), 2.4, 2.6, 2.7, 2.8, 2.13, 2.20, 2.21, 3.2 (Table 3.1), 3.9, 3.13, 4.4 – 4.6, 4.9, 4.10, 5.2 (Table 5.1), 5.5, 5.8, 5.9, 5.22, 6.2, 6.4, 6.5, and 6.6

The following sections of technical and regulatory analyses have been updated in the Statement of Basis:

- Application Scope, permit condition numbering in the Controlled Hazardous and Toxic Air Pollutant Emissions, Ambient Air Quality Impact Analyses, Mercury Emission Standard, and Particulate Matter – New Equipment Process Weight Limitations, and Permit Conditions Review sections

PUBLIC COMMENTS AND RESPONSES

Additional public comments regarding the technical and regulatory analyses and the air quality aspects of the proposed permit are summarized below. Questions, comments, and suggestions received during the comment period that did not relate to the air quality aspects of the permit application, the Department's technical analysis, or the proposed permit were not addressed. It is also noted that while a response to each comment is provided herein, many of the topics discussed were also previously addressed in the first and second Response to Public Comments, in the Statement of Basis, and/or in PRI's application materials. All original public comments submitted for this project can be requested via the public records request process as DEQ has included public comments that may not include in-text citations.

REPRESENTATIVENESS AND UNCERTAINTY OF EMISSIONS

Several comments were received relating to the representativeness and uncertainty of parameters used in developing the emission factors used to estimate emissions. Although some degree of uncertainty is present in all emission factors used in estimating emissions, all emission factors were adequately supported and the approach of estimating potential to emit (PTE) at design capacity and maximum activity rates was considered a sufficiently conservative approach. Maximum hourly and daily activity rates were used to estimate the maximum 24-hour and annual emission rates, and emissions were modeled based on these maximum short-term activity rates occurring continuously every day.

It was recognized by DEQ and by commenters that emissions estimates and modeling of $PM/PM_{10}/PM_{2.5}$, HAP, and TAP are all sensitive to each of the specified controls and site-specific parameters identified in the following paragraphs. Representativeness of these parameters was discussed with and reconfirmed by PRI at various points during review,[1,2,3,4,5,6] and the estimates of emissions and underlying assumptions were supported to the satisfaction of DEQ. Sufficient information was provided to demonstrate preconstruction compliance with applicable TAP and mercury standards and to support facility classifications.

Relevant DEQ guidance concerning the acceptability of emissions data can be found in DEQ's Guidance on Emissions Data Hierarchy:
https://www2.deq.idaho.gov/admin/LEIA/api/document/download/5521

Water and chemical dust suppressant control efficiencies

A combined control efficiency of 93.3% was included in the permit for haul roads because this was recognized as an aggressive level of control and because haul roads were identified as a key contributing source to ambient air quality impacts. PRI has committed to undertaking all measures necessary to achieve this level of control and has confirmed based on a review of test studies that this can be achieved using water and magnesium chloride dust suppressants (Appendix A to the application – Model Parameter/Assumption/Data Level of Conservatism).

DEQ recognizes that in practice chemical and water dust suppressants are used in combination for the control of dust from haul roads, and that achieving the target combined control efficiency of 93.3% is ultimately important to ensure compliance with applicable standards. It is for this reason that the combined control efficiency was listed in the permit in lieu of separate chemical (90% control) and water (33.3%) dust suppressant control efficiencies. DEQ agrees with commenters that compliance with fugitive dust requirements is also necessary to ensure compliance with applicable standards, including application of both water and chemical dust suppressant in proper amounts and at proper frequencies as local conditions dictate.

[1] "PTC Application Incompleteness," DEQ, September 19, 2019 and "Preliminary Response to Application Information Request", PRI, October 4, 2019. (2019AAG1508, 2019AAG1747)
[2] Additional questions relating to the second incompleteness letter, DEQ, November 8, 2019. (2019AAG1903)
[3] "PTC Request for Additional Information, Stibnite mine," DEQ, November 20, 2020 and response, PRI, December 17, 2020. (2020AAG1992, 2020AAG2130)
[4] Revised "SGP PTC HAP/TAP Addendum," PRI, January 28, 2021. (2021AAG125)
[5] "PTC Request for Additional Information, Stibnite mine," PRI, April 16, 2021. (2021AAG646)
[6] "Updated TAP/HAP Addendum," PRI, October 6, 2021. (2021AAG1766)

Silt content

The use of site-specific median values for silt content is commonly accepted by DEQ, and the values used in calculations were supported by PRI. Metal hazardous air pollutant (HAP) and toxic air pollutant (TAP) emissions from process materials were based on median measured metal concentration profiles from onsite core samples of ore and limestone materials, including 98 samples of PRI limestone and over 55,000 samples of PRI ore. PRI has confirmed that ore samples were taken primarily from the mineralized zones of the PRI pits and were representative for the purposes of estimating emissions. Although a median value of sampled silt percentages of roadway material was used in emission estimates presented in the application, DEQ recognizes the importance of the silt content parameter in the estimation of emissions. Since compliance with the 24-hour PM_{10} National Ambient Air Quality Standards (NAAQS) is the primary driver of NAAQS compliance, minimizing variability of the parameter is very important to ensure NAAQS compliance. To achieve this, the permit will limit *maximum silt content* to 4.0 %, as specified in Section 3.13 Haul Road Capping of the PTC as well as associated monitoring and recordkeeping.

Metal concentrations

The use of site-specific median values for metal concentrations is commonly accepted by DEQ, and the values used were supported by PRI. Metal hazardous air pollutant (HAP) and toxic air pollutant (TAP) emissions from process materials were based on median measured metal concentration profiles from onsite core samples of ore and limestone materials, including 98 samples of PRI limestone and over 55,000 samples of PRI ore. PRI has confirmed that ore samples were taken primarily from the mineralized zones of the PRI pits and were representative for the purposes of estimating emissions. While the use of an average or 90^{th} percentile value is a more conservative approach, the use of site-specific median values combined with estimating and modeling PTE at design capacity and maximum activity rates was considered a sufficiently conservative approach and is commonly accepted by DEQ. Furthermore, use of a median value is appropriate for long-term standards (annual and above), since short-term spikes in emissions do not heavily influence a long-term average concentration. PRI has confirmed that use of a concentration average would be unduly influenced by a high values in a skewed distribution. PRI has confirmed that the use of mineralized metal profiles is conservative when compared to low-mineralization materials such as development rock (DR) and clean gravel. DEQ does not typically require applicants to include an analysis of potential HAP and TAP emissions from materials used in capping of unpaved roads.

Material balance

While a material balance is a useful approach to developing emission estimates, it is not a requirement, and the use of maximum activity rates and representative performance test data to estimate and model emissions is commonly accepted by DEQ. While the use of an average or maximum value is a more conservative approach, the use of site-specific median values combined with estimating and modeling PTE at design capacity and maximum activity rates was considered a sufficiently conservative approach.

COMPLIANCE WITH TOXIC AND MERCURY STANDARDS

Several comments were received relating to the methods used to demonstrate compliance with toxic and mercury standards. As discussed in the Emissions Inventories section and reported in Table 6 of the Statement of Basis as "Adjusted TAP Emissions", HAP TAP and mercury emissions from *addressed* sources were excluded from emission totals used to demonstrate preconstruction compliance with toxic standards (TAP) and the mercury emission standard in accordance with the Rules and DEQ guidance. Detailed discussion is provided in the "Subsection 210.20", Table 9, and "Mercury Emission Standard" sections of the Statement of Basis, and DEQ guidance on the interpretation of "addressed" is included in Appendix F to the Statement of Basis.

Specifically in regard to the applicability to National Emission Standard for Hazardous Air Pollutants: Gold Mine Ore Processing and Production Area Source Category Subpart EEEEEEE (NESHAP Subpart 7E), PRI has proposed construction and operation of an affected source meeting the definition of "gold mine ore processing and production facility" as defined in 40 CFR 63.11651 and will construct autoclave, carbon kiln, preg tank, electrowinning, mercury retort, and melt furnace processes. The permit is issued on this basis, and applicable NESHAP Subpart 7E requirements are incorporated by reference (Permit Condition 2.22).

Source categories are classified using the North American Industry Classification System (NAICS), and the primary classification code for PRI is 212221 for "Gold Ore Mining," as identified in Table 9 of the Statement of Basis. The description for this code is "this U.S. industry comprises establishments primarily engaged in developing the mine site, mining, and/or beneficiating (i.e., preparing) ores valued chiefly for their gold content. Establishments primarily engaged in transformation of the gold into bullion or doré bar in combination with mining activities are included in this industry." Beyond identifying the *source category*, a variation of this descriptive language was similarly included in Table 9.

The methods for demonstrating preconstruction compliance with TAP and mercury emission standards and by extension compliance with Section 161 are defined in Section 210 of the Rules and DEQ guidance. As detailed in DEQ guidance regarding the interpretation of "addressed" in Appendix F to the Statement of Basis, when EPA looks at a source category to regulate, it is presumed that all emissions sources associated with a *source category* are "addressed" whether EPA establishes specific emissions limits for the emissions sources or not in the NESHAP. For carcinogens including arsenic and antimony, the TAP screening emission levels (EL) and the acceptable ambient concentrations for carcinogens (AACC) were established in Section 586 of the Rules based on the probability of developing excess cancers over a 70-year lifetime exposure. Beyond these considerations, a risk analysis is not required to obtain a PTC.

PSD CLASSIFICATION FOR THE LIME PLANT

A response to a request for additional information was submitted by PRI[3] in which the emissions units comprising the lime plant were identified. The project includes a lime manufacturing plant (LMP) that uses a Parallel Flow Regenerative Shaft Kiln to produce lime product from limestone by calcination, which is a designated facility as defined in 40 CFR 52.21(b)(1)(i)(*a*). As described in the "Facility Classification" and "PSD Classification" section of the Statement of Basis, the LMP is a designated facility "nested" inside a non-designated facility. As explained in the United States Environmental Protection Agency's (EPA) March 6, 2003, guidance,[7] an example is "A coal mine with an onsite coal cleaning plant with a thermal dryer. The primary activity of the source, in this example, is the mining of coal, and coal mines are not a listed source category. The coal cleaning plant, however, does fall within a listed source category. Fugitive emissions are only included from the coal cleaning plant to determine if the source is a major stationary source." Applying this guidance, these emissions are included in Table 10 of the Statement of Basis. For each regulated pollutant, LMP emissions did not exceed 100 T/yr, and facility-wide emissions did not exceed 250 T/yr applicability thresholds. To be conservative, DEQ has demonstrated that if the LMP was considered as the primary activity of the mine and the marble overburden mining associated with the LMP is included in the list of LMP sources, LMP emissions did not exceed 100 T/yr (see Table 11 of the Statement of Basis).

[7] "Clarification on fugitive emissions policy" letter to Janet McCabe, Assistant Commissioner, Office of Air Quality, Indiana Department of Environmental Management, March 6, 2003.

FUGITIVE DUST CONTROL EFFICIENCY

Comment 1 - Nez Perce Tribe (NPT): DEQ's reliance on a 93.3% fugitive dust control efficiency to ensure compliance with permit requirements and for the Project to be classified as a synthetic minor source is unsupported

Permit conditions must ensure compliance and enforceability, and DEQ has not demonstrated evidence that a 93.3% fugitive dust control efficiency is attainable or practically enforceable. DEQ has not provided any case studies that a 93.3% fugitive dust control efficiency can be met through a combination of chemical suppressant and added water. Not only is the 93.3% control efficiency requirement not backed up by supporting technically accurate documentation to be possible in the real world, permit conditions are not written so that it is possible to verify compliance and document violations when enforcement would be necessary. DEQ is, therefore, unable to ensure that permit conditions can be met.

DEQ also relies on the unproved 93.3% fugitive dust control efficiency for the Project to be considered a synthetic minor for facility-wide emissions of PM/PM10/PM2.5 to be below 250 tons/yr PSD applicability thresholds, Title V 100 tons/yr applicability thresholds, and to limit facility-wide emissions of single and total HAP to below HAP major source applicability thresholds of 10/25 tons/yr. As described above, because the 93.3% fugitive dust control efficiency is not practically achievable or enforceable, the Project does not meet the standard to avoid classification as a major source for PSD, Title V, and HAP**.**

DEQ Response:

For the Fugitive Dust Control Plan (FDCP), the minimum and substantive requirements were specified in the permit (Permit Conditions 2.1-2.6, 2.7-2.8, 2.20-2.21). DEQ contends that these and other relevant conditions are sufficient, reasonable, and appropriate to ensure compliance with applicable requirements including National Ambient Air Quality Standards (NAAQS). Relevant conditions include visible emissions limits (Permit Conditions 2.9-2.12), material throughput and operational limits (Permit Conditions 3.3-3.9, 4.5-4.12, 5.4-5.9, 6.3), emissions limits (Permit Conditions 4.3-4.4, 5.3), control device requirements (Permit Conditions 3.10-3.12, 4.13-4.17, 5.10-5.16), and testing (Permit Condition 4.33) requirements. To ensure enforceability of each of these requirements, supporting testing and monitoring, recordkeeping, and reporting (MRR) requirements were also included. In addition, DEQ will review and approve the FDCP which is incorporated by reference in the permit and is enforceable as part of the permit.

As described previously in the Representativeness and Uncertainty of Emissions section, although some degree of uncertainty is present in all emission factors used in estimating emissions, all emission factors were adequately supported and the approach of estimating potential to emit (PTE) at design capacity was considered a conservative approach. DEQ contends that the material throughput, operational limits, emissions limits, control device requirements, testing, and supporting MRR requirements in combination with reagent usage limits for cyanide and xanthate (Permit Conditions 4.4-4.6) are sufficient, reasonable, and appropriate to ensure HAP minor source classification and to verify that dust controls are being achieved.

Comment 2 – Environmental Protection Agency (EPA): Limiting PTE of the Mining Fugitive Dust Emissions for NAAQS and Title V HAP Purposes

The permit does not ensure that the fugitive dust emissions related to the mining of ore and limestone will not cause or significantly contribute to a violation of the NAAQS or exceedance of the Title V HAP major source permitting thresholds. The emission limits necessary to ensure compliance with the NAAQS and Title V HAP applicability limits do not appear to be enforceable as a practical matter. In particular (I) achieving 93.3% control efficiency for fugitive dust resulting from mining activities (excavation and haul roads) and 90% control efficiency for drilling activities are critical to ensuring no violation of the NAAQS and Title V HAP limits, (2) the permit does not contain the conditions necessary to ensure the permittee achieves those efficiencies at all times and (3) the permit record does not demonstrate that those efficiencies are achievable based on the site-

specific conditions at the Perpetua mine. EPA made similar comments in its March 19, 2021, comment letter to IDEQ regarding the previous Perpetua draft.

Examples of these specific issues include, but may not be limited to, the following:

Mining Fugitive Dust PTE Permit Limitations:

16. PTE limitations consistent with the 93.3% control efficiency applicable to haul road and access road do not appear to be specified in the permit conditions. These PTE limitations may include permit conditions requiring control measures such as how frequently chemical suppressant supplemented with watering must be applied, the atmospheric and operational conditions under which magnesium chloride supplemented with watering should be applied, the time of day that magnesium chloride supplemented with watering should be applied, and/or the amount that should be applied. [13] The permit requires that fugitive road dust PTE limitations such as those indicated above are to be developed by the permittee after the permit is issued. The permit also allows these types of PTE limitations to be changed without IDEQ review and approval. PTE limitations addressing the 93.3% control efficiency must be reviewed and approved by IDEQ, subject to review by the public during the public comment period and must be enforceable at all times upon the issuance of the initial permit. Also, any changes to the approved PTE limitations after the permit is issued that are less stringent must go through IDEQ public review and approval and must be enforceable at all times upon the issuance of the revised permit.

17. PTE limitations to achieve a 93.3% control efficiency for fugitive dust emissions associated with the mining excavation activities as specified in Table 1.1 and Table 3.1 do not appear to be specified in the permit conditions. Although permit condition 3.10 requires the "permittee shall control emissions from mining... emission sources (Table 3.1) in accordance with the Fugitive Dust Control Plan." it does not specify what those controls are and as such are unenforceable. These control measures must be specified as part of the permit consistent with the permitting record and subject to review during the public comment period. In addition, these control measures must be enforceable at all times upon issuance of the permit. Any changes that are less stringent than the approved control measures made after the initial permit is issued must be proposed for review using public notice procedures and must be enforceable at all times upon issuance of the revised permit.

18. To make the PTE limitations enforceable as a practical matter, the permit should include the parameters and assumptions used to develop the fugitive dust emission factors estimates for the haul roads and access roads (see AP-42 Section 13.2.2, Equation la).[14] Per AP-42 and the application, these parameters and assumptions include surface material silt content (%), mean vehicle weight (tons), speed limit (mph), and daily vehicle miles travelled.

Mining PTE Fugitive Dust Control Efficiencies and Emissions Factors:

19. IDEQ's permitting record does not appear to provide support for a 93.3% control efficiency applicable to fugitive dust emissions resulting from mining excavation operations and haul roads. IDEQ's permitting record cites three studies that address the control efficiencies associated with fugitive dust emissions associated with haul roads but not mining excavation activities. Based on these studies, IDEQ concludes that applying magnesium chloride will achieve a control efficiency of 90%. However, IDEQ's permitting record does not provide a reasoned analysis consistent with AP-42's control effectiveness factors (or equivalent) that this control efficiency and associated control measures identified by these studies would be representative of Perpetua's mining operation. In addition, IDEQ's permitting record does not identify the specific study details that support their conclusion and does not include copies of these studies for review during public comment period. (see Appendix A, Air Sciences 2020 application, page 339 of 421). IDEQ's permitting record indicates that a control efficiency of 90% is also supported by control efficiency limits established for 10 projects in the EPA RACT/BACT/LAER Clearinghouse (RBLC) database. However, IDEQ's permitting record does not provide a reasoned analysis consistent with AP-42's control effectiveness factors (or equivalent) that the control efficiencies and associated control measures identified by these permitting projects would be representative of Perpetua's mining operation. In addition, IDEQ's permitting record does not identify the specific details from the permitting projects and associated documentation that support their conclusions (IDEQ's 2021 TAP Addendum,

page 37 of226). Moreover, IDEQ's permitting record does not provide any technical studies showing that the supplementing magnesium chloride with watering will improve the control efficiency of magnesium chloride. Lastly, IDEQ's permitting record does not appear to provide support for a 10% opacity associated with a 93.3% control efficiency for haul roads as established in Permit Condition 2.5. To support the 93.3% claim of road dust control efficiency, a see-no see approach to opacity monitoring may be more appropriate.

DEQ Response:

Enforceable monitoring, recordkeeping, and reporting requirements were established in the permit. PM/PM_{10}/$PM_{2.5}$ emissions limits for point sources were established with supporting activity rate limits and MRR requirements. While emissions limits and emission factors are not commonly included in the permit for fugitive sources, activity rate limits and MRR requirements were established for those sources that were identified as process rate-limiting (as summarized in Table 1.1 of the permit). These activity rate limits serve as surrogate emissions limits for PM, PM_{10}, $PM_{2.5}$, HAP and TAP from fugitive sources. And while documented in the Statement of Basis and application materials, underlying parameters associated with calculating emissions such as vehicle speed limit, type, and miles traveled are not typically included in the permit but can be found in the application materials (Appendix A).

Based on public comment, Permit Condition 2.8 has been updated to include DEQ approval both initially (before startup) and after any subsequent changes and that the Fugitive Dust Control Plan (FDCP) shall be approved 30 days prior to startup. The approved FDCP is incorporated by reference in the permit and is enforceable as part of the permit. For the FDCP, the minimum and substantive requirements are specified in the permit and available for public review (Permit Conditions 2.1-2.6). DEQ contends that these and other relevant conditions are sufficient, reasonable, and appropriate to ensure compliance with applicable requirements including National Ambient Air Quality Standards (NAAQS).

DEQ recognizes that in practice chemical and water dust suppressants are used in combination for the control of dust from haul roads, and that achieving the target combined control efficiency of 93.3% is ultimately important to ensure compliance with applicable standards. It is for this reason that the combined control efficiency was listed in the permit in lieu of separate chemical (90% control) and water (33.3%) dust suppressant control efficiencies. An instantaneous 10% opacity limit for vehicle traffic on haul roads is considered a very conservative control trigger level to ensure that an appropriate control measure is taken to reasonably control emissions of fugitive dust (Permit condition 2.5). DEQ agrees with commenters that compliance with fugitive dust requirements is also necessary to ensure compliance with applicable standards, including application of both water and chemical dust suppressant in proper amounts and at proper frequencies as local conditions dictate.

Comment 3 – Idaho Conservation League (ICL)/ Save the South Fork Salmon (SSFS): Dust Control Efficiency

IDEQ states in this permit that the Applicant will have to achieve a dust control efficiency of at least 93.3% on the haul roads in order to achieve air quality compliance, yet the agency has not provided sufficient evidence that such a high target is attainable or practically enforceable. In Appendix G of the Statement of Basis, IDEQ discusses the T-RACT Analysis, including dust control efficiency. We have reviewed the references listed in Appendix G, Table 10 of other facilities with determinations of 90% or greater control efficiency for unpaved roads. Upon investigation of these references through the EPA's Clean Air Technology Center database,[2] we found that only 1 of the 10 facilities referenced actually has *verified* compliance of achieving at least 90% control efficiency. The other nine facilities listed in Table 10 had either unverified or unknown compliance with that permit condition. In addition, only one of these facilities is actually a gold mining operation and therefore most of these references should not be used as a point of comparison to the Stibnite project.

Listed Facilities in Appendix G, Table 10
AK Donlin Gold Project AK-0084 water/chem 90% (unverified/unknown compliance)
AR Turk Power Plant AR-0094 water/chem 90% (unverified/unknown compliance)
CO Rio Grande Portland Cement Corp. CO-0043 water/chem 90% (unverified/unknown compliance)

IN Nucor Steel IN-0034 chem 90% (unverified/unknown compliance)
LA Nucor Steel Louisiana LA-0239 water/chem 90% (unverified/unknown compliance)
MO Lafarge Corp. MO-0048 chem 90% (unverified/unknown compliance)
NV Sloan Quarry NV-0045 chem 98% (compliance verified)
NV Nellis Air Force Base NV-0047 water/chem 90% (unverified/unknown compliance)
OH Unlimited Concrete OH-0126 water/chem 90% (unverified/unknown compliance)
OH Unlimited Concrete OH-0131 water/chem 90% (unverified/unknown compliance)

According to the T-RACT analysis, the Applicant has eliminated paving as a control mechanism due to it being deemed too costly, instead selecting the application of a chemical dust suppressant supplemented by frequent watering. However, there is no assurance that other facilities of this size and nature have been able to achieve this high bar for dust control efficiency. IDEQ itself states on page 22 of the Statement of Basis that "it may prove challenging to consistently and continuously achieve the targeted level of fugitive dust control for emissions from traffic on unpaved roadways, with over 55 miles of haul truck routes within the mining operations boundary, a fleet of 32 haul trucks weighing between 37 and 357 tons, and a targeted dust control efficiency of 93.3% accomplished by application of both dust suppressant and water controls." Because the fugitive dust control efficiency is not practically attainable or enforceable, this facility should not be classified as a non-major source.

IDEQ should:

- Rigorously evaluate if the 93.3% dust control efficiency target is realistically attainable by the Applicant. If not, reclassify the facility as a major source.
- Include enforceable provisions in the permit to hold the Applicant to continuous achievement of that dust control efficiency level.
- Adjust emission calculations for ore handling and processing activities when temperatures are below freezing and proposed water controls would not be practical.

DEQ Response:

The Fugitive Dust Control Plan (FDCP) contains the minimum and substantive requirements and were specified in the permit and available for public review (Permit Conditions 2.1-2.6). DEQ contends that these and other relevant conditions are sufficient, reasonable, and appropriate to ensure compliance with applicable requirements including National Ambient Air Quality Standards (NAAQS). In addition, DEQ will review and approve the FDCP which is incorporated by reference in the permit and is enforceable as part of the permit. DEQ recognizes that in practice chemical and water dust suppressants are used in combination for the control of dust from haul roads, and that achieving the target combined control efficiency of 93.3% is ultimately important to ensure compliance with applicable standards. It is for this reason that the combined control efficiency was listed in the permit in lieu of separate chemical (90% control) and water (33.3%) dust suppressant control efficiencies. DEQ agrees with commenters that compliance with fugitive dust requirements is also necessary to ensure compliance with applicable standards, including application of both water and chemical dust suppressant in proper amounts and at proper frequencies as local conditions dictate. The references listed in Appendix G, Table 10 from the EPA RBLC database were provided as additional supporting information. The references illustrate that a control efficiency of 90% is achievable by treating unpaved roads with chemical suppressant in various states with similar operations.

Air impact sensitivity modeling analyses for the project, prior to refined adjustments for background pollutant levels, shows all modeled PM_{10} violations occur during the winter (Statement of Basis, Appendix B) where emissions and background levels are likely overestimated. Data provided in the SGP baseline study specify an average snow depth of 21-68 inches and an average precipitation of 6.0 inches at the project site during this period. Therefore, fugitive dust emissions during high-modeled impact hours could be overestimated and may be controlled by more than 93%. An impact modeling sensitivity analysis, using meteorological data processed with the Bulk Richardson (BULKRN) method, with exclusion of the high impacting operating scenario W5, and

with background concentrations adjusted for seasonality, showed compliance with the 24-hour PM_{10} NAAQS at all receptor locations.

Comment 4 – Ian von Lindern, TerraGraphics International Foundation (TIFO): Estimated Unpaved Roads Emissions

As pointed out by numerous public comments and critiques, calculations of unpaved roads are not based on conservative data as required by State regulations and USEPA guidance. This remains a major concern as use of conservative values could show that this facility would not comply with particulate and toxic air pollutant health standards. The Applicant has now admitted that these same particulate emissions, as calculated, cannot comply with carcinogenic risk ambient air standards; has requested a ten-fold relaxation in health-risk protectiveness; and alleges a 57% reduction in PTE is required reach compliance. The consequences of IDEQ's reliance on these uncertain Applicant assertions are immense, as it could determine whether the facility can be permitted under the current configuration, and whether public health and the environment can be protected. IDEQ continues to resist requiring meaningful and effective monitoring that could detect these exceedances should the Applicant's assertions prove untrue. Nor are there any provision for corrective actions should the health criteria be exceeded.

These potential dangers are exacerbated by the T-RACT proposal and additional critique is offered for the Agency's consideration in the following Section 8.0 T-RACT REVIEW.

DEQ Response:

The Fugitive Dust Control Plan (FDCP) contains the minimum and substantive requirements and were specified in the permit and available for public review (Permit Conditions 2.1-2.6). DEQ contends that these and other relevant conditions are sufficient, reasonable, and appropriate to ensure compliance with applicable requirements at a reasonable level of confidence, including National Ambient Air Quality Standards (NAAQS). In addition, DEQ will review and approve the FDCP which is incorporated by reference in the permit and is enforceable as part of the permit.

T-RACT is an emission standard based on the lowest emission of toxic air pollutants that a particular source is capable of meeting by the application of control technology that is **reasonably available**, as determined by DEQ, considering technological and economic feasibility. T-RACT is an allowable analysis to demonstrate preconstruction compliance for toxic air pollutants (IDAPA 58.01.01.210.12) that PRI has used to demonstrate compliance for arsenic.

DEQ asserts that ambient air monitoring is not warranted for the SGP. Although there are identified uncertainties in the analyses predicting air pollutant emissions and atmospheric dispersion of such emissions, DEQ is reasonably confident that impacts to ambient air will be below applicable standards. Furthermore, ambient monitoring would only be required where such monitoring would serve to protect a potentially exposed public residing in the area of impact. The areas where maximum potential impacts from the SGP are highest are remote, located far from areas where the general public live and reside. There are no public residences, public businesses, schools, hospitals, or other areas where members of the general public would be expected on a continual basis.

INSUFFICIENT MONITORING AND RECORDKEEPING

Comment 5 - NPT: The state of Idaho's internal controls and program resources are inadequate to guarantee permit conditions will be met

The PTC lacks sufficient monitoring for enforcement and compliance to ensure that permit conditions are met. In the Tribe's March 18, 2021 comment letter, the Tribe states that a once every two years inspection schedule and response by phone was woefully insufficient to ensure the Project is meeting the 93.3 percent fugitive dust control permit requirements that guarantee human life, animal life, and vegetation, and the Tribe's Treaty-reserved resources are not injured or unreasonably affected. DEQ now states that the inspection schedule will be even more insufficient – at a rate of once every five years.

Meteorological data used in the modeling came from on-site monitoring at one location. With the complex terrain of the site, the inputs to the modelling will not be representative of the actual weather throughout the entire mining site over the life of the mine. With that in mind, fenceline monitoring should be a requirement to ensure compliance with the PM10 NAAQS, if the permit is issued.

As described in our November 10, 2020 comments, additional monitoring (real-time continuous, federal reference PM2.5 and PM10 monitoring, web cameras, aerial drones, and collocation of meteorological monitoring) and weekly on-site inspections are necessary for DEQ to accomplish its responsibilities under the Clean Air Act to implement and enforce permit conditions and ensure the NAAQS are not violated.

DEQ Response:

The Fugitive Dust Control Plan (FDCP) contains the minimum and substantive requirements that were specified in the permit and available for public review (Permit Conditions 2.1-2.6). DEQ contends that these and other relevant conditions are sufficient, reasonable, and appropriate to ensure compliance with applicable requirements at a reasonable level of confidence, including National Ambient Air Quality Standards (NAAQS). In addition, DEQ will review and approve the FDCP which is incorporated by reference in the permit and is enforceable as part of the permit.

DEQ is requiring extensive fugitive dust control measures in the permit and has reviewed or conducted modeling analyses that demonstrates compliance with NAAQS at a satisfactory level of confidence for permit issuance. Therefore, DEQ is not requiring any ambient air monitoring in the permit.

DEQ disagrees that a PM/PM_{10} ambient air PM_{10} monitoring is necessary to ensure NAAQS compliance. The issued permit includes limits on operational levels and key parameters such as (but not limited to) ore excavation and hauling rates, silt content of roadway material, application of dust suppressant measures, etc. These limits represent values associated with maximum or upper-level emissions for the time interval consistent with the averaging period of the standard. The permit also includes monitoring and recordkeeping requirements to ensure compliance with permit limits and ultimately ensure compliance with NAAQS and TAP increments at a satisfactory level of confidence to support permit issuance.

The comment is correct in that use of one meteorological monitoring site for such a large area with complex terrain is not representative of conditions throughout the area. However, considering other conservative assumptions used in analyses and the permitting process, combined with DEQ's extensive fugitive dust control measures, DEQ has determined that operation of the SGP as described in the application will not likely cause a violation of a NAAQS or TAP increment. This constitutes a *satisfactory* demonstration, thereby justifying permit issuance as required by *Idaho Air Rules* Section 203.

Comment 6 - EPA: Mining Fugitive Dust Monitoring, Recordkeeping, and Reporting Requirements

22. No monitoring, recordkeeping and reporting (MRR) requirements appear to be specified for the excavation mining controls required by permit conditions 3.10 to ensure their enforceability.

23. No monitoring, recordkeeping, and reporting requirements appear to be specified for the 90% control efficiency applicable to the drilling activities required in permit condition 3.11.

24. The monitoring methods associated with the haul roads appear to be unenforceable as they do not specify how the monitoring and recordkeeping demonstrating compliance with the applicable PTE limitations will be achieved. For example, Permit Condition 3.16 specifies "the permittee shall monitor and record" using the "devices and methodologies ... identified in the O&M Manual" for the PTE limitation associated with the 180,000 tpd hauling PTE limitation in permit condition 3.5. The permit must include all monitoring, recordkeeping and reporting necessary to assure compliance with the permit emission limitations and applicable requirements.

25. Given the high level of uncertainty in the assumptions and requirements to ensure compliance with the PM10 24-hr NAAQS, the addition of post-construction ambient monitoring requirements is highly prudent. IDEQ may be able to require post-construction monitoring when determined to be necessary to determine the effect a stationary source may have on air quality in the vicinity of the source, especially when there is high uncertainty in project air quality impacts determined from modeling. The EPA recommends IDEQ add a permit requirement for the source to deploy a fenceline PM10 monitoring network, in a manner determined to be adequate by IDEQ, to demonstrate 24-hour and annual PM10 NAAQS compliance.

DEQ Response:

The emissions from mining and ore processing sources shall be controlled in accordance with the FDCP in Permit condition 2.6. The minimum and substantive requirements were specified in the permit under the FDCP. DEQ contends that these and other relevant conditions are sufficient, reasonable, and appropriate to ensure compliance with applicable requirements including National Ambient Air Quality Standards (NAAQS) at a reasonable level of confidence.

DEQ contends that, like other control equipment in the permit, the drilling rigs dust control system will be operated in accordance with the O&M manual which specifies a copy of the vendor-supplied performance guarantee shall be included along with minimum pressure drop, procedures for proper operation, and routine inspection and maintenance. The minimum requirements for the O&M manual are specified in the permit to demonstrate that the drilling rigs dust control system operates as designed. Likewise, the O&M manual (Permit Condition 2.20) specifies that each monitoring device and methodology used to measure weight rates of materials, installation, calibration, and maintenance shall be described to demonstrate compliance with each material throughput limit.

DEQ disagrees that ambient air PM_{10} monitoring is necessary to ensure NAAQS compliance. The issued permit includes limits on operational levels and key parameters such as (but not limited to) ore excavation and hauling rates, silt content of roadway material, application of dust suppressant measures, etc. These limits represent values associated with maximum or upper-level emissions for the time interval consistent with the averaging period of the standard. The permit also includes monitoring and recordkeeping requirements to ensure compliance with permit limits and ultimately ensure compliance with NAAQS and TAP increments at a satisfactory level of confidence to support permit issuance.

DEQ recognizes the uncertainty of predicted impacts (from the use of dispersion models) in complex terrain, the uncertainty in predicted impacts when using modeling techniques for fugitive emission sources, the uncertainty in emission factors and equations, the uncertainty and variability in input parameters to emission equations, and the variability in background pollutant concentrations. However, these uncertainties and variabilities are offset by other approaches in the permitting process and modeling methods that are conservative (overstating impacts).

Some of these include (for 24-hour PM_{10}, which is the driver in analyses): 1) not accounting for times when fugitive emissions will be greatly reduced because of precipitation or lingering periods of high moisture content of material handled or roadways driven over; 2) assuming emissions from short-term maximum allowable operational rates, and from the worst-case operational scenario for the receptor location in question, occur during each day of operation; 3) DEQ's high level of confidence that required emission control efficiencies will be the minimum level attained during operations, verified through the use of emission-affecting parameter monitoring and record-keeping; 4) ensuring that fugitive emissions are less than estimated values provided in the application through required frequent inspection of emission sources that drive highest modeled impacts; 5) assuming that maximum modeled design value impacts occur simultaneously with design value background concentrations.

Idaho Air Rules Section 203 requires that a permit may not be issued unless it is demonstrated to DEQ's satisfaction that the proposed project will not cause or contribute to a violation of a NAAQS or TAP increment. In conclusion, through DEQ's review of the application and DEQ's additional analyses, DEQ has determined that operation of the SGP as described in the permit application is unlikely to cause a violation of an applicable NAAQS or TAP increment. This represents a satisfactory demonstration to support permit issuance.

DEQ does not typically require ambient air pollutant monitoring for permit issuance, especially at facilities with emissions below major source thresholds. Ambient monitoring is not considered unless DEQ lacks a satisfactory confidence of NAAQS or TAP increment compliance (as specified by *Idaho Air Rules* Section 203.02 and 203.03) without such monitoring. All of the following conditions would normally be required to justify post-construction ambient air monitoring:

1. The application used questionable, non-conservative data or assumptions in the calculation of emissions or dispersion-affecting parameters.
2. There is an inability to verify emissions or dispersion-affecting parameters during operation of the facility. This would include monitoring parameters of emission equations or monitoring indicators of a condition of unacceptable control of emissions.
3. There are sensitive receptors (private residence, school, public business, hospital, or other area where members of the general public would be expected to be present) in areas where elevated ambient air impacts could occur.

The SGP does not meet the above criteria to justify the requirement of ambient air monitoring. It has been indicated that PRI did not use convincingly conservative data and assumptions for some emission calculations. Where the conservatism of such data was in question, DEQ required enhanced monitoring and record-keeping of such parameters. Such monitoring includes the monitoring of maximum road silt content, monitoring of production levels to verify estimated vehicle miles traveled (VMT) used in fugitive road dust emission calculations, and monitoring of the median arsenic content of road base material to help justify fugitive road dust arsenic emissions used in TAP analyses. Finally, there are no sensitive receptors identified near the ambient boundary of the facility, where elevated impacts of pollutants would be expected.

Comment 7 - EPA: Ore Processing Monitoring, Recordkeeping and Reporting Requirements/

6. The monitoring method does not appear to specify how and where the PTE limitations will be measured consistent with the application's emissions calculations. For example, Permit Condition 3.18 specifies "The devices and methodologies used to measure weights shall be identified in the O&M Manual" for determining compliance with the input to the primary crusher. Per the application, this monitoring should apply at OCI (Loader Transfer of ORE to Grizzly) and not OC7 (Primary Crusher) as specified in the permit condition. The permit also does not specify generally how the weight is measured such as by a truck scale or some other method but is to be developed in an O&M Manual after the permit is issued and is not enforceable to this permit condition (see permit conditions 2.20 and 2.21). The permit must include all monitoring, recordkeeping and reporting necessary to assure compliance with the permit emission limitations and applicable requirements. This comment is also applicable to permit conditions 3.16 through 3.20, 4.18 through 4.32, 4.34, and 5.16 through 5.24.

7. IDEQ required monitoring of baghouse pressure drop to assure compliance in permit condition 4.31. Though pressure drop monitoring can be an indicator of the source's maintenance program, monitoring experts within EPA have concluded that pressure drop is not a reliable approach for monitoring baghouse compliance. Alternatives to pressure drop include opacity monitoring/readings and bag leak detectors. Bag leak detectors are a good alternative for baghouses that require a more rigorous level of scrutiny than periodic observations provide. These monitoring techniques can be combined with a good operation and maintenance program to assure compliance. This comment is also applicable to permit conditions 5.21, 5.22, and 5.23.

DEQ Response:

Permit condition 3.7 establishes a primary crusher limit. Compliance is ensured by complying with the monitoring and recordkeeping requirements specified in Permit Condition 3.18. The monitoring on the primary crushing circuit, per the application (see the process flow diagram), is via a weighometer on the Coarse Ore Stockpile Feed conveyor downstream of the primary crusher. This is standard practice for the mining industry. The O&M manual (Permit Condition 2.20) specifies that each monitoring device and methodology used to measure weight rates of materials, installation, calibration, and maintenance shall be described to demonstrate compliance with each material throughput limit. DEQ contends that the O&M manual specifies that each monitoring device and methodology used to measure weight rates of materials, installation, calibration, and maintenance shall be described to demonstrate compliance with each material throughput limit and is an enforceable permit condition.

Based on public comment, Permit Condition 2.20 has been updated to state that the O&M manual shall be developed 30 days prior to startup of any process equipment. In the case of the O&M Manual, certain operating parameters will not be determined or available until after control equipment has been installed. Permit Condition 2.21 was updated to include DEQ approval 30 days prior to startup and 30 days before any subsequent changes are made to the O&M Manual.

Although bag leak detectors are a reliable approach to ensure baghouse monitoring compliance, measuring pressure drop across the baghouse is commonly accepted by DEQ as an effective way of determining proper baghouse operation.

Comment 8 - EPA: Lime Plant Monitoring, Recordkeeping and Reporting Requirements

12. Consistent with comment #6 for ore processing, the lime plant MRR requirements appear to be unenforceable as Permit Condition 5.16 specifies "the permittee shall monitor and record" using the "devices and methodologies ... identified in the O&M Manual" for the PTE limitation associated with the limestone primary crusher. The permit must include all monitoring, recordkeeping and reporting necessary to assure compliance with the permit emission limitations and applicable requirements.

13. If the O&M Manual is used to provide the monitoring, recordkeeping, and reporting (MRR) requirements for the applicable PTE limitations then the O&M Manual would need to be reviewed and approved by IDEQ, available for review during the public comment period and must be enforceable at all times upon issuance of the permit. Also, any changes to the O&M Manual that that would make the approved MRR requirements less stringent would be subject to the same IDEQ and public review approval process and need to be enforceable at all times upon issuance of the revised permit.

DEQ Response:

The O&M manual (Permit Condition 2.20) specifies that each monitoring device and methodology used to measure weight rates of materials, installation, calibration, and maintenance shall be described to demonstrate compliance with each material throughput limit. DEQ contends that the O&M manual specifies that each monitoring device and methodology used to measure weight rates of materials, installation, calibration, and maintenance shall be described to demonstrate compliance with each material throughput limit and is an enforceable permit condition.

Based on public comment, permit condition 2.20 has been updated so that the O&M manual shall be developed 30 days prior to startup of any process equipment. Enforceable testing and monitoring, recordkeeping, and reporting (MRR) requirements that were determined reasonable and appropriate were established and incorporated in the permit. The O&M manual establishes a regular schedule for operation, inspection, maintenance, and repair of the control equipment to ensure compliance.

Comment 9 - ICL/SSFS: PM/PM10 Monitoring

In order to make this air permit practically enforceable, IDEQ must require that the Applicant install a PM/PM10 monitoring system on site at the ambient air boundary to ensure that PM/PM10 NAAQS are not violated. This step is warranted because of the uncertainty surrounding dust control efficiency and emissions factors associated with this project. To our knowledge, it is neither technologically or financially infeasible for the Applicant to install this monitoring. Additionally, IDEQ should include penalties and corrective actions in the permit that would be triggered if this monitoring system shows NAAQS violations occurring at the ambient air boundary. These penalties should entail a mandatory reduction in mining and processing throughput.

IDEQ should:

- Add a permit condition that requires the Applicant to install a comprehensive continuous PM/PM10 monitoring system on site.
- Add enforceable penalties and corrective actions to the permit that are triggered if this monitoring system ever indicates that NAAQS are being exceeded.

DEQ Response:

DEQ disagrees that a PM/PM_{10} ambient monitoring network is necessary to make the PTC practically enforceable. As discussed previously in DEQ's response to Comment 6, the issued permit includes limits on operational levels and key parameters such as (but not limited to) ore excavation and hauling rates, silt content of roadway material, application of dust suppressant measures, etc. These limits represent values associated with maximum or upper-level emissions for the time interval consistent with the averaging period of the standard. The permit also includes monitoring and recordkeeping requirements to assure compliance with permit limits and ultimately assure compliance with NAAQS and TAP increments at a satisfactory level of confidence to support permit issuance.

Even though DEQ is not proposing a monitoring network, it should be noted that any violation of the permit would be processed in accordance with DEQ's enforcement procedures manual.

CONCERNS WITH THE FCDP, O&M MANUAL, AMP, AND HRCP

Comment 10 - NPT: Concerns with Fugitive Dust Control Plan (FDCP), Operations and Maintenance Manual (O&M), Access Management Plan (AMP), and Haul Road Cap Plan (HRCP) submission and review process

These plans are key to holding Project emissions at or below assumed emissions in the emissions inventory and modeling used to determine the source applicability of the Project. Any assumptions, including emission controls, need a practically enforceable permit requirement to keep the Project a synthetic minor for PSD, Title V, and HAP. As these plans are not yet written, and their associated permit conditions not included in the PTC, the PTC is not practically enforceable.

Our understanding is that the first opportunity for meaningful comment on the FDCP, O&M, AMP, and HRCP will be when a Tier I air operating permit is drafted. Strict adherence to these plans is critical to ensuring compliance, and only giving the public the opportunity to review and comment on these plans when the Tier I air operating permit is drafted, and every five years thereafter, is inadequate.

DEQ Response:

For the Fugitive Dust Control Plan (FDCP), Operations and Maintenance (O&M) Manual, AMP, and HRCP the minimum and substantive requirements were specified in the permit (Permit Conditions 2.1-2.6, 2.7-2.8, 2.20-2.21, 3.13). DEQ has added additional minimum requirements for the AMP and HRCP (Permit Conditions 2.7 and 3.13). DEQ contends that these and other relevant conditions are sufficient, reasonable, and appropriate to ensure compliance with applicable requirements including National Ambient Air Quality Standards (NAAQS). Relevant conditions include visible emissions limits (Permit Conditions 2.9-2.12), material throughput and operational limits (Permit Conditions 3.3-3.9, 4.5-4.12, 5.4-5.9, 6.2), emissions limits (Permit Conditions 4.3-4.4, 5.3), control device requirements (Permit Conditions 3.10-3.12, 4.13-4.17, 5.10-5.16), and testing (Permit Condition 4.33) requirements. To ensure enforceability of each of these requirements, supporting testing and monitoring, recordkeeping, and reporting (MRR) requirements were also included. In addition, DEQ will review and approve the FDCP, O&M's, AMP and HRCP. These approved plans and manuals are incorporated by reference in the permit and are enforceable as part of the permit.

All state and federally applicable requirements are incorporated into the Tier I permit as required by 40 CFR 63 Subpart EEEEEEE, including all applicable PTC, NESHAP and NSPS requirements. Copies of all permit-required compliance documents, including but not limited to the FDCP, O&M, AMP, and HRCP are required to be included in the permit application and thus included in the docket for review during each Tier I public comment period (Tier I Application Completeness Checklist). As such, any plan updates will be subject to public review during each Tier I permit renewal comment period once every five years. Additionally, DEQ plans to post the FDCP, O&M, AMP, and HRCP on DEQ's website with the final permit and statement of basis when completed. Once DEQ approves these plans they will also be available for public records request.

Comment 11 - NPT: Concerns with Permit Condition 2.20 O&M Manual

Permit condition 2.20 requires the permittee to develop and maintain an Operation and Maintenance (O&M) manual to ensure compliance with emission limits and the control equipment maintenance and operation general provision. The Tribe has the following concerns about section 2.20:

- Please explain why the O&M manual is termed a "manual" and not a "plan", and please justify why the O&M manual does not require approval by DEQ when DEQ approval is required for the FDCP, AMP and HRCP plans.
- Please explain the rationale for the O&M manual being due 60 days after startup of any process equipment, unlike the 60 days after permit issuance required for the FDCP, AMP, and HRCP plans.
- The O&M permit condition, 2.20, states a once per month visible emission (VE) inspection requirement for wet scrubber, carbon filter, baghouse, and bin vents, but permit condition 2.10 requires the following VE

inspection: "Each day during daylight hours and under normal operating conditions, the permittee shall conduct a facility-wide inspection of potential point sources of visible emissions including stacks, vents, and functionally equivalent openings." Since wet scrubber, carbon filter, baghouse, and bin vents have openings, the VE inspection requirement for this control equipment should be the same as permit condition 2.10.

DEQ Response:

Based on public comment, Permit Condition 2.20 has been updated to be consistent with the FDCP, AMP, and HRCP to state that the O&M manual shall be developed 30 days before startup of any process equipment. In the case of the O&M Manual, certain operating parameters will not be determined or available until after control equipment has been installed. Permit Condition 2.20 was also updated to describe the schedule and procedures for routine inspection as a see-no-see visible emissions inspection conducted at least once per day to eliminate the discrepancy with Permit Condition 2.10. Permit Condition 2.21 was updated to include DEQ approval 30 days prior to startup and 30 days before any subsequent changes are made to the O&M Manual.

Comment 12 - NPT: Concerns with Permit Condition 3.11 Drilling Rigs Dust Control System

We appreciate that DEQ has added controls for the drilling activities. However, the details in actually achieving the 90% control are to be included in an O&M manual which will be developed after the PTC permit is issued. If DEQ relied on vendor-stated control efficiencies, there should be testing requirements included in the PTC to validate the emissions controls.

DEQ Response:

DEQ contends that, like other control equipment in the permit, the drilling rigs dust control system will be operated in accordance with the O&M manual which specifies a copy of the vendor-supplied performance guarantee shall be included along with minimum pressure drop, procedures for proper operation, and routine inspection and maintenance. These minimum requirements for the O&M manual were specified in the permit.

Comment 13 - NPT: Concerns with Permit Condition 3.13 Haul Road Capping

The addition of permit condition 3.13 Haul Road Capping is appreciated. However, haul road surfaces will degrade over time. Because the arsenic concentration in the roadbed will come from both the road material itself and spilled ore, DEQ should require periodic testing of both silt and arsenic content of the road bed to validate assumptions underlying the estimated emissions and assure the representativeness of the emission factors used. Periodic measurement would increase confidence that the NAAQS are being protected (PM10 from haul road fugitives) and fugitive arsenic is being controlled. We suggest use of most conservative average arsenic concentration in the quartzite used. In the 55,000 ore samples presented, that would be the mean, not the median as proposed in 3.13. Please explain in better detail how DEQ justified the assumption that 50% of the vehicle miles traveled (VMT) will occur on low-arsenic capped haul roads and what level of detail will be required in the HRCP such that the emission limits are enforceable.

DEQ Response:

DEQ concurs that silt content is an important component in the HRCP. Permit condition 3.13 has been updated to include a silt content maximum percentage of 4.0% and a corresponding sampling plan including frequency and method of analysis for verification. As discussed previously in the Representativeness and Uncertainty of Emissions section, the use of site-specific median values for silt content is commonly accepted by DEQ, and the values used in calculations were supported by PRI. Although a median value of sampled silt percentages of roadway material was used in emission estimates presented in the application, DEQ recognizes the importance of the silt content parameter in the estimation of fugitive emissions. Since compliance with the 24-hour PM_{10} NAAQS is the primary driver of NAAQS compliance, minimizing variability of this parameter is very important to ensure NAAQS compliance.

The HRCP contains the minimum and substantive requirements in the permit to ensure compliance with the NAAQS. The assumption that 50% of the vehicle miles traveled (VMT) will occur on low-arsenic capped haul roads has been substantiated in a reference email from PRI on June 16, 2021 where the annual average percentage of haul road travel on capped roads is over 60%. A lower value of 50% was used in the analysis as a conservative assumption.

Comment 14 - NPT: Concerns about fugitive dust controls

The FDCP plan is key for the facility to reach the 93.3% fugitive dust control that allows DEQ to demonstrate the facility is a synthetic minor. We are concerned that the use of such non-specific permit requirement terms of "as necessary" and "periodic" is not practical enforceability.

We are very concerned about PRI's commitment to 93.3% control for fugitives on haul roads. In Facility Comment #10, PRI asked for a change from a twice daily to a monthly frequency for permit condition 2.4 fugitive emission inspection. A monthly inspection frequency is woefully inadequate. We appreciate that DEQ has retained the twice daily inspection frequency.

Retention of records should exceed five years. The records of FDCP are key to compliance checking and it is plausible that inspection frequency will exceed 5 years. The description of the facility information in the Statement of Basis states "the SGP will include three years of pre-mining development and construction activities, followed by an operating mine life of approximately 12 years." And permit condition 2.24 states "In accordance with IDAPA 58.01.01.313.01.b., the permittee shall submit a complete application to DEQ at the address provided (Permit Condition 2.26) for an initial Tier I operating permit within 12 months of becoming a Tier I source or commencing operation." Therefore, it is very plausible the facility will operate for 4 years or more before an operating permit is issued. If compliance inspection is every 5 years, earthmoving activities at the mine may go for 9 years before any compliance check is made by DEQ.

Permit condition 2.5 includes a 10% opacity trigger: "Fugitive dust control measures shall be applied to haul roads on a frequency such that visible emissions from vehicle traffic on a haul road do not exceed 10% opacity". We are unaware of any study showing that a 10% opacity limit ensures a 93.3% fugitive dust control efficiency. A more protective trigger would be an instantaneous see/no-see. Any trigger, to be sufficiently evaluated, should specify a timeframe for measurement (example: instantaneous or 15 second), a location, and when to take the opacity reading (example: immediately after a loaded ore truck passes near surface of the road bed). Additionally, with over 55 miles of haul roads, there should be multiple locations being monitored during each inspection.

DEQ Response:

Enforceable testing and monitoring, recordkeeping, and reporting (MRR) requirements that were determined reasonable and appropriate were established and incorporated in the permit. DEQ contends that program resources are adequate for the purposes of monitoring compliance with permit conditions, for inspection, and for complaint response and that the inspection schedule is sufficient for a minor source of emissions.

DEQ recognizes that in practice chemical and water dust suppressants are used in combination for the control of dust from haul roads, and that achieving the target combined control efficiency of 93.3% is ultimately important to ensure compliance with applicable standards. It is for this reason that the combined control efficiency was listed in the permit in lieu of separate chemical (90% control) and water (33.3%) dust suppressant control efficiencies. A 10% opacity is considered a very conservative control trigger level to ensure that an appropriate control measure is taken to reasonably control emissions of fugitive dust (Permit condition 2.5). DEQ agrees with commenters that compliance with fugitive dust requirements is also necessary to ensure compliance with applicable standards, including application of both water and chemical dust suppressant in proper amounts and at proper frequencies as local conditions dictate.

Comment 15 - NPT: Regular testing requirements needed for process and control equipment

Permit Conditions 2.20-2.21 require developing and complying with the requirements of an O&M manual to ensure compliance with control equipment maintenance and operation general provisions (Permit Condition 7.2). Documentation of as-built Process equipment specifications and control equipment performance guarantees and establishing control equipment operating parameters and procedures were required, since these were relied upon in the development of emissions inventories, and in the evaluation of ambient air impacts in the modeling analyses. Compliance is ensured by complying with monitoring and recordkeeping requirements. There should be regular testing required to confirm process and control equipment are operating/performing to the specifications, guarantees, and parameters identified in the PTC application.

DEQ Response:

Based on public comment, Permit Condition 2.20 has been updated so that the O&M manual shall be developed 30 days prior to startup of any process equipment. Enforceable testing and monitoring, recordkeeping, and reporting (MRR) requirements that were determined reasonable and appropriate were established and incorporated in the permit. The O&M manual establishes a regular schedule for operation, inspection, maintenance, and repair of the control equipment to ensure compliance.

Comment 16 - EPA: Mining Access Management Plan (AMP) for NAAQS Purposes

26. Permit Condition 2.7 requires the development of an Access Management Plan (AMP) to address whether the NAAQS apply to the mine's access road through the Perpetua Mining site given the extent of public access allowed. Permit Condition 2.8 allows the AMP to be developed after the permit is issued and does not require the AMP to be enforceable. For the AMP to preclude the applicability of the NAAQS along the access road, the AMP must be reviewed and approved by IDEQ, subject to review by the public during the public comment period and must be enforceable at all times upon issuance of the initial permit. Any changes to the AMP that are less stringent than the approved AMP must be reviewed and approved by IDEQ, subject to review by the public, and enforceable at all times upon issuance of the revised permit.

27. Given the unique situation with a public access road traversing the mine site, the key assumptions, parameters, and methodologies used to preclude public access from the mine site must be fully disclosed in the permit record and the necessary requirements be included in the permit and available for public review and comment. The State assumes measures taken to preclude public access will be appropriate and adequately comply with EPA's Revised Policy on Exclusions from Ambient Air (as specified in the December 2, 2019, memo from Andrew Wheeler to the EPA Regional Administrators). Section 2.7 of the permit provides requirements for the source to develop a plan to preclude public access, but these requirements offer a range of measures the source may choose to implement and are therefore ambiguous. Without full disclosure in the record of the exact measures and permit requirements to ensure compliance with national ambient air policy, it is not clear if the public access road can be excluded from ambient air protections. The state needs to provide sufficient justification to demonstrate the measures and requirements to preclude public access and ensure members of the public traversing the road can be classified as "guests of the mine" sufficiently complies with national ambient air policy. Given the uniqueness and ambiguity of the situation, a petition to the EPA national ambient air policy team for review and concurrence with the State's findings could be warranted.

DEQ Response:

Ambient air is defined in *Idaho Air Rules* Section 005.09 as, “That portion of the atmosphere, external to buildings, to which the general public has access.” To exclude areas from consideration as ambient air in air pollutant impact analyses, the following must be met:

1. The permittee must have the legal authority to exclude the *general public* from the area.
2. The boundary to ambient air must be clearly discernable to the *general public*.
3. The *general public* must be effectively precluded from accessing the facility.

4. The *general public* is not considered: employees of the facility; those having official business with the facility; guests of facility, including participants in facility tours and those seeking access for a specific purpose.

PRI has asserted they have complete and sole authority to control access to or through the facility, granting or excluding access at their discretion to anyone wishing to visit the site or pass through the site. Section 2.7 of the PTC establishes requirements to effectively preclude public access to the facility by: 1) adequately informing anyone approaching an access point that travel beyond the established gate involves entering an active mine site as a guest of PRI; 2) providing verbal or written requirements that must be followed while on the SGP site to all wishing to access the site. Since those requesting access to the site are guest of PRI and no longer members of the public, health and safety of such guests and managing how guests are monitored or escorted while on the site is the responsibility of PRI and outside of the scope of the PTC. It is not DEQ's responsibility or concern as to the reasons PRI may invite people to access the facility as a guest; it is primarily DEQ's concern that those accessing the facility understand the are no longer on public property and are entering an active mine site and agree to accept all such risks associated with the site and requirements imposed by the facility.

PRI may allow controlled use of a facility roadway to access offsite areas that would otherwise require a longer travel time around the mine. This roadway was excluded from consideration as ambient air and those using the road are considered guests of PRI rather than members of the general public. Since PRI has legal authority control all access through the facility, this meets the first criteria for exclusion from ambient air. To achieve the second and third criterion, PRI will post signs indicating the entry to the mine site and will establish manned access gates at points prior to the ambient air boundary. All persons seeking access will be required to register at the access gate and will be instructed on procedures and any potential hazards of areas they may encounter while on the SGP mine site (see Permit Condition 2.7).

Based on public comment, Permit Condition 2.7 has been updated with the following: "Only registered guests of the facility will be allowed access to or through the facility. Those seeking to be a guest for the sole purpose of passing through the facility to another destination shall be provided a registration sheet that explains PRI's requirements for accessing the site and identifies potential hazards of the site."

DEQ is confident in its interpretation of ambient air for the PRI minor source PTC, and DEQ asserts the methods used to excluded areas from ambient air is solid and unambiguous. Therefore, consultation with EPA's ambient air policy team is not warranted.

Comment 17 - EPA: Mining Dust Haul Road Capping Plan (HRCP) for NAAQS and Title V HAP Purposes

28. Permit Condition 3.13 requires the development of a Haul Road Capping Plan (HRCP) to address fugitive dust emissions from the haul roads and development rock storage facilities after the permit is issued.

29. To the extent that this plan is being relied upon to limit fugitive dust emissions for Title V HAP applicability and NAAQS compliance purposes, the HRCP would need to be reviewed and approved by IDEQ prior to the public comment period, subject to review during the public comment period, and enforceable upon the issuance of the initial permit. Also, any changes to the HRCP after the permit is issued and that are less stringent than the approved HRCP would need IDEQ approval and public review and be enforceable at all times after the revised permit is issued. There does not appear to be a reason that the HRCP can't be developed and incorporated into the permit now.

DEQ Response:

The HRCP is a T-RACT control for arsenic. DEQ has added additional minimum requirements for the HRCP (Permit Condition 3.13) and has updated Permit Condition 2.21 to include DEQ approval both initially (before startup) and after any subsequent changes.

All state- and federally- applicable requirements are incorporated into the Tier I permit as required by 40 CFR 63 Subpart EEEEEEE, including all PTC requirements and all NESHAP and NSPS requirements. Copies of all permit-required compliance documents, including but not limited to the FDCP, O&M, AMP, and HRCP are required to be included in the permit application and thus included in the docket for review during each Tier I public comment period (Tier I Application Completeness Checklist). As such, any plan updates will be subject to public review during each Tier I permit renewal comment period once every five years. Additionally, DEQ plans to post the FDCP, O&M, AMP, and HRCP on DEQ's website with the final permit and statement of basis when completed. Once DEQ approves these plans they will also be available for public records request. In addition, all approved plans and manuals are incorporated by reference in the permit and are enforceable as part of the permit.

Comment 18 - ICL/SSFS: Fugitive Dust Control Plan

The Fugitive Dust Control Plan (FDCP) continues to be an area of significant concern for us. IDEQ has required the applicant to complete this plan as a condition of this permit. However, despite the FDCP clearly being a crux of the applicant's air quality compliance, the public will not have the opportunity to review and comment on this plan. We once again formally request the opportunity to do so. Furthermore, the permit specifies that the FDCP shall be submitted within 60 days of permit issuance. In this case, the permit would be approved without IDEQ or the public knowing specifically how the applicant will attain this aggressive standard of dust control. For instance, we have no indication of how the applicant will suppress fugitive emissions sources other than roads.

Given that the specifics of the FDCP are crucial to ascertaining exactly how the applicant will achieve the lofty 93.3% dust control efficiency required to achieve compliance, and how enforceable the limits are, this permit should not be approved until a FDCP is submitted to IDEQ, reviewed by both IDEQ, EPA, and the public, and approved or denied pending modifications. A review of the FDCP prior to permit issuance is necessary to ensure compliance with air quality standards. If approved, the salient points of FDCP should be incorporated in the permit as clearly enforceable limits. This permit cannot be issued without enforceable provisions and limits to ensure that the high bar of fugitive dust control will actually be attained at the Stibnite Gold Project.

IDEQ should:

- Allow for public review and comment on the Fugitive Dust Control Plan *before* it is finalized.
- Incorporate clear, enforceable limits for fugitive dust control into this permit *before* any potential approval.

DEQ Response:

Based on public comment, Permit Condition 2.8 has been updated to include DEQ approval both initially (before startup) and after any subsequent changes and that the plan shall be submitted 30 days prior to startup. For the Fugitive Dust Control Plan (FDCP), the minimum and substantive requirements were specified in the permit and available for public review (Permit Conditions 2.1-2.6). DEQ contends that these and other relevant conditions are sufficient, reasonable, and appropriate to ensure compliance with applicable requirements including National Ambient Air Quality Standards (NAAQS).

All state- and federally- applicable requirements are incorporated into the Tier I permit as required by 40 CFR 63 Subpart EEEEEEE, including all PTC requirements and all NESHAP and NSPS requirements. Copies of all permit-required compliance documents, including but not limited to the FDCP, O&M, AMP, and HRCP are required to be included in the permit application and thus included in the docket for review during each Tier I public comment period (Tier I Application Completeness Checklist). As such, any plan updates will be subject to public review during each Tier I permit renewal comment period once every five years. Additionally, DEQ plans to post the FDCP, O&M, AMP, and HRCP on DEQ's website with the final permit and statement of basis when completed. Once DEQ approves these plans they will also be available for public records request.

POTENTIAL TO EMIT AND EMISSION FACTORS

Comment 19 - NPT: Representativeness of the emission factors

The applicability determination depends on the emissions inventory (EI). The EI depends on the proposed processes and the EFs used to characterized these activities. There are instances where we are concerned that inappropriate EFs have been used. The EFs for the ore processing come from AP 42 chapter 11.19 Crushed Stone Processing and Pulverized Mineral Processing. The AP-42 chapter 11.24 Metallic Minerals Processing might be a better representation for the OC1- OC13. In all cases, the most conservative EFs should be used.

When an EF has a control efficiency built into it, the permit should specify conditions to assure equipment will employ the same controls to assure the representativeness of the EF. Permit conditions do not clearly specify this.

DEQ Response:

As discussed previously in the Representativeness and Uncertainty of Emissions section, although some degree of uncertainty is present in all emission factors used in estimating emissions, all emission factors were adequately supported and the approach of estimating potential to emit (PTE) at design capacity was considered a conservative approach. Emission factors with control efficiencies built into them were adequately supported by that corresponding control device listed in the permit. The facility's emission inventory includes crushers, screens, and conveyors controlled by water sprays. EPA's AP-42 11.19.2 (08/2004) provides representative emission factors for these specific processes and controls.

Comment 20 - NPT: Emissions estimate values are not sufficiently conservative

DEQ should use conservative values for all emission estimates. For any emission factor (EF) requiring an average value, the most conservative average value should be used to protect human health. Examples include the silt content for used in EF for Haul Road fugitives and the metal concentrations in the ore for HAP/TAP. The median is only a statistical number. The arithmetic mean is most commonly considered the average.

In the Statement of Basis it states, "It is noted that PRI projected actual annual production at approximately 42.7 million T/yr, or 65% of the permitted annual production limit of 65.7 million T/yr (Permit Condition 3.5), and that as a result actual emissions are expected to be lower than presented." The 65.7 MT/y value comes from 180,000 T/day for 365 days, however, permit condition 3.5 also has a 135,000 T/day limit based on a 5-year rolling average. Thus the actual permit limit is 49.3 MT/y (135,000 T/day x 365 day/y). Therefore, the projected actual annual production is closer to 87% (42.7/49.3) of the permitted annual production limit. The permit is less protective than DEQ has presented.

DEQ Response:

As described previously in the Representativeness and Uncertainty of Emissions section, the use of site-specific median values for silt content is commonly accepted by DEQ, and the values used in calculations were supported by PRI. Although a median value of sampled silt percentages of roadway material was used in emission estimates presented in the application, DEQ recognizes the importance of the silt content parameter in the estimation of emissions. Since compliance with the 24-hour PM_{10} NAAQS is the primary driver of NAAQS compliance, minimizing variability of the parameter is very important to ensure NAAQS compliance. To achieve this, the permit will limit *maximum silt content* to 4.0 %, as specified in Permit Condition 3.13 Haul Road Capping of the PTC as well as associated monitoring and recordkeeping.

The hauling and excavating limit of 135,000 T/day of ore and DR (Permit Condition 3.5) on a 5-year rolling average was added as a T-RACT level of control. This is not a daily limit but a 5-year limit expressed as a daily average rate. This limit actually lowers the production limit of the facility on a 5 year rolling basis and is potentially a more restrictive limit than 180,000 T/day for long-term impacts.

Comment 21 - EPA: Limiting PTE for PSD, Title V (including HAP) and NAAQS Purposes

Many of the emission limits in the permit are derived from emissions factors. Similarly, the permit assumes control efficiencies for certain emission sources. However, the permit lacks conditions incorporating the numerous assumptions and parameters associated with the emissions factors and control efficiencies. Emission factors include numerous operating assumptions and variables regarding the source. Accordingly, the permit should contain conditions to ensure the operating assumptions and variables underlying the emission factor accurately reflect site-specific conditions and are enforceable.[4] Similarly, when permits require add-on controls operated at a specified efficiency level, permit writers should include, so that the operating efficiency condition is enforceable as a practical matter, those operating parameters and assumptions which the permitting agency depended upon to determine that the control equipment would have a given efficiency.[5]

The permit record does not demonstrate that the emission factors used to estimate the source's PTE and derive the emission limits are technically accurate. Emission factors used to derive a PTE limitation must be technically accurate.[6] In general, AP-42 emissions factors are based on averages and are not intended for establishing source-specific limits.[7] When using AP-42 emissions factors to establish limits on PTE, EPA recommends using these emissions factors only when source specific emissions factors are not available and selecting conservatively higher emissions factors.[8]

EPA states in AP-42, "Before simply applying AP-42 emission factors to predict emissions from new or proposed sources, or to make other source-specific emission assessments, the user should review the latest literature and technology to be aware of circumstances that might cause such sources to exhibit emission characteristics different from those of other, typical existing sources. Care should be taken to assure that the subject source type and design, controls, and raw material input are those of the source(s) analyzed to produce the emission factor. This fact should be considered, as well as the age of the information and the user's knowledge of technology advances."[9]

When permits contain emissions, production or operational PTE limitations, they should also have monitoring, recordkeeping, and reporting requirements that allow a permitting agency to verify a source's compliance with its limits.[10] The permit should provide for the collecting, maintaining, and reporting of information necessary to determine emissions of each pollutant as well as compliance with operating parameters. [11] The permit must include conditions that clearly specify the monitoring requirements and how the permittee must demonstrate compliance via the monitoring requirements. [12]

DEQ Response:

As discussed previously in the Representativeness and Uncertainty of Emissions section, maximum hourly and daily activity rates were used to estimate the maximum 24-hour and annual emission rates, and fugitive dust control requirements, emission rate limits, material activity rate limits, and supporting testing and monitoring, recordkeeping, and reporting (MRR) requirements were established as synthetic minor limits for the purposes of limiting facility-wide emissions of $PM/PM_{10}/PM_{2.5}$ to below 250 T/yr PSD applicability thresholds and Title V 100 T/yr applicability thresholds. These limits were also established for the purposes of limiting facility-wide emissions of single and total HAP to below HAP major source applicability thresholds (10/25 T/yr), and to ensure compliance with all NAAQS. Limits were established consistent with current DEQ guidance and the estimates of emissions and underlying assumptions were supported to the satisfaction of DEQ.

Enforceable monitoring, recordkeeping, and reporting requirements were established in the permit. $PM/PM_{10}/PM_{2.5}$ emissions limits for point sources were established with supporting activity rate limits and MRR requirements. While emissions limits and emission factors are not commonly included in the permit for fugitive

sources, activity rate limits and MRR requirements were established for those sources that were identified as process rate-limiting (as summarized in Table 1.1 of the permit). These activity rate limits serve as surrogate emissions limits for PM, PM_{10}, $PM_{2.5}$, HAP and TAP from fugitive sources. And while documented in the Statement of Basis and application materials, underlying parameters associated with calculating emissions such as vehicle speed limit, type, and miles traveled are not typically included in the permit.

Comment 22 - EPA: Limiting PTE of the Mining Fugitive Dust Emissions for NAAQS and Title V HAP Purposes

21. As noted in Comment #15 and #16, the mining excavation PTE limitation of 180,000 tpd may not be technically accurate because it is not based on emission factors that are representative of mining emission sources. For example, AP-42 Section 11.9 Western Surface Coal Mining Section includes emission factors applicable to mining excavation operations. However, the application appears to use AP-42 emissions factors from Section 11.19.2 Crushed Stone Processing for truck loading and unloading of crushed stone.

DEQ Response:

As described previously in the Representativeness and Uncertainty of Emissions section, although some degree of uncertainty is present in all emission factors used in estimating emissions, all emission factors were adequately supported and the approach of estimating potential to emit (PTE) at design capacity was considered a conservative approach. Emission factors with control efficiencies built into them were adequately supported by that corresponding control device listed in the permit. The facility's emission inventory includes crushers, screens, and conveyors controlled by water sprays. EPA's AP-42 11.19.2 (08/2004) provides representative emission factors for these specific processes and controls.

Comment 23 - EPA: Limiting PTE for the Ore Processing and Lime Plant Operations for PSD, Title V (including HAP), and NAAQS Purposes

The Permit does not appear to specify technically accurate emission limitations and the portions of the source subject to the limitation because: (i) the permit may not adequately require compliance with all PTE emission limits for each emission source or include PTE emissions limits representing all emissions sources, (ii) the permit record may not adequately demonstrate that the emission limits are based on accurate emissions factors, and (iii) the permit may not contain monitoring, recordkeeping, and reporting conditions sufficient to ensure compliance with all emission limits and associated controls.

Examples of these specific issues with respect to the Ore Processing and Lime Plant Operations include, but may not be limited to, the following:

Ore Processing PTE Limitations:

1. A PTE limitation appears to be needed to restrict the amount of ore material storage piles consistent with the emission estimates in the permit application.

2. Per Table 1.1, the 80% control efficiency applicable to the associated ore storage piles, and source ID. No. OC9, OC10 and OC11 is not included.

3. Per the application Ore Processing Diagram (Figure 1), the 108 ton per day (tpd) process rate associated with the Sb Drying and Bagging, the 7.5 tpd process rate associated with the Carbon Regeneration, and the 6,980 tpd rate associated with the Autoclave are not included.

4. Per the application Ore Processing Diagram (Figure 1), emission sources Sb1 and Sb2 are not included in Table 1.1 or specified in the permit conditions.

Ore Processing PTE Emission Factors:

5. Some of the PTE limitations may not be technically accurate because they are not based on emission factors that are representative of the emission sources. For example, AP-42 Section 11.24 Metallic Minerals Processing emission factors applies to the processing of hard ores including gold. However, the application uses AP-42 emissions factors from Section 11.19.2 Crushed Stone Processing that is applicable to non-metallic mineral processing. The permitting record does not provide a reasoned explanation as to why emission factors from Section 11.24 were selected over those from Section 11.19.2.

DEQ Response:

The ore materials are limited by the primary crusher limit and pebble crusher limit (Permit Conditions 3.7 and 3.8) for storage pile feed.

Source ID. Nos. OC9, OC10, and OC11 list control equipment in Table 1.1 as reasonable control and FDCP. An 80% control efficiency is achieved through implementation of the FDCP (Permit Condition 2.6), below-grade of storage piles, and enclosure of the conveyor (Permit Condition 3.2).

Tables 1.1 and 4.1 were updated in the permit to remove the antimony process dryer and bagging operation (sources Sb1 and Sb2) as requested by PRI, and consistent with proposed mercury control devices for the autoclave.

As discussed previously in the Representativeness and Uncertainty of Emissions section above, the estimates of emissions and underlying assumptions were supported to the satisfaction of DEQ, and sufficient information was provided to demonstrate preconstruction compliance with applicable TAP and mercury standards and to support facility classifications. The facility's emission inventory includes crushers, screens, and conveyors controlled by water sprays. EPA's AP-42 11.19.2 (08/2004) provides representative emission factors for these specific processes and controls.

Comment 24 - EPA: Lime Plant PTE Limitations

8. The following PTE limitations specified in Table 1.1 and the application do not appear to be included in the permit including: 267 tpd applicable to LK, LCR, and LS-L/U; 250 tpd applicable to LS1-L/U and MillS2-L/U; 1,000 tpd applicable to ACS1, ACS2, and ACS3; 500 tpd applicable to ACS4; and 70,000 tons per year applicable to LSI-L/U, MillS2-L/U, ACS1-L/U, ACS2-L/U, AC3-L/U and ACS4-L/U.

9. The PTE limitation of 1,130 tpd of limestone in permit condition 5.4 may not be technically accurate as it does not appear to account for all of the emissions sources comprising the lime plant subject to PSD and Title V permitting limits of a 100 tons per year. For example, the limestone mining activities (e.g., drilling, blasting, excavating, hauling, and storage piles) and all of the lime plant processing emission units and activities shown in the application's Figure 2 do not appear to be included in the emissions estimates. These emission units presented in Figure 2 include the dump truck unloading, stationary grizzly, rock breaker, primary crusher feed hopper, vibrating grizzly feeder, and the emission units and activities following the limestone ball mill and lime slaker (e.g., Milk of Lime Distribution Tank). Emissions from those aspects of the limestone handling and processing that would not happen if the lime plant did not exist must be accounted for as support activities to the lime plant. Furthermore, if the mining of limestone (including overburden removal) would not be done if the lime plant did not exist, emissions from those activities must also be included with the lime plant emission inventory. For example, IDEQ's SOB and Perpetua's letter dated September 23, 2021, indicates that the limestone is overburden excavated from the Middle Marble Geologic Unit (MMGU) located in the northwest portion of the West End Pit and that the overburden must be removed to access the gold ore. However, Midas Gold documents from 2016 and 2020 indicate, contrary to this information, that the MMGU is located in the northeast portion of the West End Pit, is located beneath a 30 ft- to 250 ft-thick quartzite unit and requires the addition of a haul road to transport limestone to the lime plant processing facility. Because the limestone deposits are buried 30 to 250 feet below the surface, as noted above, it appears more than 1,130 tpd of material would need to be excavated to access the limestone deposit.

10. IDEQ's PSD applicability analysis in the Statement of Basis (SOB) does not appear to include all of these emission sources or provide the necessary information to support their Lime Plant PSD emission estimates.

DEQ Response:

Lime production limits for LK, LCR, and LS-L/U are limited by the Parallel Flow Regenerative Kiln output limit in Permit Condition 5.5. As can been seen in the Lime Production Flow Diagram in the application, 267 tpd is the maximum capacity and input to the Kiln. DEQ chose to limit the output of the Kiln as seen in Permit Condition 5.5 (169 T/day). The mill and autoclave lime silos (LS1, MillS2, and ACS1-4) are limited by the control requirements in Permit Condition 5.16 and the lime usage, which is inherently limited by the gold ore processing limits in Permit Conditions 3.7 and 3.8 for the mill and Permit Condition 4.8 for the autoclave. All above equipment has emission limits specified in Permit Condition 5.3 (Table 5.2). As a result of the comments received, although the lime silos (LS1-L/U, MillS2-L/U, ACS1 – ACS4) are permitted at maximum capacity, DEQ has added a permit condition to limit the lime silos to 4,000 T/day and 70,000 T/yr combined (new Permit Condition 5.9) with corresponding monitoring and recordkeeping (new Permit Condition 5.22).

A response to a request for additional information was submitted by PRI[3] in which the emissions units comprising the lime plant were identified. The project includes a lime manufacturing plant (LMP) that uses a Parallel Flow Regenerative Shaft Kiln to produce lime product from limestone by calcination, which is a designated facility as defined in 40 CFR 52.21(b)(1)(i)(*a*). As described in the "Facility Classification" and "PSD Classification" section of the Statement of Basis, permitted facility-wide emissions (PTE) were less than 100 tons per year (T/yr) for regulated pollutants. For each regulated pollutant, LMP emissions did not exceed 100 T/yr, and facility-wide emissions did not exceed 250 T/yr applicability thresholds. For the purposes of classification, the LMP was true minor for all NSR pollutants. Per EPA's March 6, 2003, guidance, both fugitive and non-fugitive emissions from the LMP must be counted toward a determination of a major stationary source. Total emissions are below 100 tons per year for each pollutant (Table 10 in the Statement of Basis). However, even if fugitive emissions from the upstream stone crushing and milling equipment and marble overburden mining were included, emissions would still not exceed 100 tons per year (Table 11 in the Statement of Basis).

Restrictions on PTE from fugitive and non-fugitive sources and supporting monitoring, recordkeeping, and reporting were established in the permit, including control of fugitive dust (Permit Conditions 2.1–2.6), emissions limits (Permit Condition 5.3), a PFR Kiln output limit (Permit Conditions 5.5 and 5.17), and control device requirements (Permit Conditions 5.11-5.12, 5.14-5.15, and 5.21-5.22). Emissions are not permitted to exceed these limits during startup, shutdown, and malfunction. Any emissions that exceed emissions limits are required to be reported in accordance with excess emissions requirements (Permit Condition 7.11). While emissions limits and emission factors are not commonly included in the permit for fugitive sources, activity rate limits and MRR requirements were established for those sources that were identified as process rate-limiting (as summarized in Table 1.1 of the permit). These activity rate limits serve as surrogate emissions limits for PM, PM_{10}, $PM_{2.5}$, HAP and TAP from LMP fugitive sources.

Comment 25 - EPA: Lime Plant PTE Emission Factors

11. IDEQ's SOB Table 10 PSD emission estimates may not be technically accurate because they do not appear to be based on emission factors that are representative of the emission sources. For example, AP-42 Section 11.17 Lime Manufacturing emission factors applies to the processing of lime derived from marble. However, the application uses AP-42 emissions factors from Section 11.19.2 Crushed Stone Processing. In addition, the limestone excavating emission estimates (Material Load & Unload) appear to use emission factors from Section 11.19.2 Crushed Stone Processing instead of Section 11.9 Western Surface Coal Mining emission factors that are representative and specific to mining excavation activities. The permitting record does not explain why emission factors from 11.19.2 were selected over those from 11.17 and 11.9. If IDEQ does not have a good technical reason for their selection of emission factors, consistent with comment #5, the most conservative emission factor should be used for emission units that make verification difficult. Comment 19 would also apply to fugitive dust emissions resulting from limestone mining sources including limestone drilling, blasting, excavating, and haul road activities.

DEQ Response:

As described previously in the Representativeness and Uncertainty of Emissions section, although some degree of uncertainty is present in all emission factors used in estimating emissions, all emission factors were adequately supported and the approach of estimating potential to emit (PTE) at design capacity was considered a conservative approach. Emission factors with control efficiencies built into them were adequately supported by that corresponding control device listed in the permit. Representative emission factors from EPA's AP-42 Section 11.17, 11.19.2 and 11.9 were used to estimate emissions from the lime plant, lime plant support equipment, and marble overburden mining, respectively. The facility's emission inventory includes crushers, screens, and conveyors controlled by water sprays. EPA's AP-42 11.19.2 (08/2004) provides representative emission factors for these specific processes and controls.

Comment 26 - EPA: Other PTE Limitations

14. Central Mixer Loading (Source ID No. CM) controls are unspecified in Table 1.1 and the permit consistent with the emission estimates in the permitting record.

15. Engine PTE limitations specifying the capacity of 1,000 bkW for the three emergency generators (EDG1, EDG2, and EDG3) should be specified in the permit. Also, the monitoring and recordkeeping requirement specified in permit condition 6.3 should include all hours of operation, not just non-emergency operating hours, and specify the devices and methodologies by which the monitoring and recordkeeping will be achieved.

DEQ Response:

Central Mixer Loading (CM) controls are specified in Tables 1.1 and 5.1 as reasonable control and the FDCP. Controls can include water sprays, enclosures, hoods, curtains, shrouds, movable and telescoping chutes, and central dust collection systems. Permit Condition 5.3 lists the emission limits for CM and Permit Condition 5.10 states that emissions must be controlled in accordance with the FDCP.

The capacity of the three emergency generators (EDG1, EDG2, and EDG3) are specified in Table 1.1. The emergency generators are subject to NSPS 40 CFR 60, Subpart IIII and those requirements are incorporated by reference (Permit Condition 2.22) and specific applicable requirements have been added to the permit including monitoring and recordkeeping to include all hours of operation (Permit Conditions 6.2, 6.4, and 6.5).

Comment 27 - ICL/SSFS: Conservatism

We have continued concern with IDEQ's position on conservative analyses and uncertainty in emissions calculations. IDEQ's response to previous critiques of emission calculations states:

> "… (the) approach of estimating potential emissions (PTE) at design capacity and maximum activity rates was considered a sufficiently conservative approach. Maximum hourly and daily activity rates were used to estimate the maximum 24-hour and annual emission rates, and emissions were modeled based on these maximum short-term activity rates occurring continuously every day."

IDEQ is conflating the "conservative" strategy long inherent in the PTC process with the conservative analyses required in estimating the potential to emit (PTE). Even if IDEQ uses a "conservative" strategy, the agency is still using non-conservative model input parameters for the emissions calculations. PTCs have been based on design PTE calculated using "maximum 24-hour and annual emission rates, and emissions modeled based on these maximum short-term activity rates occurring continuously every day" since the inception of the Clean Air Act (CAA). Comparing these required conservative rates to the Applicant's "good intentions" to operate below design capacity is not a conservative approach. The CAA has long recognized that any facility may change management, exploit additional resources, accept feedstock from adjacent properties, or numerous other production scenarios that could utilize design capacity.

IDEQ's *Guidelines for Performing Ambient Impact Analyses* states:

> "To demonstrate compliance, potential emissions must be used in the modeling analyses rather than future projected actual emissions. The maximum emission rate for each averaging period must be identified. For example, PM2.5 has both a 24 hour and annual standard. If a source will only operate 7000 hours per year, but can operate for 24 hours in a single 24 hour period, then different emission rates would be modeled for the 24 hour and annual standard" (Section 6.4.1).

The analyses for impacts for pollutants with averaging periods less than annual are not using maximum potential emissions over those short-term averaging periods. Annual emission impact analyses were also based upon an estimate of the five-year average of projected actual emissions. In assuring the appropriate level of health protectiveness, the permit process is, and has always been, designed to assure compliance at design capacity.

With respect to the use of AP-42 Emission Factors in calculating the PTE, IDEQ regulations require that "screening engineering analyses use unrefined conservative data." (6-30-95). Moreover, IDEQ guidance ranks the use of AP-42 as a last choice, with the least reliable data, and the greatest potential to underestimate emissions.[1] Accordingly, it is incumbent on IDEQ to require use of conservative emission factors. Accepting promises that intended operations will not exploit the full design capacity of the facility is not a substitute for utilizing conservative emissions factors in calculating PTE emissions.

DEQ Response:

As discussed previously in the Representativeness and Uncertainty of Emissions section, maximum hourly and daily activity rates were used to estimate the maximum 24-hour and annual emission rates, and fugitive dust control requirements, emission rate limits, material activity rate limits, and supporting testing and monitoring, recordkeeping, and reporting (MRR) requirements were established as synthetic minor limits for the purposes of limiting facility-wide emissions of PM/PM_{10}/$PM_{2.5}$ to below 250 T/yr PSD applicability thresholds and Title V 100 T/yr applicability thresholds. These limits were also established for the purposes of limiting facility-wide emissions of single and total HAP to below HAP major source applicability thresholds (10/25 T/yr), and to ensure compliance with all NAAQS. Limits were established consistent with current DEQ guidance and the estimates of emissions and underlying assumptions were supported to the satisfaction of DEQ.

Enforceable monitoring, recordkeeping, and reporting requirements were established in the permit. PM/PM_{10}/$PM_{2.5}$ emissions limits for point sources were established with supporting activity rate limits and MRR requirements. While emissions limits and emission factors are not commonly included in the permit for fugitive sources, activity rate limits and MRR requirements were established for those sources that were identified as process rate-limiting (as summarized in Table 1.1 of the permit). These activity rate limits serve as surrogate emissions limits for PM, PM_{10}, $PM_{2.5}$, HAP and TAP from fugitive sources. And while documented in the Statement of Basis and application materials, underlying parameters associated with calculating emissions such as vehicle speed limit, type, and miles traveled are not typically included in the permit.

The regulatory bar for permit issuance is that the applicant, through analyses submitted in the application, demonstrate to the satisfaction of the Department that the proposed facility or modification not cause or significantly contribute to a violation of a NAAQS or TAP increment (as per *Idaho Air Rules* Section 203). Air pollutant impact analyses performed for mining operations typically involve considerable uncertainty and variability in emission-affecting parameters and in dispersion-affecting parameters to estimate potential impacts to ambient air for specific averaging periods.

Uncertainty can be reduced by obtaining more application-specific information on the operation or parameter in question. Use of site-specific or project-specific information/data to better estimate emissions and dispersion-affecting parameters represents refining the analyses rather than use of non-conservative methods. A non-conservative approach would involve using the lower-emitting value of a listed range without justification. Variability cannot be reduced by more refined approaches. Variability can be accounted for by either: 1) using a worst-case approach of assuming the upper values (resulting in highest emissions) of the parameter persist at all

times; 2) use of a more probabilistic approach to consider the variability either in a quantitative statistical approach or in a more qualitative "weight of evidence" approach. A weight of evidence approach is implemented where the use of clearly conservative values for all methods and data would result in an unrealistically high impact, thereby misrepresenting potential impacts and potentially triggering inappropriate monitoring and record-keeping requirements.

The comment also states that a 5-year average allowable emission rate was used for demonstrating compliance with the arsenic carcinogenic AACC, which is expressed as an annual average value. However, the definition of *Toxic Air Pollutant Carcinogenic Increments* in *Idaho Air Rules* Section 005.125, states, "Those ambient air quality increments based on the probability of developing excess cancers over a seventy (70) year lifetime exposure to one (1) microgram per cubic meter (1 $\mu g/m^3$) of a given carcinogen and expressed in terms of a screening emission level or an acceptable ambient concentration for a carcinogenic toxic air pollutant." Since the AACCs are based on a 70-year exposure, use of a 5-year averaging period is appropriate.

Comment 28 - ICL/SSFS: Facility Classification

In the Statement of Basis (SOB), IDEQ classified this facility as a synthetic minor source (SM) for PM, PM10, and PM2.5 and Class B for Hazardous Air Pollutants (HAPs). A number of comments by ICL, SSFS, and other reviewers address instances where we believe that HAP emissions continue to be underestimated. Once IDEQ completes the appropriate analyses and calculations to verify the PM and HAP emissions, the agency should assess whether the source still meets the requirements of a synthetic minor.

The Applicant and IDEQ calculations show that this facility will also emit >30,000 tons per year (TPY) of uncontrolled PM (removing the 90% control on hauling fugitive emissions + the emissions total for uncontrolled point sources) and 3,655 TPY of permitted PM point source + fugitive emissions (Table 3, SOB). However, IDEQ contends the Major Source classification of 100 TPY is not met despite the apparent 36-fold exceedance. IDEQ continues to ignore 3,569 TPY of permitted PTE PM fugitive emissions from mining operations (97.6% of total controlled PM by the Applicant's calculation) and 986 TPY of associated PM10 fugitive emissions. This clear exclusion of significant emissions from regulatory constraints is a major concern for us. Furthermore, this determination avoids the federal oversight that this permit would be afforded if classified properly as a Major Source.

To avoid including the fugitive emissions sources, IDEQ apparently relies on IDAPA 58.01.01.220.01:

> *For purposes of Sections 220 through 223, fugitive emissions shall not be considered in determining whether a source meets the applicable exemption criteria unless required by federal law.*

Accepting the Applicant's and IDEQ assertions, the current classification determination for this facility as a synthetic minor source is based on merely 2.4% of the total PM emissions. If only 13.6 TPY (0.4%) of the excluded PM fugitive emissions were included in the source classification determination, the facility would be a Class A Major Source, subject to federal review.

In the interest of health and environmental responsibility, it is imperative that the IDEQ consider all emissions including mining fugitive impacts and classify this a Major Category A Source. The only comparable facilities operating in the U.S. at this time, in Nevada, are Class 1 Major Sources according to the same criteria as Idaho's designation, even though most of the Nevada facilities do not include onsite gold ore processing. Idahoans should be afforded the same level of air quality protection as Nevadans.

Even by IDEQ exclusion criteria, some of the ignored sources asserted to be "mining fugitives" should be considered as mineral processing activity emissions controlled with and attendant to specific point sources included in the source classification determination. Significant percentages of mine ores are trucked to stockpiles and placed in storage to be processed months or years later. Alleged mine fugitive emissions also include significant on-site hauling associated with the Portable Crusher and Screening Plant. Some of this

hauling is related to the lime plant and gold ore refinery operations, which are specifically listed by federal rules as requiring inclusion of fugitive emission in determining source classification.

> *Subchapter C Part 70.3(d). Fugitive emissions from a part 70 source shall be included in the permit application and the part 70 permit in the same manner as stack emissions, regardless of whether the source category in question is included in the list of sources contained in the definition of major source.*

This rule should be interpreted that if any portion of the emissions is due to a listed source, then all emissions from that source should be included in the source classification determination.

These alleged "excluded mine fugitive" sources alone (not including On-site Hauling) exceed 270 TPY PM. If only 5% of these activities were considered attendant to listed sources or mineral processing and stockpile point source operations (as opposed to mining) then the Major A Source Category threshold would be met. Unfortunately, it is not possible for us or other reviewers to quantify these sources from the available emission inventories. Fugitive emissions were reportedly estimated for a dozen different operational scenarios. However, Table 7 of the SOB and the example calculations provided use scenario W-3, because it is the maximum total PM emissions. This scenario is heavily weighted toward exploitation of the West End Pits, and provides little information to assess the potential emissions associated with those sources that might not be exempt on closer examination.

Examination of the W3 scenario also shows that the 2,901 TPY of PM estimated for On-Site Hauling is 100% attributed to hauling emissions from the West End Pit to the Hangar Flat DRSF. This is the main process stream for limestone feeding the lime plant, gold oxidation circuit, neutralization of waste streams, etc. This scenario also attributes zero hauling emissions from stockpiles to crushers. It is not possible to ascertain from these data how much of the fugitive emissions are attendant to these listed sources or are attendant to mineral processing point sources. However, the W3 scenario does not encompass other haul routes that will be used as part of the mining operation; therefore, the total PM emissions attributed to hauling would be expected to be greater than 2,901 TPY.

These observations suggest that IDEQ's reliance on operational scenarios designed to support modeling analyses to assess fugitive exclusion from Source Classification has allowed listed and point source attendant emissions to be misclassified as excluded mining fugitives. Misclassification of only a tiny percentage of the massive excluded emissions prevents Major Source determination and federal review of key portions of this PTC. The ambient impact analysis must consider the potential impacts of any operational scenario allowable under the federal approval process and the IDEQ permit.

Lastly, the classification of the facility as a synthetic minor source for criteria pollutants and HAPs is hugely dependent upon the facility consistently attaining the target 93.3% fugitive dust control effectiveness. A facility that does not have legally enforceable conditions to ensure those fugitive dust controls, which IDEQ states will be challenging to show continual compliance with, should be considered a major source. Enforceability is extremely important because without enforceable limits, the source otherwise has the potential to emit criteria pollutants in amounts that are at or above the threshold for a major source.

IDEQ should:

- Carefully review these fugitive emission claims with regard to the exclusion criteria, and publicly disclose the review.
- Update the source classification determination for this facility based on these comments.
- Ensure total consistency between project processes and activities approved in the air permit with those that would be approved in the federal approval process.

DEQ Response:

In accordance with IDAPA 58.01.01.006. a stationary source is defined as any building, structure, facility, emissions unit, or installation which emits or may emit any air pollutant. The fugitive emissions shall not be considered in determining whether a permit is required unless required by federal law. For New Sources Review permitting purposes, the fugitive emissions shall not be considered in determining whether the facility is major unless the facility is a designated facility per IDAPA 58.01.01.008.10.c.i. A gold mine is not a listed designated facility under IDAPA 58.01.01.006.30 and therefore fugitive emissions are not considered. Fugitive emissions of criteria pollutants are counted toward PSD classification from designated facilities such as the lime plant. Lime plant fugitive emissions are quantified under the PSD Classification section of the Statement of Basis.

For Title V permitting purposes arsenic is a HAP and arsenic fugitive emissions from haul roads do count towards the major source determination of 10 tons per year of any HAP and 25 tons per year for any combination of HAP. Accounting for water and chemical dust suppressant control efficiencies and use of the equations cited from AP-42 Section 13.2.2 (11/2006) for unpaved roads and site-specific silt values supports an arsenic HAP PTE from the haul roads of 30.3 tons per year (T/yr) for uncontrolled emissions (above 20 T/yr as described in the Statement of Basis) and 2.03 T/yr for controlled emissions. Despite the noted limitations of using AP-42, these equations remain commonly used and accepted by DEQ.

As discussed previously in the Representativeness and Uncertainty of Emissions section above, the estimates of emissions and underlying assumptions were supported to the satisfaction of DEQ, and sufficient information was provided to demonstrate preconstruction compliance with applicable TAP and mercury standards and to support facility classifications. Key assumptions identified in this section and by the commenter (including 93.3% control efficiency for haul roads) were confirmed by PRI and accepted by DEQ and were the basis of the facility classifications.

Comment 29 - ICL/SSFS: TAPs Mass Balance

We recommend that IDEQ develop a material balance for TAPs to inform and assist the agency in assessing the quality and uncertainty inherent in the data underlying the Applicant's assertions. Many other states specifically require a material balance for criteria pollutants, HAPs, and TAPs. IDEQ's response reiterates the same "conservative" claim:

> "While a material balance is a useful approach to developing emission estimates, it is not a requirement, and the use of maximum activity rates and representative performance test data to estimate and model emissions is commonly accepted by DEQ. While the use of an average or maximum value is a more conservative approach, the use of site-specific median values combined with estimating and modeling PTE at design capacity and maximum activity rates was considered a sufficiently conservative approach."

IDEQ's own TAPs guidance, however, specifies the use of AP-42 and mass balance techniques:

> "Determine if a new (constructed after June 30, 1995) emission unit has the potential to emit a TAP listed in IDAPA 58.01.01.585 (Rules Section 585) or IDAPA 58.0101.586 (Rules Section 586). Potential toxic air pollutants can be determined by reviewing commonly available emission factors, such as EPA's AP-42, <u>or calculating emissions using a mass balance</u>."

Mass balance analyses would be invaluable in enhancing regulators' and the public's ability to follow and review emission calculations, and designing appropriate operational limitations and controls for this PTC.

IDEQ should:

- Require a facility-wide mass balance for TAPs in subsequent submittals for this PTC.

DEQ Response:

As described previously in the Representativeness and Uncertainty of Emissions section, while a material balance is a useful approach to developing emission estimates, it is not a requirement, and the use of maximum activity rates and representative performance test data to estimate and model emissions is commonly accepted by DEQ. While the use of an average or maximum value is a more conservative approach, the use of site-specific median values combined with estimating and modeling PTE at design capacity and maximum activity rates was considered a sufficiently conservative approach.

Comment 30 - ICL/SSFS: Arsenic Emissions

The proposed Stibnite Gold Project clearly presents hazardous concerns associated with toxic metal releases. Arsenic and mercury are of particular concern due to their high toxicity and importance in the metallurgical processes. This facility will potentially emit 170 to 360 TPY of arsenic. About 85-90% of the uncontrolled arsenic emissions are proposed to be contained or captured by proposed controls and approximately 13 to 38 TPY will be released to the atmosphere as fine particulate (controlled PTE). The PTC Application underestimates these emissions by a factor of 5.6 to 12 times by our calculations (see previous public comments on version 2 of this PTC), and asserts arsenic emissions of about 30 TPY PTE uncontrolled and 2.4 TPY controlled PTE. Most of this mischaracterization is associated with road dust suspended from the massive volume of heavy trucks moving thousands of loads of arsenical contaminated materials across the site. The Applicant apparently achieves this low estimate by using minimal emission factors and particulate arsenic content, and claiming an unprecedented capability to control 93.3% of the road dust through chemical suppressants and watering.

An in-depth review of the Emissions Inventory reveals there are several factors that have not been given appropriate treatment in developing the arsenic emissions totals. We incorporate our detailed prior comments on this matter by reference into this latest round of comments and continue to have significant concerns that the arsenic emissions from this facility are being grossly underestimated.

The underestimation of fugitive dust emissions from haul roads resulting from the use of non-conservative modeling parameters is exacerbated when one considers that there appear to be three largely unaccounted for processes that will increase the arsenic content of haul road related fugitive dust emissions over time: 1) haul truck spillage of ore or waste rock containing higher arsenic content than the surface aggregate, 2) an increase in silt-sized particles in the haul road surface layer due to traffic wear, and 3) the application of dust abatement water sourced from the East Fork South Fork of the Salmon River containing elevated levels of arsenic.

DEQ Response:

As discussed previously in the Representativeness and Uncertainty of Emissions section above, the estimates of emissions and underlying assumptions were supported to the satisfaction of DEQ, and sufficient information was provided to demonstrate preconstruction compliance with applicable TAP and mercury standards and to support facility classifications. Key assumptions identified in this section and by the commenter (including 93.3% control efficiency for haul roads) were confirmed by PRI and accepted by DEQ, and were the basis of the facility classifications. As discussed previously, enforceable testing and monitoring, recordkeeping, and reporting (MRR) requirements were also established and incorporated in the permit.

Comment 31 - NPT: Antimony hauling not sufficiently characterized

The mineral products from the proposed Stibnite Gold Project are gold and antimony, accounting for 1 and 99% by mass, respectively. In earlier versions of the PTC, the antimony concentrated was going to be dried and bagged, and then was proposed to be dewatered and packaged wet.
Page six of the Statement of Basis states, "The metal-recovery process from ore will include conventional crushing and grinding, followed by froth-flotation circuits that will generate separate gold-silver and antimony-silver concentrates. The antimony-silver concentrate will be shipped offsite for refining... ". In Footnote c) of

Table 3 in the Statement of Basis; it states that "In the response to a request for additional information, PRI confirmed that antimony process dryer and bagging operation emission sources (Sbl and Sb2) initially proposed would be replaced by a dewatering/packaging circuit. As a result, these emission sources have been removed from the permit and post-project PTE." Please include documentation confirming there are no air emissions associated with removing the antimony-silver concentrate from the site and how hauling the antimony concentrate from the processing area to the property boundary is accurately accounted for in the emissions inventory for the permit. If no market for the antimony is found and the concentrate is either stockpiled, stored on-site, or hauled to the tailings storage facility, emissions from this concentrate should be reevaluated.

DEQ Response:

PRI has confirmed and as stated in the Statement of Basis, the antimony process dryer and bagging operation emission sources (Sb1 and Sb2) has been removed from the permit and project potential to emit. The hauling of antimony is accounted for in the emission inventory in ore concentrate haulage under the mining tab of the emission inventory spreadsheet (Appendix A in the Statement of Basis).

Comment 32 - TIFO: IDEQ response to previous comments

TIFO has reviewed all three revisions of the Draft Permit to Construct and associated documents and submitted comments on three previous occasions. The current version of IDEQs draft Response to Comments indicates that several of alternative data and calculations provided in earlier reviews were not demonstrated to be more accurate or appropriate than data provided by the Applicant, and accepted by IDEQ.

TIFO requests that the past comments be incorporated as supporting the additional critiques offered in this review, and be reconsidered by IDEQ with supplemental data and analyses presented below. Specifically, there is continued concern with IDEQs position on conservative analyses and uncertainty in emissions calculations.

IDEQ response to previous critiques of emission calculations states:

> … (the) approach of estimating potential emissions (PTE) at design capacity and maximum activity rates was considered a sufficiently conservative approach. Maximum hourly and daily activity rates were used to estimate the maximum 24-hour and annual emission rates, and emissions were modeled based on these maximum short-term activity rates occurring continuously every day.

IDEQ is conflating the “conservative” strategy long inherent in the PTC and Operating Permit process, with the conservative analyses required in the estimating PTE. Since the inception of the Clean Air Act (CAA), PTCs and Operational Permits have been based on design PTE calculated using “maximum 24-hour and annual emission rates, and emissions modeled based on these maximum short-term activity rates occurring continuously every day”.,. Comparing these required conservative rates to *good intentions to operate below design capacity alleged by the Applicant* is not a conservative approach. The CAA has long recognized that any facility may change management, exploit additional resources, accept feedstock from adjacent properties, or create numerous other production scenarios that could subsequently utilize design capacity. In assuring the appropriate level of health protectiveness, the Permit process is, and has always been, designed to assure compliance at design capacity.

With respect, specifically, to the use of AP-42 Emission Factors in calculating the PTE, IDEQ regulations, specifically, requires:

> “Screening engineering analyses use unrefined conservative data. (6-30-95).

With respect to uncertainty and reliability, IDEQ guidance ranks the use of AP-42 as a last choice, with the least reliable data, and the greatest potential to underestimate emissions.
(https://www2.deq.idaho.gov/admin/LEIA/api/document/download/5521

As a result, it is incumbent on IDEQ to require use of conservative Emission Factors. Accepting promises that intended operations will not exploit the full design capacity of the facility is not a substitute for utilizing conservative EFs in calculating PTE emissions.

On a similar note, TIFO has advised IDEQ that development of a material balance for toxic air pollutants is good engineering practice and could inform and assist the Agency in assessing the quality and uncertainty inherent in the data underlying the Applicant's assertions; and that many State's specifically require a material balance for criteria pollutants, HAPs, and TAPs. IDEQ's response reiterates the same "conservative" claim:

> While a material balance is a useful approach to developing emission estimates, it is not a requirement, and the use of maximum activity rates and representative performance test data to estimate and model emissions is commonly accepted by DEQ. While the use of an average or maximum value is a more conservative approach, the use of site-specific median values combined with estimating and modeling PTE at design capacity and maximum activity rates was considered a sufficiently conservative approach.

IDEQs own TAPS guidance, however, specifies the use of AP-42 and mass balance techniques:

> Determine if a new (constructed after June 30, 1995) emission unit has the potential to emit a TAP listed in IDAPA 58.01.01.585 (Rules Section 585) or IDAPA 58.0101.586 (Rules Section 586). Potential toxic air pollutants can be determined by reviewing commonly available emission factors, such as EPA's AP-42, or calculating emissions using a mass balance.

Mass balance analyses would be invaluable in designing appropriate operational limitations and controls in a T-RACT application. IDEQ should require a facility-wide mass balance for TAPs in revised or new submittals for this PTC.

DEQ Response:

As described previously in the Representativeness and Uncertainty of Emissions section, while a material balance is a useful approach to developing emission estimates, it is not a requirement, and the use of maximum activity rates and representative performance test data to estimate and model emissions is commonly accepted by DEQ. Use of a mass balance is one method that can be used to assess emissions. Perpetua elected to use other methods based on emission factors. DEQ has reviewed those methods and has found them to be reasonably accurate or conservative. A potential problem with some mass balance approaches can be observed in the accuracy of calculating a very small value by examining the difference between two large values. Because the uncertainty in the beginning inputs is greater than the final value, confidence in the final value is very low.

Similarly, use of maximum values of emission-affecting parameters is recommended for permitting analyses, especially when considering compliance with short-term standards (24-hour PM_{10} and 24-hour $PM_{2.5}$). Where compliance cannot be demonstrated when using upper limit values of parameters, DEQ may allow values representative of an average or median value. This is contingent on other aspects of the air impact analyses (emission-affecting parameters and pollutant dispersion-affecting parameters) providing an overall weight of evidence that NAAQS compliance confidence is high enough to support permit issuance, as required by *Idaho Air Rules* section 203. Although a median value of sampled silt percentages of roadway material was used in emission estimates presented in the application, DEQ recognizes the importance of the silt content parameter in the estimation of emissions. Since compliance with the 24-hour PM_{10} NAAQS is the primary driver of NAAQS compliance, minimizing variability of the parameter is very important to ensure NAAQS compliance. To achieve this, the permit will limit *maximum silt content* to 4.0 %, as specified in Section 3.13 Haul Road Capping of the PTC.

Also, despite the noted limitations of AP-42, these emission factors remain commonly used and accepted by DEQ in the absence of site-specific data, manufacturer emissions guarantee, or continuous emissions monitoring data.

Comment 33 - TIFO: General comments and discussion

The following analyses are the fourth round of public comments offered on three revisions of the proposed PTC and Draft Permit for the SGP. Some progress has been achieved in securing health and environmental protectiveness through this repetitive review process. However, despite the Agency's persistent attempts to obtain objective and transparent submittals from the Applicant, this patchwork approach to upgrade an inherently deficient application is eroding public trust in the process to provide for health and environmental protectiveness.

The proposed Midas Gold / Perpetua Resources Idaho (PRI) mining operations clearly offer hazardous concerns associated with toxic metal releases. Arsenic and mercury are of particular concern due to the high toxicity and importance in the metallurgical processes. The principal refractory gold ores proposed for exploitation are auro-arsenical deposits yielding an estimated 230 to >1000 pounds of waste arsenic for each ounce of gold captured. Approximately 493,000 (mean) to 2,190,000 tons (95^{th} %-tile) of arsenic will be excavated according to prospective mining reports issued by the Applicant. Nearly all of the arsenic will be disposed of on-site, or released by air and water to adjacent public lands and water. Much of this arsenic is handled repeatedly during operations and is present as, converted to, and released to the environment as, the more toxic chemical species.

With regard to arsenic air pollution, this facility will potentially emit 170 to 360 tons per year (TPY) (or about 1%) of the total arsenic waste. About 85-90% of the uncontrolled emission will be contained or captured by proposed controls and approximately 13 to 38 TPY will be released to the atmosphere as fine particulate (controlled Potential Total Emissions PTE). The PTC Application underestimates these emissions by a factor of 5.6 to 12 times, (See previous public comments – Draft 2 PTC), and asserts about 30 TPY PTE uncontrolled and 2.4 TPY controlled PTE. Most of this mischaracterization is associated with road dust suspended from the massive volume of heavy trucks moving thousands of loads of arsenical contaminated materials across the site. The Applicant achieves this low estimate by using minimal emission factors (EFs) and particulate arsenic content, and claiming an unprecedented capability to control 93.3% of the road dust through chemical suppressants and watering. A detailed critique of these emissions was provided in the comments to Draft 2 PTC, and are amplified below in these comments.

The public should be aware that IDEQ is extending unusual latitude to the Applicant in reviewing the PTC, accepting minimal technical parameters, and accepting unrealistic control assumptions. These overly optimistic particulate and arsenic emission claims are necessary to obtain the PTC. The proposed facility would not be able to comply with health standards if conservative EFs, arsenic content and more realistic control levels were used in the calculations, as required by the regulations.

The public should also be aware that (3569/(3569+86,6)) 97.6 % of controlled particulate emissions admitted to in the PTC are classified as "mining fugitive" emissions. Mining fugitive emissions are exempt from consideration in Major Source Classification in Idaho. As a result, this source, which will be one of the largest in the State, is classified as Synthetic Minor and is precluded from federal review. Many of these alleged mining fugitive sources are arguably not exempt and could be classified as attendant to listed or point sources. If only 0.4 % of these "mining fugitive" emissions (13.4 TPY) were reclassified, the facility would be a Major A Source and the Idaho public could apply to the federal government for relief.

The public should also be aware that application for a PTC, prior to receiving approval from the federal government on a project requiring an Environmental Impact Statement EIS), is also unusual. The Applicant is attempting to secure both State and federal Agencies approvals simultaneously. Generally, the federal approval dictates the type of facility that is acceptable, followed by State implementation of the required controls. The Applicant is submitting confusing, and apparently inconsistent, air pollution emission estimates to the different regulators, hampering the transparency required for the public to understand and comment in both forums. Both the proposed PTC and Draft EIS largely ignored potential airborne toxic arsenic impacts in the initial submittals. These comments are being forwarded to the US Forest Service and Environmental Protection Agency for their consideration.

DEQ Response:

In accordance with IDAPA 58.01.01.006. a stationary source is defined as any building, structure, facility, emissions unit, or installation which emits or may emit any air pollutant. The fugitive emissions shall not be considered in determining whether a permit is required unless required by federal law. For New Sources Review permitting purposes, the fugitive emissions shall not be considered in determining whether the facility is major unless the facility is a designated facility per IDAPA 58.01.01.008.10.c.i. A gold mine is not a listed designated facility under IDAPA 58.01.01.006.30 and therefore fugitive emissions are not considered. Fugitive emissions of criteria pollutants are counted toward PSD classification from designated facilities such as the lime plant. Lime plant fugitive emissions are quantified under the PSD Classification section of the Statement of Basis.

For Title V permitting purposes arsenic is a HAP and arsenic fugitive emissions from haul roads do count towards the major source determination of 10 tons per year of any HAP and 25 tons per year for any combination of HAP. Accounting for water and chemical dust suppressant control efficiencies and use of the equations cited from AP-42 Section 13.2.2 (11/2006) for unpaved roads and site-specific silt values supports an arsenic HAP PTE from the haul roads of 30.3 tons per year (T/yr) for uncontrolled emissions (above 20 T/yr as described in the Statement of Basis) and 2.03 T/yr for controlled emissions. Despite the noted limitations of using AP-42, these equations remain commonly used and accepted by DEQ.

As discussed previously in the Representativeness and Uncertainty of Emissions section above, the estimates of emissions and underlying assumptions were supported to the satisfaction of DEQ, and sufficient information was provided to demonstrate preconstruction compliance with applicable TAP and mercury standards and to support facility classifications. Key assumptions identified in this section were confirmed by PRI and accepted by DEQ and were the basis of the facility classifications.

Comment 34 - TIFO: Facility Source Classification

IDEQ's initially classified this facility as a synthetic minor source (SM) for PM, PM10 and PM25 and Class B for HAP. The initial PTC application erroneously characterized this facility as a minor source with negligible environmental, and no health, significance. Unraveling the complex and confusing calculations that supported these conclusions required public information hearings, access to IDEQ Staff, weeks of reverse engineering, and in-depth review by public commenters.

The PM classification determination is apparently based on "mineral processing" point source PM emissions totaling 560 TPY uncontrolled and 86.6 TPY permitted controlled PTE emissions, indicating an overall 85% control of these sources. In Table 2 of the current Statement of Basis (SOB), IDEQ compares the 86.6 TPY PTE to the 100 TPY threshold for major source classification, indicating SM80 classification (>80 but <100 TPY). It is unclear why IDEQ classifies the source as SM despite this finding. The HAP classification has been modified from B to SM based on the IDEQ inclusion of previously excluded arsenic emissions.

The Applicant and IDEQ calculations show that this facility will also emit >30,000 TPY of uncontrolled PM and 3655 TPY of permitted PM emissions (Table 3, SOB). However, the Agency contends the Major Source classification of 100 TPY is not met (despite the 36-fold exceedance). This illogical conclusion is a continuing example of IDEQs exclusions of massive emissions from regulatory constraints, and a major source of concern for the Public. More disconcerting, this determination avoids federal oversight and severely impedes the Public's ability to secure protection from federal authorities.

IDEQ continues to ignore 3569 TPY of permitted PTE PM fugitive emissions from mining operations (97.8% and of total controlled PM by the Applicant's calculation) and 986 TPY of associated PM10 emissions (all of which are likely underestimated by 1.6 to 3.5 times).

In avoiding consideration of these thousands of tons of annual particulate emissions, IDEQ apparently relies on:

01. General Exemption Criteria.
… For purposes of Sections 220 through 223, fugitive emissions shall not be considered in determining whether a source meets the applicable exemption criteria unless required by federal law.

Accepting the Applicant's and IDEQ assertions, this classification determination is based on 2.4% of the total PM emissions. If only 13.6 TPY (0.4%) of the massive excluded PM emissions were included in the Source Classification determination, the facility would be a Major A Source, subject to federal review.

In the interest of health and environmental responsibility, it seems logical, if not imperative, that the Agency consider all emissions including mining fugitive impacts and classify this a Major Category A Source. Comparable facilities operating in the US at this time, in the State of Nevada, are Class 1 Major sources according to the same 100 TPY criteria as Idaho's A designation. Idahoans should be accorded the same level of protection as Nevadans. In addition, these facilities are not co-located mining, mineral processing, waste disposal, reclamation, and remediation activities; ongoing simultaneously in mountainous complex terrain, on the headwaters of a wild-scenic river, as is proposed at Stibnite.

The proposed facility is a sophisticated combined integrated mining and mineral processing and refining operation, located in a challenging environmental setting. The current PTC classifies practically all fugitive emissions as "mining fugitives". Even by IDEQ exclusion criteria, some of the ignored sources asserted to be "mining fugitives" should be considered as mineral processing activity emissions controlled with, and attendant to, specific point sources included in the Classification determination. These "fugitive emissions" should be included in the Source Classification totals. Significant percentages of mine ores are trucked to stockpiles and placed in storage to be processed months or years later. Alleged mine fugitive emissions also include significant on-site hauling associated with Portable Crusher and Screening Plants. Some of this hauling is related to the lime plant and gold ore refinery operations, that are specifically listed by federal rules as requiring inclusion of fugitive emission in determining source classification. For example,

> Subchapter C Part 70.3d) Fugitive emissions from a part 70 source shall be included in the permit application and the part 70 permit in the same manner as stack emissions, regardless of whether the source category in question is included in the list of sources contained in the definition of major source.

This rule should be interpreted that if the any portion of the emissions is due to a listed source, then all emissions from that source should be included in the Source Classification determination. A portion of the maintenance grading, dozing and load/unload activities and all watering truck, placement of "clean gravel" and dust suppressant emissions are applied continually, independent of the mine production rate, specifically for PM control. These sources should also be assessed as attendant to T-RACT "*environmental impacts caused by the control technology that cannot be mitigated"*, in part, for listed sources and considered for inclusion in Source Categorization.

These alleged "excluded mine fugitive" sources alone (not including On-site Hauling) exceed 270 TPY. If only 5% of these activities were considered attendant to listed sources or mineral processing and stockpile point source operations (as opposed to mining) then the Major A Source Category threshold would be met. Unfortunately, it is not possible for public reviewers to assess the magnitude of or quantify these sources from the available emission inventories. Fugitive emissions were reportedly estimated for a dozen different operational scenarios. However, Table 7 of the SOB and the example calculations provided use scenario W-3, because it is the maximum total PM emissions. This scenario is heavily weighted toward exploitation of the West End Pits, and provides little information to assess the potential emissions associated with those sources that might not be exempt on closer examination.

Examination of the W3 scenario also shows that the 2901 TPY of PM estimated for On-site Hauling is 100% attributed to hauling from the West End Pit to the Hangar Flat DRSF. This is the main process stream for limestone feeding the lime plant, gold oxidation circuit, neutralization of waste streams, etc. This scenario also attributes zero hauling from stockpiles to crushers. It is not possible to ascertain from these data how much of the fugitive emissions are attendant to these listed sources or to mineral processing point sources.

These observations suggest that IDEQ's reliance on operational scenarios, designed to support modeling analyses to assess fugitive exclusion from Source Classification, has allowed listed and point source attendant emissions to be misclassified as excluded mining fugitives. Misclassification of only a tiny percentage of the massive excluded emissions prevents Major source determination and federal review of key portions of this defective PTC.

IDEQ should carefully review these fugitive emission claims with regard to the exclusion criteria and publicly disclose the review.

DEQ Response:

As noted in the previous response, in accordance with IDAPA 58.01.01.006. a stationary source is defined as any building, structure, facility, emissions unit, or installation which emits or may emit any air pollutant. The fugitive emissions shall not be considered in determining whether a permit is required unless required by federal law. For New Sources Review permitting purposes, the fugitive emissions shall not be considered in determining whether the facility is major unless the facility is a designated facility per IDAPA 58.01.01.008.10.c.i. A gold mine is not a listed designated facility under IDAPA 58.01.01.006.30 and therefore fugitive emissions are not considered. Fugitive emissions of criteria pollutants are counted toward PSD classification from designated facilities such as the lime plant. Lime plant fugitive emissions are quantified under the PSD Classification section of the Statement of Basis.

For Title V permitting purposes arsenic is a HAP and arsenic fugitive emissions from haul roads do count towards the major source determination of 10 tons per year of any HAP and 25 tons per year for any combination of HAP. Accounting for water and chemical dust suppressant control efficiencies and use of the equations cited from AP-42 Section 13.2.2 (11/2006) for unpaved roads and site-specific silt values supports an arsenic HAP PTE from the haul roads of 30.3 tons per year (T/yr) for uncontrolled emissions (above 20 T/yr as described in the Statement of Basis) and 2.03 T/yr for controlled emissions. Despite the noted limitations of using AP-42, these equations remain commonly used and accepted by DEQ.

As discussed previously in the Representativeness and Uncertainty of Emissions section above, the estimates of emissions and underlying assumptions were supported to the satisfaction of DEQ, and sufficient information was provided to demonstrate preconstruction compliance with applicable TAP and mercury standards and to support facility classifications. Key assumptions identified in this section were confirmed by PRI and accepted by DEQ, and were the basis of the facility classifications.

AMBIENT AIR – PUBLIC ACCESS ROAD

Comment 35 - NPT: DEQ has erred in its interpretation of EPA's Revised Policy on Exclusions from "Ambient Air"[4] for the public access road through the mine site

The public access road between Stibnite Road at Sugar Creek and Thunder Mountain Road at Meadow Creek should not be excluded from the regulatory definition of ambient air. This road is intended to allow public access, not preclude it. EPA's revised Ambient Air Policy describes conditions by which the public is to be excluded from an area controlled by a source and which would then justify excluding an area for purposes of analyzing the source's impact on ambient air. Controlling public access on the public access road between Stibnite Road at Sugar Creek and Thunder Mountain Road at Meadow Creek, as is described Section 3.3.10 of the Statement of Basis, Appendix B Ambient Air Quality Impact Analyses Review Memorandum, consists of providing "controlled through-site access that is safe, provides travel-time comparable to current conditions and is consistent with the United States Forest Service travel management plan."[5] Controlling public access through a site is not excluding public access to a site, thus the EPA revised Ambient Air Policy does not apply, and, therefore, the public access road should be considered ambient air.

As the public access road is ambient air, all emissions, modeling, and controls must be characterized and considered, and subject to the NAAQS.

DEQ Response:

DEQ does not agree with the comment that the access road between Stibnite Road at Sugar Creek and Thunder Mountain Road at Meadow Creek was inappropriately excluded from consideration as ambient air. The roadway is not public, as PRI has sole control of access through the site. As explained in DEQ's response to Comment 16, those seeking to use the roadway will be guests of PRI, subject to those conditions specified by PRI. The issued permit requires PRI to clearly identify the roadway as "not public" and managed by PRI.

Comment 36 - ICL/SSFS: Ambient Air Boundary Determination

We are concerned that the exclusion of the public access road between Stibnite Road at Sugar Creek and Thunder Mountain Road at Meadow Creek from the regulatory definition of ambient air is inconsistent with Clean Air Act's definition of ambient air,[3] EPA's long-standing policy that allows excluding certain areas of a source's property from ambient air,[4] and EPA's most recent revised policy for ambient air.[5] Allowing the public to access this road, even under the conditions of the Stibnite Road Access Management Plan, may result in acute exposure of the public to hazardous air conditions.

EPA's long-standing policy has been to exempt "the atmosphere over land owned or controlled by the source and to which public access is precluded by a fence or other physical barriers" from ambient air requirements.[6] In 2019, recognizing advances in surveillance and monitoring capabilities, EPA revised the "fence or other physical barriers element of this ambient air policy while maintaining public health protection" to allow stationary sources to use "other types of measures "to support exclusion of an area from ambient air."[7] Key to this policy revision was the fact that "legal" access – whether the public has the right or permission to enter a specific property – did not change the definition of ambient air. In other words, "if 'ambient air' is defined as that to which the general public has access, then that to which the general public does not have access is not ambient air."[8]

Under this permit, the general public would have access to the road through the project area and not be entirely precluded from using it throughout the life of the mine. Based on EPA's policy, since the general public would have access, albeit restricted, the road is ambient air. The Response to Comments justifies this exclusion because "[t]he roadway is completely within the boundary of the mine," "[u]se of the roadway by [the public] is completely at the discretion of PRI and will be tightly controlled," and the public "will be considered [business invitees] of PRI."[9] This rationale cannot be reconciled with EPA's policy.

The EPA Revised Policy explains:

> "The EPA's view is that the general public has legal access to areas that are owned and controlled by parties other than the owner or operator of a stationary source. The EPA continues to view the "general public" to include any person(s) other than those who are permitted access to the property as employees or business invitees of a specific stationary source (including trespassers)."[10]

In other words, people that are traveling on the road through the mine site to access public (Forest Service) property are members of the general public. The Applicant's attempt to label the public as "guests of PRI"[11] is disingenuous and "would expand the exclusion beyond reason and deny the protection of the NAAQS to large numbers of people."[12] The fact that these "guests" would "abide by access and safety procedures established by PRI" is meaningless in terms of protecting the public from exposure to hazardous air conditions. There are no air quality monitors on the road because it has been excluded from ambient air.[13] Thus, it will not be known to those traveling on the road what type of acute exposure to air pollutants will result.

Moreover, IDEQ's own definition of "ambient air" is "[t]hat portion of the atmosphere, external to buildings, to which the general public has access."[14] The public access road through the project area fits that definition exactly. In addition, IDEQ's Modeling Guidelines[15] for determining the ambient air boundary demonstrate that this public road should <u>not</u> be excluded from the ambient air boundary:

- "It shall be assumed that the air within the facility boundaries is ambient air unless the facility can demonstrate that public access is precluded." Here, although public access might be controlled, it will not be precluded. Filing for required federal permits acknowledges that the Applicant does not have the right to preclude public access across the project site. Thus the road should not be excluded from an ambient air analysis.
- "For the purpose of defining ambient air, the 'general public' is considered anyone not directly associated with the facility. In general, if someone present at the site would not be subject to OSHA or other worker exposure regulations, then they are considered as the general public." People passing through the facility to access public land on the other side of the project area are not "directly associated with the facility" and would not be "subject to OSHA or other worker exposure regulations" and therefore are the general public
- "If the facility is not controlled by a physical barrier AND/OR general public access is not discouraged by the type of area, size of the facility, or the remoteness of the facility location, then the ambient air boundary is determined to be inside the property boundary." The Applicant does not propose a physical barrier. General public access is not discouraged by the items listed above. Access to these public lands is long-standing, an important part of Valley County's recreational experience, and acknowledged in fillings for federal permits.
- "Is the general public allowed on site as a part of a right-of-way easement or a common service road? If "yes," then the right-of-way is determined to be ambient air." The public is allowed access through the site because it is a public road. The Applicant cannot completely preclude public access.

IDEQ precedent, reaffirmed as recently as 2021, makes it clear that a public right-of-way access through a project area is considered – not excluded from – ambient air, and regulatory analyses of the potential impacts along that road must show compliance with all ambient impact limits for averaging periods under one year. This determination has been applied by IDEQ for public roads, non-navigable rivers, and railroad tracks. Here, the general public would be allowed access through the mine site on a public road that the Applicant does not have the right to completely deny access. There is no indication that this public road should be treated any differently from past projects. Nothing in the ambient air impact assessments supporting this permit includes any analysis of the impacts on the road through the project area.

IDEQ should:

- Reassess the ambient air boundary determination and model ambient air concentrations along public access routes.

DEQ Response:

DEQ does not agree with the comment that the road between Stibnite Road at Sugar Creek and Thunder Mountain Road at Meadow Creek should be considered as ambient, as previously explained in DEQ's response to Comment 16. PRI is not obligated to allow access to those seeking passage through the site, and PRI is able to state the conditions of allowed access. In this regard, those passing are guests of PRI in the same manner as those touring the facility as part of a classroom fieldtrip as the road is not a "right-of-way easement."

SILT CONTENT

Comment 37 - EPA: Limiting PTE of the Mining Fugitive Dust Emissions for NAAQS and Title V HAP Purposes

20. IDEQ estimated fugitive dust emissions from haul roads based on a 4.0% surface material silt content.[15] However, the arithmetic average silt content for haul roads based on Perpetua's site-specific data is 4.3%. The silt content value can have a significant impact on the representativeness and conservativeness of the emissions factor and, thus, emissions estimate.[16] Use of the 4.3% average value results in about 7% more fugitive dust emissions from the haul roads than estimated using the median value. IDEQ's modeling sensitivity study showed values just below the NAAQS, such that an 7% increase in fugitive dust from haul roads would have resulted in 24-hour PMl0 NAAQS violations. AP-42 values for similar operations show a wide range of silt fractions, with average values around 8% silt fraction for mine haul roads. The permit record does not include an adequate justification for using the 4.0% silt content figure to derive the fugitive dust haul roads emissions factor and whether a 4.3% is representative for the haul roads including inside the open pits.

DEQ Response:

The use of site-specific median values for silt content is commonly accepted by DEQ, and the values used in calculations were supported by PRI. Metal hazardous air pollutant (HAP) and toxic air pollutant (TAP) emissions from process materials were based on median measured metal concentration profiles from onsite core samples of ore and limestone materials, including 98 samples of PRI limestone and over 55,000 samples of PRI ore. PRI has confirmed that ore samples were taken primarily from the mineralized zones of the PRI pits and were representative for the purposes of estimating emissions. Although a median value of sampled silt percentages of roadway material was used in emission estimates presented in the application, DEQ recognizes the importance of the silt content parameter in the estimation of emissions. Since compliance with the 24-hour PM_{10} NAAQS is the primary driver of NAAQS compliance, minimizing variability of the parameter is very important to ensure NAAQS compliance. To achieve this, the permit will limit *maximum silt content* to 4.0 %, as specified in Section 3.13 Haul Road Capping of the PTC as well as associated monitoring and recordkeeping.

Comment 38 - ICL/SSFS: Silt Content

As IDEQ has acknowledged in their response to comments, there are three key data-based variables used in estimating controlled, unpaved road arsenic emissions: silt content, arsenic content of the silt, and control efficiency. We remain concerned that using a 4% silt content for surface aggregate material for haul roads is too low according to scientific literature. Using a lower than reasonable silt content results in an underestimation of fugitive dust emissions. In its response to comments, IDEQ failed to provide a rationale for why the Applicant’s assumption that a 4% silt content was appropriate in this case when EPA’s publication AP-42 (that IDEQ relies on for other purposes) provides a mean silt content range for industrial unpaved haul roads of 5.8 to 24%.

Table 13.2.2-1. TYPICAL SILT CONTENT VALUES OF SURFACE MATERIAL ON INDUSTRIAL UNPAVED ROADS		
AP-42	All Gravel Road	Haul Roads
Industry Types	18	4
No. Sites	53	10
No. Samples	272	58
Minimum	4.3%	5.8%
Maximum	24.0%	24.0%
Average	10.1%	11.6%
Median	8.4%	8.4%
Geomean	8.8%	9.9%

The mean silt content range reported in AP-42 is consistent with other scientific literature. Tannant and Regensberg's *Guidelines for Haul Road Design* (2001), for example, provides guidelines for haul road surface material properties (Section 5.1.1, pg. 58) and recommend a range of 5-10% fines (material passing a #200 sieve). They cite two separate studies stating 5-15% and 5-10% respectively to support this guideline. We have not been able to find any evidence for *functional* haul road surface material having less than 5% silt content. The following table summarizes plausible values for three variables at this site. These values are rated as minimal, typical, and conservative emissions factors.

Comparison of Characteristic Values for Key Variables Used in Calculating Particulate and Arsenic Emissions from Gravel Haul Roads				
Characteristic	Silt Content	Silt Content	As Content	Control
Values	All Gravel Roads	Haul Roads	ppm	%- Emitted
AP-42 Minimal	4.3%	5.8%	909	10%
AP-42 Typical	8.8%	9.9%	1231	15%
AP-42 Conservative	10.1%	11.6%	1812	20%
Midas PRI	4%	4%	667	6.7%

In each case, the Applicant has used less than minimal values. Our concern is that reliance on an unrealistically low silt content value combined with the need for extremely aggressive fugitive dust control efficiencies raises the significant likelihood that this permit may exceed National Ambient Air Quality Standards for particulate matter. IDEQ's response to comments simply states that the assumption for a 4% silt content was "confirmed by PRI and accepted by DEQ."[16]

But there is no discussion on what basis DEQ accepted this value for silt content and there is no stated rationale for why a higher silt content that is recommended in scientific literature does not apply to this particular haul road.

IDEQ should:

- Reassess emissions calculations and fugitive dust control efficiencies using a more realistic silt content for haul roads.

DEQ Response:

The use of site-specific median values for silt content is commonly accepted by DEQ, and the values used in calculations were supported by PRI. Metal hazardous air pollutant (HAP) and toxic air pollutant (TAP) emissions from process materials were based on median measured metal concentration profiles from onsite core samples of ore and limestone materials, including 98 samples of PRI limestone and over 55,000 samples of PRI ore. PRI has confirmed that ore samples were taken primarily from the mineralized zones of the PRI pits and were representative for the purposes of estimating emissions. Although a median value of sampled silt percentages of roadway material was used in emission estimates presented in the application, DEQ recognizes the importance of the silt content parameter in the estimation of emissions. Since compliance with the 24-hour PM_{10} NAAQS is the primary driver of NAAQS compliance, minimizing variability of the parameter is very important to ensure NAAQS compliance. To achieve this, the permit will limit *maximum silt content* to 4.0 %, as specified in Section 3.13 Haul Road Capping of the PTC as well as associated monitoring and recordkeeping.

T-RACT

Comment 39 - ICL/SSFS: T-RACT

In this latest iteration of the permit, the T-RACT control measures were applied to meet human health criteria for airborne toxics. A T-RACT application is an admission that compliance with environmental health criteria is not feasible with reasonably available control technology (RACT). This is in contrast to prior IDEQ assertions that all standards would be met with available technology. The previous submittals also assured the public there were no environmental or health concerns associated with Toxic Air Pollutants (TAPs) compliance. This proposal requests exemptions from those standards. It is both confusing and concerning that IDEQ has modified its position from no significant impact to requiring T-RACT without disclosing the analyses that support these conclusions.

Before granting T-RACT, IDEQ should require the Applicant to address the feasibility of achieving compliance through more aggressive application of the current RACT proposed for particulate control, and require the necessary supporting calculations regarding environmental, cost, and energy impacts. These analyses should be based on appropriate RACT emissions and should identify the levels of control necessary for compliance with the AACC.

For detailed technical comments on T-RACT, we refer IDEQ to Section 8.0 of the comments submitted by Ian von Lindern, P.E. PhD, from the TerraGraphics International Foundation. To summarize his technical comments, IDEQ should disapprove this T-RACT submittal in accordance with IDAPA 58.01.01.14 based on the following considerations:

- The emissions used to support modeling are based on inappropriate multi-year averages and do not reflect the PTE or T-RACT.
- The proposed operational limits on mine production will have no practical constraint on facility operations, emissions, or ambient impacts.
- The lifetime averaging of exposure is inappropriate. Just because this facility proposes to have “only” a 16-year life of mine, the Applicant is not therefore entitled to expend a receptor’s equivalent 70 years of allowable exposure with regards to cancer risk.
- If the direct comparison of predicted maximum annual average ambient arsenic concentrations to the AACC is correctly applied, it shows a 30-factor exceedance, or 3 times the T-RACT AACC.
- Considerably higher levels of operational constraints will be required to support T-RACT. These limits are likely to require reductions in the proposed MODPRO2 levels of operations.
- The T-RACT controls are largely unenforceable, do not require any effective monitoring, or provisions for corrective actions, should the Applicant’s assurances prove unachievable.
- The T-RACT analysis does not address the requirements in IDAPA 58.01.01.210.14.c.ii to access “the environmental impacts caused by the control technology that can not be mitigated, including, but not limited to, water pollution” despite the massive amounts of magnesium chloride and associated products that would be required to achieve the unprecedented dust control effectiveness proposed.

This relaxation of health protections deserves intensive review, public involvement, and consideration by other regulators. We are concerned that the repetitive nature of this PTC review undermines public awareness regarding the significance of this major change in strategy regarding emissions control from this facility as well as the health implications of relaxing health standards.

DEQ Response:

DEQ does not agree with the comment that, “A T-RACT application is an admission that compliance with environmental health criteria is not feasible with reasonably available control technology (RACT).” The established criteria for carcinogenic TAPs is 10 times the listed AACC, and emission controls that are deemed

T-RACT must be used when impacts are greater than the AACC. This is provided by *Idaho Air Rules* Section 210.12.

Initial technical analyses for the SGP attempted to demonstrate compliance with carcinogenic TAP increments without justification that T-RACT will be used for emissions. When it was determined that additional sources had to be included in the arsenic TAP impact modeling analyses, a more refined approach was needed to demonstrate compliance, including demonstrating T-RACT is used to allow the criteria of 10 times the AACC to be used.

DEQ has no regulatory authority to require facilities to utilize other measures before using the T-RACT adjustment. The T-RACT adjustment is provided by *Idaho Air Rules* and can be used at the discretion of permit applicants.

Regarding the bullet list of comments, DEQ has the following responses (in the same order as the comments):

- Carcinogenic AACCs are expressed as annual averages, but as stated in DEQ's response to Comment 27, the definition of *Toxic Air Pollutant Carcinogenic Increments* in *Idaho Air Rules* Section 005.125, states, "Those ambient air quality increments based on the probability of developing excess cancers over a seventy (70) year lifetime exposure to one (1) microgram per cubic meter (1 $\mu g/m^3$) of a given carcinogen and expressed in terms of a screening emission level or an acceptable ambient concentration for a carcinogenic toxic air pollutant." Since the AACCs are based on a 70-year exposure, use of a 5-year averaging period is appropriate.
- DEQ has incorporated requirements to monitor and record operational parameters that are limited by the permit, thereby making them practically enforceable.
- DEQ disagrees with the comment that allowing a lifetime allowable risk to occur over a 16-year mine life is inappropriate. The acceptability criteria is that a facility not pose a cancer risk greater than 1-in-1,000,000 or 1-in-100,000 if T-RACT is used. The annual value of the AACC is provided under the assumption that a facility will emit at such a level on a permanent basis. Since the criteria of Idaho's TAP rules is the risk associated with the project, the time over which that risk is spread is immaterial. If an individual's lifetime total cancer risk were the focus of Idaho's TAP rules, then the rules would have required a cumulative risk assessment, accounting for existing risks at the location of actual receptors.
- The comparison offered, comparing maximum annual impacts to the T-RACT adjusted AACC, is irrelevant. Compliance with TAPs rules was demonstrated through a refined analysis, so there is no utility in focusing on results from a more conservative, less refined analysis.
- How meeting the requirements of the DEQ issued PTC affects proposed MODPRO2 levels of operation is outside the scope of DEQ's permitting process.
- T-RACT controls are included in the PTC as a daily hauling limit based on a 5-year rolling average (Permit Condition 3.5), a life of mine hauling and excavating limit (Permit Condition 3.6), a drilling rigs dust control system (Permit Condition 3.11), and a Haul Road Capping Plan (Permit Condition 3.13). All listed permit conditions have enforceable monitoring and recordkeeping associated with them.
- T-RACT did not address magnesium chloride application on the roads because it was not a proposed control. Magnesium chloride application is addressed in the Fugitive Dust Control Plan in Permit Condition 2.6.

Comment 40 - TIFO: PTC Public review

The initial PTC submittal and IDEQ's position were particularly disappointing. The draft PTC excluded 99.3% of carcinogenic arsenic from regulation and 97.6% of PM emissions from Source Classification. Aside from the disregard for public health and the environment, issuing the initial proposed permit would have had the likely effect of:

-exceedance of criteria pollutant standards,
-arsenic concentrations in the 10^{-3} cancer risk range,
-providing for no monitoring or measurement of critical emissions or ambient impact,
-requiring no corrective actions during operations, and
-precluding federal oversight.

Questioning of IDEQ Staff during public information meetings revealed that these mining friendly determinations depended on:

-unreasonable interpretations of 7E NESHAPS definitions,
-non-conservative estimates of PM emissions and potential control efficiencies,
-minimal estimates of toxic concentrations in PM, and
-exclusions of major sources from permit classification determinations.

The original PTC was an irresponsible proposal and a cause for concern that the Applicant and the environmental/ health agency put it forward. It should not be the responsibility of public reviewers to identify these threats and suggest remedies for these situations. Public entities do not have the resources to repeatedly rebut insufficient industry submittals. The Public depends on IDEQ to ensure health and environmental protection.

Review of the T-RACT (Toxic - Reasonable Available Control Technology) analysis in this third submittal continues the same uncomfortable pattern of minimal, insufficient, and vague calculations; ineffective monitoring; and lack of provisions for enforcement and corrective actions. In the broadest overview, the refined air quality modeling underlying the T-RACT analysis suggests that massive disturbance of toxic arsenic contemplated in the proposed multiple open-pit operation cannot meet air quality criteria in the complex terrain and environmental setting of Stibnite.

The T-RACT Review below also reveals enhanced concerns with respect to insufficiencies pointed out in the previous drafts of the PTC Application. Considerable concern remains with respect to IDEQ's acceptance of the Applicant's assertion regarding three areas of the PTC:

-Estimated Unpaved Road Emissions.
-Facility Source Classification
-T-RACT Review

As a result, these specific concerns are re-iterated and additional comments are found in the following Sections.

DEQ Response:

In accordance with IDAPA 58.01.01.006. a stationary source is defined as any building, structure, facility, emissions unit, or installation which emits or may emit any air pollutant. The fugitive emissions shall not be considered in determining whether a permit is required unless required by federal law. For New Sources Review permitting purposes, the fugitive emissions shall not be considered in determining whether the facility is major unless the facility is a designated facility per IDAPA 58.01.01.008.10.c.i. A gold mine is not a listed designated facility under IDAPA 58.01.01.006.30 and therefore fugitive emissions are not considered. Fugitive emissions of criteria pollutants are counted toward PSD classification from designated facilities such as the lime plant. Lime plant fugitive emissions are quantified under the PSD Classification section of the Statement of Basis.

For Title V permitting purposes arsenic is a HAP and arsenic fugitive emissions from haul roads do count towards the major source determination of 10 tons per year of any HAP and 25 tons per year for any combination of HAP. Accounting for water and chemical dust suppressant control efficiencies and use of the equations cited from AP-42 Section 13.2.2 (11/2006) for unpaved roads and site-specific silt values supports an arsenic HAP PTE from the haul roads of 30.3 tons per year (T/yr) for uncontrolled emissions (above 20 T/yr as described in the Statement of Basis) and 2.03 T/yr for controlled emissions. Despite the noted limitations of using AP-42, these equations remain commonly used and accepted by DEQ.

As discussed in the Representativeness and Uncertainty of Emissions section above, the estimates of emissions and underlying assumptions were supported to the satisfaction of DEQ, and sufficient information was provided to demonstrate preconstruction compliance with applicable TAP and mercury standards and to support facility classifications. Key assumptions identified in this section and by the commenter (including 93.3% control efficiency for haul roads) were confirmed by PRI and accepted by DEQ and were the basis of the facility classifications.

T-RACT is an emission standard based on the lowest emission of toxic air pollutants that a particular source is capable of meeting by the application of control technology that is reasonably available, as determined by DEQ, considering technological and economic feasibility. T-RACT is an allowable analysis to demonstrate preconstruction compliance for toxic air pollutants (IDAPA 58.01.01.210.12) that PRI has used to demonstrate compliance for arsenic.

How DEQ reviews impacts associated with the proposed SGP is governed by *Idaho Air Rules* pertaining to permit applicability and permit issuance. While commenters may not agree with approaches directed by *Idaho Air Rules*, DEQ does not have latitude to deviate from what is established by rule. Comments suggesting the inappropriateness of approaches mandated by rules are outside the scope of this project and responses will not be provided.

Comment 41 - TIFO: T-RACT Review

T-RACT is an unusual exemption to meeting health criteria undertaken because the facility is unable to comply with health criteria using reasonably available control technology, and the Applicant requests a permit that allows a ten-fold increase in cancer risk. This relaxation of health protections deserves intensive review, public involvement, and consideration by other regulators. There is concern that the repetitive nature of this PTC review undermines public awareness regarding the significance of this major change in strategy regarding emissions control from this facility, and the health implications of relaxing health standards. In that regard, the public should be informed if IDEQ has considered the following questions:

> Is there precedent in Idaho for this relaxation of health standards for a facility of this size?
>
> Have any similar facilities received comparable relief in other jurisdictions?
>
> Has there been any public notice specifically referencing this unusual request and relaxation of health standards?
>
> Have the cancer risk calculations been reviewed by qualified risk assessment personnel?
>
> Has the Agency requested advice or guidance from other environmental or health agencies in the application of the T-RACT?

With regard to the T-RACT analysis and the request for relief, IDEQ regulations define T-RACT as:

> 12. Toxic Air Pollutant Reasonably Available Control Technology (T-RACT). An emission standard based on the lowest emission of toxic air pollutants that a particular source is capable of meeting by the application of control technology that is reasonably available, as determined by the Department, considering technological and economic feasibility. If control technology is not feasible, the emission standard may be based on the application of a design, equipment, work practice or operational requirement, or combination thereof. (5-1-94)

Compliance Feasibility: A T-RACT application is an admission that compliance with environmental health criteria is not feasible with reasonably available control technology (RACT). This is in contrast to earlier Agency assertions that all standards would be met with available technology. The previous submittals also assured the public there were no environmental or health concerns associated with (Toxic Air Pollutant) TAPs compliance. This proposal requests exemptions from those standards. It is confusing that IDEQ has modified its position from no significant impact to T-RACT without disclosing the analyses that support these conclusions.

With regard to *"…if control technology is not feasible …"*, IDEQ has not demonstrated that it is infeasible to comply with the required ambient air quality standard with the application of RACT. Despite numerous public requests, the Agency has not publicly disclosed the estimated ambient arsenic concentrations associated and with this facility's design capacity PTE arsenic emissions using RACT, nor has IDEQ compared this ambient concentration to AACC carcinogenic risk criteria. This comparison should be presented to document the lack of feasibility, the magnitude of the exceedance at maximum design operations, and to demonstrate the methodology. In this way the public can understand and meaningfully assess the degree of relief the IDEQ is proposing to yield to the Applicant. The correct comparison is the maximum 1-year average ambient concentration calculated through refined modelling, using the maximum 1-year annual RACT PTE, compared to the Section 586 AACC annual standard.

The Statement of Basis should be amended to present the derivation of the RACT facility design PTE, model inputs, and the appropriate ambient concentrations comparison to the AACC.

Determining RACT: The first requirement of a T-RACT analysis is calculation of "… *the lowest emission of toxic air pollutants that a particular source is capable of meeting by the application of control technology that is*

reasonably available…". With regard to determining the *control technology that is reasonably available* for the largest arsenic source, IDEQ accepts the Applicant's contention that RACT is 90% control of road dust through application of chemical suppressants and water; and now contends this level of control is insufficient to meet the TAPs criteria (with no supporting calculation, as noted above). It is curious that the Applicant asserts 90% control for RACT; while simultaneously claiming that 93.3% control is readily achievable, and has committed to that level as reasonable and available to meet PM10 standards without a RACT determination. The Applicant is simultaneously claiming one level of control is readily achievable for compliance with the PM-10 standard, but that same level is not achievable for the arsenic in the same particulate matter.

In justifying the 93.3% control assumption, the Applicant provides support information that this technology can allegedly achieve higher control levels up to 98%. Review of the pertinent research regarding these controls, indicates achieving these levels requires extensive maintenance and massive continuous application of suppressants. If these levels of control are, indeed, achievable, then IDEQ should deny the T-RACT exemption relaxing the cancer risk criteria.

The T-RACT analyses should explore the efficacy, environmental, energy and cost feasibility of more aggressive application of the current technology. The analyses also indicate higher levels of control could be achieved with paved or hard surfaced roads. The Applicant maintains that paving is cost prohibitive and a typical highway design would not support the heavy traffic. The application provides no supporting information for these claims. Neither the RACT nor TRACT feasibility analyses discuss or present the supporting material required by State regulations regarding "*environmental impacts caused by the control technology that cannot be mitigated, energy requirements of the control technology"; or "costs of necessary mitigation measures, capital costs, cost effectiveness, annualized cost of the control technology divided by the amount of emission reduction, difference in costs between the particular source and other similar sources".* All of these supporting analyses are specifically cited in:

> Department of Environmental Quality - Air Quality Division, Toxic Air Pollutant (TAP) Preconstruction Compliance Application Completeness Checklist

IDEQ has noted that this an aggressive control level not previously demonstrated in Idaho. Several commenters have expressed concerns both that this level of control cannot be maintained, and that even higher levels of control will be required if PM emissions are under- estimated. The Section below summarizes concerns related to the insufficiencies in calculating emissions.

There seem to be contradictory IDEQ positions regarding the effectiveness of controls for particulates and arsenic from the same source. Values ranging from 85% to 98% are cited throughout the PTC and support material. The analyses seem to select the most convenient control level depending on the need to demonstrate compliance for the contaminant under review, even for the same physical particle. Does IDEQ have an explicit opinion of the levels of control that are achievable, feasible, and reasonably available for these dust sources? If so, IDEQ should publicly disclose the conservative, average, RACT, minimal, and maximal level of control for these particulate and arsenic sources.

Before granting T-RACT, IDEQ should require the Applicant to address the feasibility of achieving compliance through more aggressive application the current RACT proposed for particulate control, and require the necessary support calculations regarding environmental, cost and energy impacts of these and hard surfaced road options. These analyses should be based on appropriate RACT emissions and should identify the levels of control necessary for compliance with the AACC, as noted above.

Determining RACT Emissions: T-RACT requires calculation of "… *the lowest emission of toxic air pollutants that a particular source is capable of meeting by the application of control technology that is reasonably available…".* Assuming the Applicant's current submittal represents RACT, IDEQ identifies this baseline RACT PTE arsenic emission rate as 0.544 lbs/hr in Table 7 of the TAPS Addendum. Review of the calculations reveals that 0.464 lbs/hr is attributable to Haul Roads. As another example of the confusion regarding control levels, IDEQ states in the SOB that this rate is calculated at 93.3% control, while the supporting spreadsheets

seems to indicate 90% control. As noted in previous comments, this emission rate is not based on conservative data, and has yet to be appropriately estimated. This failure to appropriately calculate RACT emissions exacerbates the insufficiencies of calculating T-RACT limit.

For this reason, additional critiques of this determination are important to highlight. State regulations require PTE to be calculated as follows:

> **02. Quantification of Emission Rates**.
>
> **a.** The applicant may use standard scientific and engineering principles and practices to estimate the emission rate of any toxic air pollutant at the point(s) of emission. (6-30-95)
>
> i. Screening engineering analyses use unrefined conservative data. (6-30-95)
>
> ii. Refined engineering analyses utilize refined and less conservative data including, but not limited to, emission factors requiring detailed input and actual emissions testing at a comparable emissions unit using EPA or Department approved methods. (6-30-95)

For estimating unpaved road fugitive emissions, no option ii) (refined engineering analyses) techniques exist. Emissions are calculated using option i) Screening analyses and unrefined conservative data. In this case, procedures outlined in Section 13.2 of EPA AP-42 unpaved road techniques were applied. IDEQ has acknowledged that the Agency routinely accepts these AP- 42 techniques.

IDEQ's Guidance on Emissions Data Hierarchy: correctly notes that AP-42 calculations are the last choice and "worst data" acceptable for emissions calculations and offer the following warning:

> *AP-42 emissions factors represent the average emissions for a given group of stationary sources or activities. Being averages, AP-42 emission factors must be used with caution because emissions from half of the group of stationary sources or activities may be higher than the emission factor while emissions from the other half of the group may be lower.AP-42 emissions factors are rated A through E; A is considered the most reliable and E the least reliable. The rating of the AP-42 factor must be considered in determining how accurately the AP-42 emissions factor represents actual emissions from the subject source. If industry derived emissions factors are used, they must be accompanied with documentation describing how the emission factor was derived.*
> https://www2.deq.idaho.gov/admin/LEIA/api/document/download/5521

IDEQ acknowledges that AP-42 parameters are averages and 50% of emissions calculated using this technique likely have higher values than those calculated using average EFs. This PTC application uses minimal EFs, indicating >>50% likelihood that emissions are under- estimated. This amplifies the requirement to use conservative data in the interest of health protectiveness, and particularly with respect to carcinogenic air pollutants.

As IDEQ has acknowledged in previous response to comments, there are three key (data- based) variables used in estimating controlled, unpaved road arsenic emissions: silt content, arsenic content of the silt, and control efficiency. The silt content values recommended from AP- 42 are summarized in the following Table:

Table 13.2.2-1. TYPICAL SILT CONTENT VALUES OF SURFACE MATERIAL ON INDUSTRIAL UNPAVED ROADS		
AP-42	All Gravel Road	Haul Roads
Industry Types	18	4
No. Sites	53	10
No. Samples	272	58
Minimum	4.3%	5.8%
Maximum	24.0%	24.0%
Average	10.1%	11.6%
Median	8.4%	8.4%
Geomean	8.8%	9.9%

The silt content observations represent 272 gravel road samples from 53 sites at 18 different industries. Ten (10) sites and 58 samples were obtained specifically from Haul Roads. The minimal mean silt content from any one site was 4.3% and for all gravel roads and 5.8% from Haul Roads. Midas – PRI uses 4.0%. The following Table summarizes plausible values for the three key variables at this site as noted in previous comments. These values are rated as minimal, typical, and conservative EFs.

Comparison of Characteristic Values for Key Variables Used in Calculating Particulate and Arsenic Emissions from Gravel Haul Roads				
Characteristic	Silt Content	Silt Content	As Content	Control
Values	All Gravel Roads	Haul Roads	ppm	%- Emitted
AP-42 Minimal	4.3%	5.8%	909	10%
AP-42 Typical	8.8%	9.9%	1231	15%
AP-42 Conservative	10.1%	11.6%	1812	20%
Midas PRI	4%	4%	667	6.7%

In each case, the Applicant has used less than minimal values. Moreover, these equations are non-linear and variables are multiplicative, exacerbating the degree of under-estimation. IDEQ has in each case accepted the minimal plausible value, despite the requirement that conservative values be used, and IDEQs own guidance includes warnings regarding the uncertainties. The result is that it is likely that emissions are underestimated by several times. It is important to note that, if even a modest increase in PTE for haul roads is acknowledged, this facility will not be able to meet particulate and carcinogenic arsenic standards. Use of any combination of typical or conservative values would likely result in exceedance of particulate and arsenic health criteria.

The potential health related consequences associated with under-estimation of haul road related emissions continues to haunt the PTC and is amplified in the T-RACT analysis.

Calculating the T-RACT Emission Limit: State regulations require that:

> **d.** The T-RACT emissions rate of a toxic air pollutant from a source or modification is calculated using the maximum capacity of the source or modification under its physical and operational design with the effect of: (6-30-95)
>
> i. Any physical or operational limitation other than control equipment that has been specifically described in a written and certified submission to the Department; and (6-30-95)

The T-RACT emission rate should be calculated in the same manner as the original PTE estimates, but allowing for enforceable operational limitations noted in i) above. These operational limitations have the practical effect of reducing the design capacity, and enforcing an artificial ceiling on the facility's ability to pollute. The T-

RACT calculation should then parallel the original PTE analyses, substituting this artificial design capacity. Subsequent Operating Permit conditions should then reflect rigid controls to that ensure the facility will not operate beyond the T-RACT PTE ceiling.

With regard to Haul Road emissions the Applicant offers two operational limitations:

- Limiting long-term mining production to 135,000 T/day (5-year rolling total)
- Capping the haul roads that are outside of the pits and development rock storage facilities (DRSFs) with clean development rock (T-RACT)

The proposed T-RACT emission used by IDEQ is not an operationally constrained equivalent of the PTE determined for the 180,000 TPD design limit used in the original PTC. The current PTC T-RACT analysis uses an inappropriate levels of averaging to modify the calculation. Emissions are calculated based on an apparently arbitrary rolling five-year average mine production rate limit of 135,000 TPD. Although IDEQ accepts this artificial manipulation to support a 25% reduction in modeled emissions and estimated ambient impacts; this limitation has no practical constraint on facility operations, emissions or ambient impacts; and does not reflect PTE under T-RACT. This alleged T-RACT emission limit is not based on a maximum annual rate, or a maximum hourly rate scaled to a maximum annual rate, as required to subsequently compare to an AACC. It is an apparent arbitrary average of 1825 consecutive days of alleged intended operations.

The correct T-RACT emission limit should be the maximum single-year annual PTE rate consistent with enforceable design-equivalent operational constraints, not a rolling average based on good intentions. Because the AACC for carcinogens is an annual incremental standard, there is no specific provision for averaging emissions or ambient concentrations for carcinogenic toxic air pollutants over periods greater than one year. There are provisions for adjusting the AACC for short-term exposures less than the standard basis (<5 year exposures).

> **15. Short Term Source Factor**. For short term sources, the applicant may utilize a short term adjustment factor of ten (10). For a carcinogen, multiply either the applicable acceptable ambient concentration (AACC) or the screening emission rate, but not both, by ten (10), to demonstrate preconstruction compliance. This method may be used for TAPs listed in Section 586 only and may be utilized in conjunction with standard methods for quantification of emission rates (Subsections 210.05 through 210.08).

It should be noted that this calculation specifically excludes simultaneous adjustments to both the emission rates and ambient criteria, as undertaken in the current T-RACT analyses.

Table 7 TAPS Addendum shows the overall decrease in the T-RACT emission limit used by IDEQ in modelling (0.544 vs. 0.232 lbs/hr) reflects a 57% (not a 25%) reduction from the original alleged controlled emission rate. Presumably this reduction reflects both the 25% reduction due to the alleged production limitation, with the remainder due to the low arsenic gravel cover.

These calculations are referenced to an Appendix in the TAPS Addendum, but are not possible to reproduce from the information provided. As such, the efficacy of the additional operational constraints associated with gravel cover is difficult to evaluate. However, it also appears to be based on minimal, rather than conservative, emission factors (i.e., median concentration of contaminants, optimistic control levels, minimal silt content, and no enrichment factor accounting for spillage of high arsenic content ores and development rock fines spilled on the roads).
With respect to the alleged production curtailment, the 135,000TPY mining capacity is not an appropriate operational control for haul road source limits for T-RACT. The MODPRO2 operational scheme uses extensive stockpiling of ores and development rock to effect a near- constant rate of mineral processing activities as shown in Figures 1.2, 1.3 and 1.4 in the STIBNITE GOLD PROJECT, FEASIBILITY STUDY TECHNICAL REPORT, M3-PN170045, Effective Date 12/22/2020 and Figures 3-9 and 3-10 of the STIBNITE GOLD PROJECT: REFINED PROPOSED ACTION – MODPRO2, Perpetua Resources Idaho Inc. October 15, 2021.

In contrast, the proposed mine plan initiates and concludes with low rates of ore production and varying rates of material mined production over the 16 years of alleged life of mine, making a five-year rolling average meaningless in terms of limiting production throughout the complex.

Alleged mine fugitive emissions also include significant on-site hauling associated with Portable Crusher and Screening Plant, lime plant and limestone amendment activities that are months or years removed from mine production; and maintenance, load/unload, watering truck, lime plant, limestone amendments to the gold-refinery, etc. emissions that are applied continually, independent of mine production. These Haul Road and other fugitive emissions are dependent on mineral processing schedules, not mine production. As a result, these should be separately addressed in T-RACT as enforceable operational process rate limitations imposed on milling, refining, and disposal operations, as well as mine production. These sources should also be considered in Source Categorization determinations, as noted above.

Calculating T-RACT Ambient Concentrations: State regulations specify that TAPs increments be calculated as follows:

> **03. Quantification of Ambient Concentrations**. (6-30-95)
>
> **a.** The applicant may use the modeling methods provided in Subsection 202.02 to estimate the ambient concentrations at specified receptor sites for any toxic air pollutant emitted from the point(s) of emission. (6-30-95)
>
> i. For screening modeling, the models use arbitrary meteorological data and predict maximum one (1) hour concentrations for all specified receptor sites. For toxic air pollutants listed in Section 586, multiply the maximum hourly concentration output from the model by a persistence factor of one hundred twenty five one-thousandths (0.125) to convert the hourly average to an annual average. For toxic air pollutants listed in Section 585, multiply the maximum hourly concentration output from the model by a persistence factor of four tenths (0.4) to convert the hourly concentration to a twenty-four (24) hour average. (6-30- 95)
>
> ii. For refined modeling, the models use site specific information. If actual meteorological data is used and the model predicts annual averages for toxic air pollutants listed in Section 586 and twenty-four (24) hour averages for toxic air pollutants listed in Section 585, persistence factors need not be used. (6-30-95)

In order to secure a permit under T-RACT, the Applicant needs to identify enforceable operational limitations that reduce PTE to levels that, when applied through refined modelling, comply with the appropriate AACC. The appropriate comparison under T-RACT is the maximum one-year annual average concentration compared to 10 times the listed AACC. This process is equivalent to PTE modeling of PM pollutants compared to ambient air quality standards. There is no provision for altering or averaging emissions or ambient concentration for intended operations schemes. Similarly, there should be no provision to modify either emissions or the AACC for alleged long-term cancer exposure considerations. The cancer risk calculation is an incremental screening method that looks at the immediate potential impact of the source in the absence of background, past, or future exposures from other sources. As such, both procedures have inherent large margins of safety (i.e., emissions calculated at maximum rates and compared to stringent standards annual maximum concentrations. The 78% life-of-mine (LOM) to receptor lifetime reduction (16 yr LOM/70 yr lifetime) is inappropriate, as this facility is not entitled to consume the remaining 54 years of the receptor's lifetime acceptable exposure during the Applicant's alleged 16 years of operation.

> b. The point of compliance is the receptor site that is estimated to have the highest ambient concentration of the toxic air pollutant of all the receptor sites that are located either at or beyond the facility property boundary or at a point of public access; provided that, if the toxic air pollutant is listed in Section 586, the receptor site is not considered to be at a point of public access if the receptor site is located on or within a road, highway or other transportation corridor transecting the facility.

The ambient concentrations used for the point of compliance are incorrect. Three levels of inappropriate dilution of ambient values are accomplished by IDEQ in alleging compliance with T-RACT. In addition to the inappropriate dilution of emissions noted above, IDEQ inappropriately dilutes ambient concentrations by averaging the results of two scenarios, decreasing the maximum annual average by 41%. This technique is justified on the basis that no one scenario will apply during the life of the mine. A third averaging technique further dilutes the ambient calculation by adjusting the by the ratio of the life of the mine to the assumed lifetime of the receptor. All three manipulations are incorrect.

Once again, IDEQ conflates conservativeness built into the evaluation criteria, with claims of conservatism associated with alleged intended operations. Additionally, the analysis then confuses screening level concentrations with exposure. The correct compliance comparison is the maximum annual ambient concentration to the annual AACC, or T_RACT AACC. There are no provisions for adjusting this concentration to alleged exposures average over multiple years. Any relaxation of health standards on the basis of exposure requires comprehensive risk assessment analyses considering external factors not addressed in the derivation of incremental standards.

The T-RACT analysis accepted by IDEQ seems to be a one-step hybrid of the traditional three step process of risk-adjusted compliance with carcinogenic exposures. The State of Washington, for example, requires a three-tiered analysis formalizing this procedure (Guidance Document First, Second, and Third Tier Review of Toxic Air Pollution Sources (Chapter 173-460 WAC.)

Generally, the first Step requires a relatively simple incremental calculation of ambient concentrations, compared to a conservative risk-based standard or acceptable concentration. These calculations are reviewed and compliance is confirmed if these conservative criteria are met. In this step, the calculation/comparison is the maximum annual concentration compared to the annual AACC and the averaging period is one year. IDEQ never performed, or disclosed, this comparison, which should be accomplished with RACT PTE. As frequently practiced throughout this PTC Application, the required conservative values were modified to reflect lower emission and the AACC was modified to reflect lower concentrations.

These analyses used a non-conservative emission rate, averaged over five years (not one year). It is not possible from the available data to determine how this five-year average compared to the maximum one-year emission rate that should have been used. The overall, reduction appears to be 43% of RACT PTE. The ambient concentration predicted is then additionally reduced by 41% by averaging two different five-year scenarios. Finally, the AACC is reduced by adjusting the result downward by 78% to account for the life of the mine (LOM). This inappropriate triple dilution comparison then alleges compliance.

Direct comparison of the once-diluted emissions predicted annual concentration to the one-year incremental AACC fails by 30-fold (or is 3-fold times the T-RACT AACC). These exceedances are dependent on the once-diluted five-year, non-conservative emission calculations discussed extensively in these comments. Use of required one-year maximum conservative emission calculations, would likely result in orders of magnitude exceedances of the associated one-year maximum concentration T-RACT AACC.

IDEQ should present this calculation.

In a typical carcinogenic risk analyses, the second Step in evaluating the TAPs exemption would apply risk assessment techniques, requiring consideration of receptor and environmental setting characteristics; site history; other sources, including background and potential future increments; susceptible populations, and alternate exposure frequencies and duration, data quality, and uncertainties. This step would transparently address many of the factors allegedly considered in the dilution of the AACC in this PTC analysis.

Revision of the incremental AACC through post-modeling to collectively reflect select factors inherent in the risk assessment/management is neither correct nor transparent, and neglects numerous factors that should be considered in the public interest.

The third Step introduces risk management considerations that would limit emissions sufficiently to effect ambient concentrations consistent with allowable exposures determined in the risk assessment phase (i.e. the T-RACT emission level). This step would consider effective operational limits and controls, establish a *de facto* design capacity, and establish rigid permit limits that would guarantee compliance with the T-RACT AACC.

Even considering these diluted non-conservative emissions used in these analyses, the prospect for complying with carcinogenic risk criteria is doubtful. The modeled results, based on the .232 lbs/hr alleged T-RACT emission rate, indicate that the maximum one-year average ambient air arsenic concentration at the point of compliance is .00698 ug/m^3 under the W-3 scenario. This value exceeds the 10^{-6} AACC for Arsenic of 0.00023 ug/m^3 by 30 times. Applying the allowable T-RACT relief factor of 10 increase in cancer risk indicates a 3-fold exceedance of the appropriate .0023 ug/m^3 maximum annual increment limit. This translates to a required T-RACT emission limit of .232 / (.00698/.0023) = .076 lbs/hr to achieve compliance.

This is an (1-(076/.544)) = 86% required reduction in the under-estimated PTE. In reality, the currently accepted PTE for this facility must be reduced by 86% to achieve compliance through enforceable operational constraints to comply with T-RACT. Even accepting the underestimated PTE as accurate, and assuming that (43-24%) = 19% can be obtained through application of low arsenic road gravel, a 67% reduction is required to be achieved through enforceable production limitations to comply under T-RACT.

This calculation uses the five-year rolling average mining production limitation, offered as an operational control. This proposed operational control both dilutes the emission calculation, and is practically meaningless in limiting emissions and largely unenforceable. The most effective and enforceable limitations would likely be restrictions on annual site-wide VMT limits, rigorously applied to both mineral process-related and mine hauling activities. A 67% annual VMT reduction will require substantial decreases in both mine and process related milling, refining, and disposal operations hauling.

Additionally, IDEQ has argued that the T-RACT controls proposed in the current PTC are conservative citing various levels of mine operation schemes offered by the Applicant. (i.e., 180,000 TPD design rate, alleged135,000 TPD T-RACT rate, 402,859,000 ton LOM alleged MODPRO2 rate), However, the required >67% reduction required to meet T-RACT likely requires limits well below MODPRO2 mine production rates. Developing such a plan would likely require substantial re-evaluation of MODPRP2 strategy.

9.0 ENFORCEABILITY

With regard to air pollution impacts, there are major concerns associated with potential mining and mineral processing fugitive emissions of particulates and arsenic. Unprecedented fugitive emissions control levels will be required to meet NAAQS criteria especially with regard to PM10 compliance. The Applicant is also requesting T-RACT relief from TAPs carcinogenic risk health standards. T-RACT, by definition, asserts that the required PM10 control levels are insufficient to meet carcinogenic risk levels in the ambient air.

There is considerable, if not unprecedented, levels of uncertainty in the magnitude and toxicity of the PTE and T-RACT emission estimates. Should the optimistic emission rates and control levels proposed by the Applicant prove untrue, the facility emissions and subsequent ambient air concentrations will exceed health standards at the facility boundary and result in hazardous exposures to workers, resident worker families, and on-site visitors within the facility.

The proposed Permit Conditions are ineffective in exercising requisite control over these emissions and rely largely on a Fugitive Dust Control Plan, to be developed and implemented later, after issuance of the Permit.

Because this is a proposed T-RACT Site, the Fugitive Dust Control Plan is the primary enforcement mechanism for both NAAQS and TAPs. The control and enforcement strategies for the sources are inextricably linked, as these are the same physical particles. Curiously, NAAQS compliance is achieved by Applicant asserted extra-ordinary (93.3%) controls levels, which is 33% less emissions than the alleged RACT (90.0%), TAPs compliance requires (RACT) and adds operational controls limiting production capacity to achieve emissions

well below design PTE. Whether this is supposedly accomplished at 93.3% or at 90% is unclear, and not trivial as it represents a 33% increase in emissions.

The T-RACT operational controls must be effective in reducing T-RACT emissions to levels that result in meeting the AACC. To effectively reduce these emissions, the operational controls should be aimed at reducing traffic-related fugitive releases. This should be accomplished by the Operator demonstrating the capacity to maintain required Emission Factors (EF)s that will result in NAAQS and T-RACT AACC compliance; and monitoring the ambient environment to assure the necessary control level has been achieved.

As a result, to provide health and environmental protectiveness and ensure enforceability and the effectiveness of the Fugitive Dust Control Plan:

- The facility should be Classified as Major A to ensure federal oversight of the simultaneous NAAQS and TAPs controls, and associated federal review and approval of the Fugitive Dust Control Plan should be required.

- The specific technical specifications, monitoring plan, and corrective action requirements of the Fugitive Dust Control Plan should be explicitly stated as Permit Conditions prior to issuance of the PTC, included in the Operating Permit, and be a condition for State and federal approval.

- The Permit Conditions should include explicit monitoring requirements for ambient air and the key emission factors (EF)s used in estimating PTE and T-RACT emissions. These are roadbed silt content, silt arsenic content, ambient air total PM and PM arsenic content at select property line locations and roadside locations within the facility, ambient PM10 at select property line locations, and VMT for all on-site traffic.

- The operational controls should be daily (PM10 related) and annual (PM and arsenic related) site-wide VMT limits. The operational VMT limits should be tiered, with tier levels related to the monitored EF and ambient concentrations. For example, the initial VMT limits would correspond to maintaining 4% silt content and 90 mg/kg arsenic in the silt. Should these silt and arsenic levels not be maintained, VMT operational limits shall be decreased, proportionately, to a lower VMT limited operational tier. Simultaneously, should PM, PM-arsenic or PM10 monitoring exceed ambient criteria, VMT limits should be lowered accordingly. There should be provisions to refine the tier levels at two year intervals, as site-specific data are obtained.

10.0 RECOMMENDATION

With respect to reviewing this T-RACT application, IDEQ is obligated to:

> **e.** If the Department determines that the applicant has proposed T-RACT, the Department shall determine which of the options, or combination of options, will result in the lowest emission of toxic air pollutants, develop the emission standards constituting T-RACT and incorporate the emission standards into the permit to construct. (5-1-94)
>
> **f.** If the Department determines that the applicant has not proposed T-RACT, the Department shall disapprove the submittal. If the submittal is disapproved, the applicant may supplement its submittal or demonstrate preconstruction compliance through a different method provided in Section 210. If the applicant does not supplement its submittal or demonstrate preconstruction compliance through a different method provided in Section 210, the Department shall deny the permit. (6-30-95)

This application is clearly deficient with respect to T-RACT and IDEQ should disapprove the Application for, at least, the following considerations:

- It based on PTE emissions that have not been calculated using conservative emission factors.

- The emissions used to support modeling are based on inappropriate multi-year averages and do not reflect PTE or T-RACT.

- The proposed operational limits on mine production will have no practical constraint on facility operations, emissions or ambient impacts.

- The post-model multi-year and lifetime averaging of exposures are inappropriate, as this facility's 16-year life of mine is not entitled to expend a receptor's equivalent 70- year of allowable exposure.

- Correctly applied, direct comparison of predicted maximum annual average ambient arsenic concentrations to the AACC shows a 30 factor exceedance, or 3 times the T- RACT AACC.

- Considerably higher levels of operational constraints will be required to support T- RACT. These limits are likely to require reductions in the proposed MODPRO2 levels of operations.

- The Permit Conditions are largely unenforceable, do not require any effective monitoring, or provisions for corrective actions, should the Applicant's assurances prove unachievable.

DEQ Response:

How DEQ reviews impacts associated with the proposed SGP is governed by *Idaho Air Rules* pertaining to permit applicability and permit issuance. While commenters may not agree with approaches directed by *Idaho Air Rules*, DEQ does not have latitude to deviate from what is established by rule. Comments suggesting the inappropriateness of approaches mandated by rules are outside the scope of this project and responses will not be provided.

As discussed previously, although some degree of uncertainty is present in all emission factors used in estimation emissions, all emission factors were adequately supported and the approach of estimating PTE at design capacity for combustion sources and at maximum throughputs for process sources was considered a conservative approach. The use of representative performance test data was determined to be valid and accepted by DEQ.

T-RACT is an emission standard based on the lowest emission of toxic air pollutants that a particular source is capable of meeting by the application of control technology that is reasonably available, as determined by DEQ, considering technological and economic feasibility. T-RACT is an allowable analysis to demonstrate preconstruction compliance for toxic air pollutants (IDAPA 58.01.01.210.12) that PRI has used to demonstrate compliance for arsenic.

Carcinogenic AACCs are expressed as annual averages, but as stated in DEQ's response to Comment 27, the definition of *Toxic Air Pollutant Carcinogenic Increments* in *Idaho Air Rules* Section 005.125, states, "Those ambient air quality increments based on the probability of developing excess cancers over a seventy (70) year lifetime exposure to one (1) microgram per cubic meter (1 $\mu g/m^3$) of a given carcinogen and expressed in terms of a screening emission level or an acceptable ambient concentration for a carcinogenic toxic air pollutant." Since the AACCs are based on a 70-year exposure, use of a 5-year averaging period is appropriate.

DEQ has incorporated requirements to monitor and record operational parameters that are limited in the permit, thereby making them practically enforceable.

OTHER COMMENTS

Comment 42 - ICL/SSFS: Mining/Processing Throughput Limits

The draft permit contains several throughput limits as defined in Permit Conditions 3.5 and 3.6. These conditions are artificial production limits on the facility, and will not have a bearing on the actual emissions being produced once the mine is simultaneously mining and also processing from stockpiled material. We have concerns that these artificial production limits are not actually enforceable in any way by IDEQ. Furthermore, we do not have any assurances that these artificial production limits will remain the same throughout the entire life of mine. For example, Figure 3.9 of the proposed mine plan[17] initiates and concludes with low rates over the 16 years of the mine with higher rates in the middle, making a five-year rolling average (like what is proposed in Permit Condition 3.5) meaningless in terms of limiting production.

Permit conditions should also be developed that establish throughput limits on the refining facilities and haul roads themselves, not just hauling and excavation tonnages. This is because the design capacity of the refining facilities exceeds the mine production capacity, and new ore could theoretically come in from other sources and be refined/processed at Stibnite. Without specific throughput limits on the refining process, those added emissions would not be considered.

Lastly, because IDEQ treats TAPs emissions on an incremental rather than cumulative basis, we can envision problems arising in a scenario where this facility gets permitted at the current throughput limits but then asks for an expansion five years down the road. If they are then permitted for an expansion, any increases in TAPs emissions will be permitted on a standalone basis rather than cumulatively on top of what was initially permitted. Ultimately, we are concerned that this is an approach the Applicant could use to circumvent being permitted as a TAPs Major Source in this initial PTC.

IDEQ should:

- Indicate how they plan to enforce these throughput limits and include additional measures in the permit to this effect.
- Add throughput limits for the refining and processing facilities.

DEQ Response:

As discussed previously in the Representativeness and Uncertainty of Emissions section, maximum hourly and daily activity rates were used to estimate the maximum 24-hour and annual emission rates, and fugitive dust control requirements, emission rate limits, material activity rate limits, and supporting testing and monitoring, recordkeeping, and reporting (MRR) requirements were established as synthetic minor limits for the purposes of limiting facility-wide emissions of $PM/PM_{10}/PM_{2.5}$ to below 250 T/yr PSD applicability thresholds and Title V 100 T/yr applicability thresholds. These limits were also established for the purposes of limiting facility-wide emissions of single and total HAP to below HAP major source applicability thresholds (10/25 T/yr), and to ensure compliance with all NAAQS. Limits were established consistent with current DEQ guidance and the estimates of emissions and underlying assumptions were supported to the satisfaction of DEQ.

Enforceable monitoring, recordkeeping, and reporting requirements were established in the permit. $PM/PM_{10}/PM_{2.5}$ emissions limits for point sources were established with supporting activity rate limits and MRR requirements. While emissions limits and emission factors are not commonly included in the permit for fugitive sources, activity rate limits and MRR requirements were established for those sources that were identified as process rate-limiting (as summarized in Table 1.1 of the permit). These activity rate limits serve as surrogate emissions limits for PM, PM_{10}, $PM_{2.5}$, HAP and TAP from fugitive sources. Any emission increases or changes proposed after permit issuance will need to be evaluated as to whether they may require modification or revision of the PTC.

Comment 43 - NPT: Adverse impacts of dust control abatement on other resources

The Tribe is concerned about the impacts of dust abatement chemicals on soils, vegetation, and wildlife. As it is DEQ's mission to protect human health and the quality of Idaho's air, land, and water, the Tribe is including this concern with these comments on the PTC.

Magnesium chloride (MgCb) and MgCh-lignin sulfonate products used to suppress dust on roadsides can damage vegetation foliage, alter soil quality, move in roadside drainages of up to 98 m from roads, and accumulate over time, often to toxic concentrations, in trees and soils.[1] High MgCh soil concentrations from application caused mortality of Douglas-fir, lodgepole, ponderosa, and limber pines, and aspen in just two to four years.[2] Considering the life of the Project, the Tribe is concerned about long-term consequences to soils and vegetation from dust abatement chemicals.

Water is a scarce commodity in the project area. We are concerned that the limited quantity of water available is insufficient to meet permit conditions for use of water in fugitive dust control and water spraying for ore processing, and aggregate and concrete production. The quality of water is also a concern. The water source for dust control is proposed to be surface water diversion from the East Fork of the South Fork of the Salmon River, groundwater, and runoff ponds. USGS sampling indicates elevated arsenic in these waters.[3] Water quality should not create additional environmental burden if contaminated waters are used to water roads. This should have been considered in the T-RACT determination as described in IDAPA 58.01.01.210.14.

DEQ Response:

As described in the Technical Analysis section of the Statement of Basis and supporting documents, the proposed emissions and impacts of criteria, hazardous, and toxic air pollutants from various sources at the facility were evaluated by DEQ and determined to comply with applicable preconstruction requirements required for issuance of a permit to construct (PTC).

Comment 44 - NPT: Process flow description does not reflect applicant operations

Statement of Basis Facility Information Description and Figure 2 DIAGRAM OF PROCESS FLOWS are not updated to reflect Project operations.

DEQ Response:

Figure 2 in the Statement of Basis is representative of the processes modeled for compliance with the NAAQS which includes processes Sb1 and Sb2. The processes were removed from the permit, and no HAP or TAP emissions will be generated in the new Sb circuit.

Comment 45 - NPT: Limestone values are misleading

The limestone mineralogy is expressed as median concentration values from 98 samples, yet it appears that all 98 samples came from one single core MGI-17-431. This is misleading, and we question if the metal concentrations used in the emissions inventory coming from the 55,000 ore samples are also incorrectly characterized.

DEQ Response:

As described previously in the Representativeness and Uncertainty of Emissions section, metal hazardous air pollutant (HAP) and toxic air pollutant (TAP) emissions from process materials were based on median measured metal concentration profiles from onsite core samples of ore and limestone materials, including 98 samples of PRI limestone and over 55,000 samples of PRI ore. PRI has confirmed that ore samples were taken primarily from the mineralized zones of the PRI pits and were representative for the purposes of estimating emissions. PRI

has confirmed that the use of mineralized metal profiles is conservative when compared to low-mineralization materials such as development rock and clean gravel and it is pretty typical that approximately 100 samples come from each core.

Comment 46 - NPT: No accounting for winter impacts on water controls

Permit condition 3.12 requires water control for ore processing crusher and conveyer at all times. Permit condition 5.10 also requires water control for portable crushing and screening at all times. When water freezes during low temperatures, water control will not be feasible. Therefore, each ore processing crusher and conveyor (3.12) and each portable crushing and screening plant (5.10) should not operate at temperatures below freezing or there will be no control of fugitives from these emission units (EUs). If any chemical(s) is added to the water to lower freezing and thus extend ability to use water control, they and their effects should be disclosed. Please address these concerns about freezing-weather operations for these permit conditions.

DEQ Response:

As discussed previously in the response to comment 3, modeling analyses for the project, prior to refined adjustments, shows all modeled PM_{10} violations occur during the winter (Statement of Basis, Appendix B) where emissions and background levels are likely overestimated. Data provided in the SGP baseline study specify an average snow depth of 21-68 inches and an average precipitation of 6.0 inches at the project site during this period. Therefore, fugitive dust emissions from emission units and roads during high-modeled impact hours could be overestimated. Permit condition 3.12 references Permit conditions 2.1 through 2.6. Permit condition 2.6 requires a FDCP which at a minimum contains requirements to apply water or suitable dust suppressant chemicals to transfer points, screening operations, and crushing operations as necessary to control fugitive dust.

Comment 47 - NPT: Clarification needed on 3.9 Prill Loading Limit

Permit condition 3.9 Prill Loading Limit is unclear: "The permittee shall not load in excess of 200 T/day nor and 9,000 T/yr of prill (ammonium nitrate) to the prill silos." The use of"nor and" is confusing. Please clarify the intent of this section.

DEQ Response:

As a result of the public comment, Permit Condition 3.9 has been revised to remove “nor”. The permit condition is intended to limit the prill loading to 200 T/day and 9,000 T/yr.

Comment 48 - NPT: Comments on Table 1.1 Regulated Sources

Table 1.1 in the permit lists all sources of regulated emission in the permit. For clarity it would be easier to follow the permit and check limits for all the EUs if their Source ID No. were carried over from Table 1.1 to the remaining tables throughout the permit. Additionally, it is unclear if the control efficiency and maximum process rates listed in Table 1.1 are enforceable. The comments that follow are from checking the source ID listed in Table 1.1 for consistency in the permit and Statement of Basis.

- For the Mercury Retort and Induction Melting Furnace, Table 1.1 has a maximum process rate of 1,000 lb/batch and 21 T/yr. Monitoring in permit conditions 4.22 and 4.23 does not include monitoring of batch rather only weight is monitored. If only weight is recorded there is no criteria to measure compliance with the batch limitation.
- The emission units LS9-LS12 are missing a permit operating limit to ensure maximum process rate of 267 T/day.
- Statement of Basis application scope lists PS in ore processing. Assuming PS is PS1-2- L/U, in Table 1.1 of the permit, they (PS1-2-L/U) are listed under mining.

- Rock dumps and storage piles are missing from the Statement of Basis application scope.
- In Table 1.1 of the permit all mining sources except Prill Silos (PS1-2-L/U) have FCDP listed as Control Equipment. In Table 3.1 Mining and Ore Processing Control Device Descriptions some sources retain the FDCP as a listed Control Equipment (Drilling and Blasting) while others do not (Excavating and hauling activities) and some sources do not appear at all in Table 3.1 (rock dumps and storage piles).
- Although there is a facility-wide fugitive dust control and permit conditions 3.10 and 5.9 direct permittee to control fugitive dust, Reasonable Control and FDCP are listed in Table 1.1, but are missing from corresponding Tables for Control Description Descriptions for the following EUs: OC1-OC13, PCSP1, PCSP2, CM.
- For EUs EDG1-3 in Table 1.1, please allow for better performance control equipment, we suggest modifying EPA Tier 2 technologies to "EPA Tier 2 technologies or better".

DEQ Response:

The Mercury Retort and Induction Melting Furnace have a design limit of 1000 lb/batch as seen in the application. The monitoring requirements in Permit Conditions 4.22 and 4.23 require monitoring in lb/day. The mercury retort runs for 24 hours so therefore lb/batch and lb/day are the same measurement.

Lime production limits for LK, LCR, and LS-L/U are limited by the Parallel Flow Regenerative Kiln output limit in Permit Condition 5.5. As can been seen in the Lime Production Flow Diagram in the application, 267 tpd in the maximum capacity and input to the Kiln (LS9-LS12). DEQ chose to limit the output of the Kiln as seen in Permit Condition 5.5 (169 T/day).

As a result of the public comment, rock dumps and storage piles have been added under the Statement of Basis' application scope section to ensure all activities are included. Prill silos have been moved from ore processing operations to the mining activities under the Statement of Basis' application scope section to ensure consistency with Table 1.1 of the PTC.

As a result of the public comment, Table 3.1 of the PTC has been revised to include reasonable control and FDCP as control devices for the excavating and hauling activities as well as all other emission sources in the Table (OC1 – OC13). Rock dumps and storage piles have been added to Table 3.1 with the corresponding control devices of reasonable control and FDCP. Table 5.2 has been revised to include reasonable control and FDCP as control devices for the Aggregate Production Plant Emissions Units/Processes (PCSP1 and PCSP2) as well as the Central Mix Plant (CM). The Prill Silos (PS1-2-L/U) are not controlled under the FDCP as the material can be explosive and are treated differently.

Emission units EDG1-3 in Table 1.1 are specified to be EPA Tier 2 certified engines but there is no prohibition on the units meeting emissions limits more stringent than those required of EPA Tier 2 certified engines.

Comment 49 - TIFO: Conclusions of fourth comment submittal

- Each of the Permit to Construct (PTC) applications and Operating Permits proposed to date have lacked an objective treatment of potential emissions and ambient impacts.
- The initial proposals largely ignored massive emissions of toxic and hazardous air pollutants.
- Revisions of the PTC analyses have shown that approval of the previously proposed permits would have allowed significant exceedances of health standards; with no provision for monitoring, measurement, corrective action, or opportunity to seek federal relief.
- Significant emission sources excluded from Source Classification calculations as mining fugitive emissions could be mis-classified and considered as attendant to included mineral processing point or federally listed sources. IDEQ should carefully review these sources for inclusion in total emissions compared to Major Source thresholds.
- Significant under-estimation of haul road fugitive PTE emissions continues in this PTC. The estimates are not conservative as required by Idaho Code. IDEQs claim the Applicant's intentions to operate below

design capacity is not a conservative emission estimate. Calculating PTE at design capacity has been standard practice since the inception of the Clean Air Act. IDEQ conflates this long-held principle with the requirement to use conservative data in estimating AP-42 unpaved road emission estimates.

- The current proposed PTC continues to underestimate potential emissions, but acknowledges when using these minimal estimates, that compliance with health standards is not achievable with reasonably available control technologies (RACT).
- This application requests T-RACT relief from compliance with the cancer-related health standards, in contrast to the previous PTC version assertions of meeting all standards and being protective of public health, using the same controls.
- The additional operational controls (T-RACT) offered to guarantee meeting the relaxed standard require reducing the facility's allowable emission by 57%. Both the calculations supporting the required emission reduction and efficacy of the underlying operational controls are insufficient, rely on inappropriate averaging and dilution techniques, and impose no enforceable reduction in emissions or ambient air quality improvements. Greater reductions in emissions and substantial production curtailments will be required to achieve compliance.
- Alleging compliance with carcinogenic health risk standard in this PTC required multiple dilution techniques including i) using non-conservative emission factors, ii) requesting T-RACT relief from the health standard, iii) inappropriate averaging of T- RACT arsenic emissions, and iv) two levels of inappropriate post-modeling averaging of ambient air concentrations; resulting in order-of-magnitude under-predictions of arsenic exposures.
- The refined air quality modeling underlying the T-RACT analysis suggests that the massive disturbance of toxic arsenic contemplated, in this proposed multiple open-pit mining and co-located mineral processing operation, cannot meet air quality criteria in the complex terrain and challenging environmental setting of Stibnite.
- This is the third draft attempt to bring this insufficient PTC application into compliance. In the public interest IDEQ should dis-approve the PTC and require a new Application that objectively presents the emissions and controls required to comply with State and federal requirements.

DEQ Response:

As discussed in previous responses, maximum hourly and daily activity rates were used to estimate the maximum 24-hour and annual emission rates, and Fugitive Dust, Emissions Limits, material activity rate limits, and supporting testing and monitoring, recordkeeping, and reporting (MRR) requirements were established as synthetic minor limits for the purposes of limiting facility-wide emissions of PM/PM_{10}/$PM_{2.5}$ to below 250 T/yr PSD applicability thresholds and Title V 100 T/yr applicability thresholds. These limits were also established for the purposes of limiting facility-wide emissions of single and total HAP to below HAP major source applicability thresholds (10/25 T/yr), and to ensure compliance with all NAAQS. Limits were established consistent with current DEQ guidance and the estimates of emissions and underlying assumptions were supported to the satisfaction of DEQ.

DEQ contends that the operational limits on mine production are sufficient, reasonable, and appropriate to ensure compliance with applicable requirements including National Ambient Air Quality Standards (NAAQS) at a sufficient level of confidence to support permit issuance. Relevant conditions include material throughput and operational limits (Permit Conditions 3.3-3.9, 4.5-4.12, 5.4-5.9, 6.3), emissions limits (Permit Conditions 4.3-4.4, 5.3), control device requirements (Permit Conditions 3.10-3.12, 4.13-4.17, 5.10-5.16), and testing (Permit Condition 4.33) requirements. To ensure enforceability of each of these requirements, supporting testing and monitoring, recordkeeping, and reporting (MRR) requirements were also included.

In accordance with IDAPA 58.01.01.006. a stationary source is defined as any building, structure, facility, emissions unit, or installation which emits or may emit any air pollutant. The fugitive emissions shall not be considered in determining whether a permit is required unless required by federal law. For New Sources Review permitting purposes, the fugitive emissions shall not be considered in determining whether the facility is major unless the facility is a designated facility per IDAPA 58.01.01.008.10.c.i. A gold mine is not a listed designated

facility under IDAPA 58.01.01.006.30 and therefore fugitive emissions are not considered. Fugitive emissions of criteria pollutants are counted toward PSD classification from designated facilities such as the lime plant. Lime plant fugitive emissions are quantified under the PSD Classification section of the Statement of Basis.

For Title V permitting purposes arsenic is a HAP and arsenic fugitive emissions from haul roads do count towards the major source determination of 10 tons per year of any HAP and 25 tons per year for any combination of HAP. Accounting for water and chemical dust suppressant control efficiencies and use of the equations cited from AP-42 Section 13.2.2 (11/2006) for unpaved roads and site-specific silt values supports an arsenic HAP PTE from the haul roads of 30.3 tons per year (T/yr) for uncontrolled emissions (above 20 T/yr as described in the Statement of Basis) and 2.03 T/yr for controlled emissions. Despite the noted limitations of using AP-42, these equations remain commonly used and accepted by DEQ.

As discussed previously in the Representativeness and Uncertainty of Emissions section above, the estimates of emissions and underlying assumptions were supported to the satisfaction of DEQ, and sufficient information was provided to demonstrate preconstruction compliance with applicable TAP and mercury standards and to support facility classifications. Key assumptions identified in this section and by the commenter (including 93.3% control efficiency for haul roads) were confirmed by PRI and accepted by DEQ, and were the basis of the facility classifications.

T-RACT is an emission standard based on the lowest emission of toxic air pollutants that a particular source is capable of meeting by the application of control technology that is reasonably available, as determined by DEQ, considering technological and economic feasibility. T-RACT is an allowable analysis to demonstrate preconstruction compliance for toxic air pollutants (IDAPA 58.01.01.210.12) that PRI has used to demonstrate compliance for arsenic.

SECOND PUBLIC COMMENT PERIOD

DEQ provided a second public comment period on the proposed PTC for PRI from February 18 – March 19, 2021, in accordance with IDAPA 58.01.01.209.01.c. During this period, comments were submitted in response to DEQ's proposed action. Public comments regarding the technical and regulatory analyses and the air quality aspects of the proposed permit are summarized below. Questions, comments, and suggestions received during the comment period that did not relate to the air quality aspects of the permit application, the Department's technical analysis, or the proposed permit were not addressed. It is also noted that many of the topics discussed during the second public comment period were addressed in the third public comment period and therefore have not been included below.

Comment 1 – A. Michaels: Environmental impacts

DEQ seeks comment on draft permit to construct for Midas Gold Idaho Inc.'s Stibnite Mine. I am reading through the Statement of Basis and seeing things like chemical treatment (lime, caustic soda, hydrogen peroxide, copper sulfate, etc.), lime production, concrete manufacturing, diesel, gas, and more. Seriously? Do we want to introduce these things into this area - again and in excess of what was likely used in the mining process in the past? Have you seen the other mine sites around the area (Cinnabar) and how horrible they look? The environmental toll is devastating. Please don't allow more mining in this area. Let this area heal from the wounds already inflicted rather than add more.

And Meadow Creek runs right through the site which flows to a high mountain like, Meadow Creek Lake. Please consider the aquatic species, birds, and other animals that drink and or live in the water that will be impacted by the mine operation.

DEQ Response:

As described in the Technical Analysis section of the Statement of Basis and supporting documents, the proposed emissions and impacts of criteria, hazardous, and toxic air pollutants from chemical treatment, lime production, concrete manufacturing, and diesel and gas storage and combustion were evaluated by DEQ and determined to comply with applicable preconstruction requirements required for issuance of a permit to construct (PTC).

Comment 2 – PRI: Cyanide emissions and monitoring

General Comment: Conditions in the draft permit to construct for cyanide emissions were first reviewed by Perpetua during this public comment period. The Department proposed an annual emissions limit for cyanide of 1.99 tons per year (Proposed Condition 4.4) and proposed operating constraints atypical of other mining projects (Proposed Condition 4.5). The proposed emission limit reflects Perpetua's estimate of actual emissions during normal operations, as presented in the application. Perpetua requests an emissions limit that ensures compliance with the minor source threshold for hazardous air pollutants (<10 tons per year) and affords operational flexibility. In addition, Perpetua requests a monitoring approach to collect data (pH and free cyanide concentrations) to use in calculations that confirm compliance with the emission limit. Specific language is suggested below to revise Proposed Conditions 4.4 and 4.18. Consistent with this approach Perpetua requests deletion of Proposed Condition 4.5 and Table 4.3 that impose process limits on pH and free cyanide because these values may vary during normal operations (making compliance with operating limits challenging); however, Perpetua can control operations to ensure compliance with the annual HAP emissions limit.

Specific Comments: To ensure compliance with the HAP minor source emissions limit, Perpetua proposes the revisions to proposed sections noted below, plus deletion of the operational constraints.

Emission Limits

4.4 Cyanide and Carbon Disulfide Emissions Limits

Facility-wide emissions shall not exceed 0.063 tons per year of carbon disulfide and 2.4 tons per year of cyanide

compounds. Compliance with the annual 2.4 ton per year limit shall be demonstrated on a rolling twelve-month basis as prescribed in Condition 4.18.

[Justification for revised emission limit: the revised emission limit establishes a compliance margin consistent with DEQ practice of approximately 20% over the actual emission during normal operations presented in the Application.]

Operating Limits [Perpetua proposes deletion of Proposed Condition 4.5 and Table 4.3]

[Justification for deleted operating limits: mines are not typically required to adhere to pH and free CN enforceable limits because the process conditions and material characteristics are variable; demonstrating compliance with the new emission limit in Proposed Condition 4.4 (2.4 tons per year) is now reflected in Proposed Condition 4.18 (Monitoring and Recordkeeping).]

Monitoring and Recordkeeping

4.18 Cyanide Specifications Monitoring

Each day, the permittee shall monitor and record the pH and free cyanide concentration level(s) in grams per cubic meter (g/m^3) from each cyanide leach and detox tank and use this information to determine compliance with the 2.4 tons per year emissions limit in Condition 4.4.

Each month, the permittee shall monitor and record the pH and free cyanide concentration level(s) in grams per cubic meter (g/m^3) from each tailings reclaim stream and use this information to determine compliance with the 2.4 tons per year emissions limit in Condition 4.4.

The recorded daily and monthly information shall be used to determine compliance with the 2.4 tons per year emissions limit in Condition 4.4 on a rolling twelve-month basis using Equation 1:

Equation 1

$r_v = k_g \alpha_0 C_l H A F_a F_w$

Where,

r_v = hydrogen cyanide emissions from surface (g/s)

k_g = gas phase mass transfer coefficient (m/s)

α_0 = non-ionized cyanide fraction determined from pH and pK_a (ionization coefficient)

C_l = total liquid phase free cyanide concentration (g/m^3)

H = Henry's Law Coefficient (g/m^3 per g/m^3)

A = process surface area (m^2)

F_a = area factor

F_w = wind factor

The devices and methodologies used to measure and free cyanide concentration, pH, and other variables of Equation 1 shall be identified in the O&M Manual.

[Justification for revised monitoring and recordkeeping: recording operating parameters and calculating emissions on a rolling 12-month basis will confirm continuous compliance with the new (2.4 tons per year) cyanide emission limit in Proposed Condition 4.4.]

DEQ Response:

Permit Condition 4.18 (cyanide emissions limit compliance monitoring) and Permit Condition 2.20 (O&M manual requirements) were updated consistent with the request for emissions tracking for operational flexibility. For clarification purposes, Permit Condition 4.5 (facility-wide carbon disulfide emissions limit) was separated from Permit Condition 4.4 (facility-wide cyanide emissions limit); both limits remain unchanged and were established consistent with emissions estimates included in the application.

All emissions limits, reagent usage, and process limits in the permit were established based on the emissions estimates presented in the application as potential emissions (PTE). It was considered reasonable and appropriate to allow for monitoring of actual process parameters and monthly estimation of emissions to comply with the facility-wide cyanide emissions limit. With emissions tracking, although pH and concentration process limits were removed, monitoring of these and temperature were included on a daily basis to ensure that all inputs necessary for calculating emissions are monitored. The equation for estimating cyanide emissions was included and variables cited in the O&M manual requirements.

Comment 3 – PRI: Editorial corrections

*General Comment***:** Perpetua requests several editorial corrections for proposed permit terms.

Specific Comments: The Source ID No. and Source description lists "CIP Leach 1-4 Carbon-in-Pulp Leach Tanks," "CIL 1-6 Carbon-in-Leach Tanks," "CIP 1-6 Carbon-in-Pulp Tanks," and "CN Detox 1-2 Cyanide Detox Tanks" (Proposed Condition 1.2). To provide configuration and operational flexibility, Perpetua requests that this equipment be grouped under a single Source ID No. labeled "CN Tanks" with a single Source description of "Cyanide Leach and Detox Tanks" as shown below.

Source ID No.	Source	Control Equipment	Maximum Process Rate
CN Tanks	Cyanide Leach and Detox Tanks	Chemical Treatment for maintaining pH	n/a

A maximum process rate is listed with the CIL and CIP tanks of "1,700 T/yr PAX" (Proposed Condition 1.2). This information more appropriately fits with the floatation circuit. Please revise as shown below.

Source ID No.	Source	Control Equipment	Maximum Process Rate
Float Tanks	Floatation tanks	None	1,700 T/yr PAX

Please revise Proposed Condition 2.20, Bullet 6 of 7 to read: "Permit Conditions 3.5-3.8, 4.8, 4.12, and 5.4-5.8." Please revise Proposed Condition 2.20, Bullet 7 of 7 from "each tailings stream" to "each tailings reclaim stream." The reclaim streams are used to measure the bulk solution of the tailings facility.

DEQ Response:

Permit Conditions 1.2 (Table 1.1) and 2.20 were updated. Updates were consistent with potassium amyl xanthate (PAX) being used and carbon disulfide emitted in the floatation circuit, and cyanide being used and emitted in the cyanide leach tanks, detox tanks, electrowinning cells and pregnant solution tank, and barren tanks. The referenced permit numbers and description of the tailings reclaim streams were also updated as requested, and correction made that the rate monitored for the electrowinning cells and pregnant solution tank is a volumetric flow rate. The emissions calculations associated with reagent usage were presented as potential emissions (PTE) in the application, and as such increasing the facility-wide emissions limit for cyanide and compounds to accommodate a surplus compliance margin was not supported.

In implementing emissions tracking as described in the response to the previous comment, monitoring and recording of parameters necessary for estimating emissions from the Cyanide Leach Tanks and Cyanide Detox tanks was also required (e.g., quantity of tanks, tank dimensions, pH, temperature, and cyanide concentration).

Comment 4 – SSFS: Non-carcinogenic TAP analyses underestimated the emissions rates of acute exposure to iron and aluminum from fugitive dust.

The basic underpredictions of fugitive emissions due to the use of unreasonably low silt content value, as discussed above, indicate that the true potential to emit other IDAPA § 585 TAPs, such as iron oxides and aluminum, could also be significantly underpredicted. Calculations of IDAPA § 585 TAP increments also suffer from cherry-picking of data so as to make it appear that emissions will comply with the stated increments in

IDAPA §58.01.01.585.

According to IDEQ guidance, IDAPA § 585 TAPs exposure limits should be calculated from the maximum potential impacts over 24 hours for comparison against the acute impact limits. Modeling pollutants with short-term ambient air standards requires the use of a potential emissions rate that occurs over the duration of that averaging period, which for IDAPA § 585 TAPs is a maximum daily emissions. This would require conservative estimates that are well above the median rate of emissions; in other words, emission rates should be based on a concentration much higher than the median, and closer to the 90th percentile of the concentration of the pollutant in the source material.

The analyses of the short-term effects of iron and aluminum emissions here, however, were based on the median concentrations of those metals in the development rock samples in the assays, thus potentially significantly underestimating the predicted emission rates. Additionally, compounding factors, such as an underestimation of silt content value, enrichment from physical effects of heavy road traffic, and deposition (which increases TAP concentrations in surface materials over time), and basing emissions on PM rather than PM10, have all contributed to an underestimation of emission rates.

Moreover, it is unclear - because there is no development rock management plan and no specified preferred alternative by the Forest Service - exactly what material will be used for haul roads. As discussed above, one alternative in the DEIS proposes using development rock as well as spent ore disposal area material, while the MODPRO2 - which is yet to be evaluated by the Forest Service - only mentions the use of development rock. This uncertainty and lack of planning calls into question the data presented in the permit to construct and Statement of Basis.

The data presented in the application for the permit to construct already indicate that ambient air concentrations of iron will increase by 14.1%, and 5.5% for aluminum. IDEQ's review of these analyses in the Statement of Basis indicates impacts as high as 27% for iron and 10% for aluminum. It is likely, based on the discussion above, that a new analysis of the impacts of iron and aluminum would show that emissions would cause exceedances of the ACC ambient impact limits that go beyond the emission limits established in IDAPA 58.01.01.585 for non carcinogenic TAPs, creating a noncompliant ambient impact and unacceptable public health inhalation risk.

Conclusion

Based on the comments above, SSFS asks that IDEQ deny this draft permit to construct.

DEQ Response:

As discussed previously in the Representativeness and Uncertainty of Emissions section, the estimates of emissions and underlying assumptions were supported to the satisfaction of DEQ, and sufficient information was provided to demonstrate preconstruction compliance with non-carcinogenic TAP requirements. Key assumptions identified in this section and by the commenter (including 93.3% control efficiency for haul roads, 4% silt content, and use of median concentrations including for iron and aluminum) were confirmed by PRI and accepted by DEQ, and it was not demonstrated that the alternative underlying assumptions presented were more accurate or appropriate than data provided by PRI and accepted by DEQ. Although a median value of sampled silt percentages of roadway material was used in emission estimates presented in the application, DEQ recognizes the importance of the silt content parameter in the estimation of emissions. Since compliance with the 24-hour PM_{10} National Ambient Air Quality Standards (NAAQS) is the primary driver of NAAQS compliance, minimizing variability of the parameter is very important to ensure NAAQS compliance. To achieve this, the permit will limit *maximum silt content* to 4.0 %, as specified in Section 3.13 Haul Road Capping of the PTC as well as associated monitoring and recordkeeping. PRI has confirmed that the use of mineralized metal profiles is conservative when compared to low-mineralization materials such as development rock and clean gravel.

Despite the noted limitations of using AP-42, these equations remain commonly used and accepted by DEQ. And while the use of an average or 90th percentile value is a more conservative approach (for silt content and/or metal concentrations), the use of site-specific median values combined with estimating and modeling PTE at design capacity and maximum activity rates was considered a sufficiently conservative approach and is commonly accepted by DEQ. Maximum hourly and daily activity rates were used to estimate the maximum 24 hour and annual emission rates. The use of enrichment factors has not been required, and DEQ is unaware of any prior instances in which such factors were applied.

FIRST PUBLIC COMMENT PERIOD

DEQ provided a first public comment period on the proposed PTC for PRI from September 10 – October 12, 2020, in accordance with IDAPA 58.01.01.209.01.c. During this period, comments were submitted in response to DEQ's proposed action. **P**ublic comments regarding the technical and regulatory analyses and the air quality aspects of the proposed permit are summarized below. Questions, comments, and suggestions received during the comment period that did not relate to the air quality aspects of the permit application, the Department's technical analysis, or the proposed permit were not addressed. It is also noted that many of the topics discussed during the first public comment period were addressed in the second and third public comment periods and therefore have not been included below.

Comment 1 – PRI: Editorial corrections

Condition 2.6: The condition currently references "(Permit Conditions 2.1–2.4)." With the addition of Condition 2.5, the reference may need to be updated to "(Permit Conditions 2.1–2.5)."

DEQ Response:

Permit Condition 2.6 was revised to correct the condition referenced to Permit Condition 2.5.

Comment 2 – PRI: Editorial corrections

Condition 2.20: Please correct the condition cross-reference from "0" to "5.3."

DEQ Response:

Permit Condition 2.20 was revised to correct the condition referenced to Permit Condition 5.3.

Comment 3 – PRI: Editorial corrections

Condition 3.2: Please correct the table cross-reference from "1.1" to "3.1."

DEQ Response:

Permit Condition 3.2 was revised to correct the table referenced to Table 3.1.

Comment 4 – PRI: Visible emission monitoring frequency

Condition 4.34: Please change the visible emission monitoring frequency from "each test run" to "each test." This request is made based on industry-standard practices and review of similar requirements in other permits. Monitoring frequency of once per each test run seems excessive and unnecessary as these source types typically do not generate visible emissions.

DEQ Response:

Permit Condition 4.34 was revised to reduce the frequency of visible emissions monitoring to once per test. The proposed frequency was considered reasonable and appropriate for capturing representative emissions during each performance test. This is also consistent with DEQ source testing guidance.

Comment 5 – TIFO and ICL: Toxic metals

With regard to toxic metals, the screening analysis indicates potential exceedance of carcinogenic and non-carcinogenic toxicity criteria for arsenic (As), antimony (Sb), cadmium (Cd), nickel (Ni), and mercury (Hg). Despite considerable uncharacterized uncertainties in the source terms and emissions estimates that cannot be

appropriately evaluated without a representative material balance for toxic metals, DEQ has dismissed any concern relative to these toxins based on modeling results.

This facility anticipates mining and processing an estimated 200 to 600 tons of Hg, 200K to 1M tons of Sb, 400K to 1M tons of As. Approximately 85% of the Sb and some undetermined fraction of the Hg will exit the site as product. The remaining toxic metals will be discharged to various environmental media, sinks, and repositories on-site or shipped to hazardous waste facilities. The applicant projects that the most significant thermal source on the site will exhaust 0.2 pounds per year (lb/yr) of Hg over 20 years to the atmosphere. This extraordinary level of control must be verified by material balance calculations to be relied upon. The applicant has not produced a material balance for toxics, and DEQ has not assessed the overall coherence of toxic metal pathways necessary to verify the applicant's assertions.

It seems that the draft permit does not require measurement, monitoring, reporting, or testing of toxic metals either in the process streams, emissions, or releases from the operations during the entire 20-year life of mining, milling, and refining. With respect to toxic metals, the permit only requires the applicant to operate the equipment in conformance with manufacturer's recommendations with the implicit assumption that this will result in health-protective Hg, Sb, As, Cd, and Ni ambient concentrations. If this interpretation is correct, then neither the emission estimates nor ambient metals concentrations will be verified by DEQ. This conclusion should be reconsidered after thorough review of a material balance.

DEQ Response:

A response and HAP/TAP application addendum were submitted by PRI that included new HAP and TAP emission estimates, new and revised TAP increment compliance demonstrations, and a source-by-source inventory of HAP and TAP emissions. After exclusion of sources addressed by NSPS and/or NESHAP, applicable emission sources from concrete production and HVAC were evaluated for compliance with TAP increments, and compliance with TAP provisions was demonstrated. After exclusion of sources within a source category subject to an area source NESHAP (40 CFR 63), emissions from the remaining applicable non-fugitive sources in aggregate production, concrete production, and HVAC were evaluated for compliance with the Mercury Emission Standard (Table 6).

Any uncertainties in metal HAP and TAP emission estimates are not expected to affect classification as a HAP minor source or to affect compliance with TAP provisions. Although some degree of uncertainty is present in all emission factors used in estimating emissions, all emission factors were adequately supported and the approach of estimating PTE at design capacity for combustion sources and at maximum throughputs for process sources was considered a conservative approach. The use of representative performance test data (i.e., autoclave emissions data from Nevada operations) was determined to be valid and accepted by DEQ.

Comment 6 – TIFO: NDEP

The application makes several references to similar operations in Nevada regulated by the Nevada Division of Environmental Protection (NDEP). However, there are significant differences between the DEQ and NDEP regulatory approaches that could question DEQ's reliance on data from the Nevada operations cited. NDEP guidance cites AP-42 and material balances as the two main sources for developing emission factors for the mining industry.

According to NDEP website information sources, NDEP requirements are significantly more stringent than DEQ's. NDEP has implemented the Nevada Mercury Control Program (NMCP) that applies Hg emissions controls on thermal units located at precious metal mines that include both the EPA promulgated NESHAP Subpart 7E and additional NMCP permitting conditions. NMCP requires that all precious metal processing facilities that operate, construct, or modify a thermal unit that emits Hg must apply for, and obtain, a Mercury Operating Permit to Construct. DEQ is requiring only the minimal federal requirements and a generic PTC. NESHAP Subpart 7E sets Hg emission limits for three source categories that are groups of units promulgated in 2013; two of which apply to this application. NMCP requires unit-level emission limits that are periodically re-evaluated for applicable sources. DEQ relies on alleged similar NDEP emission reports to assess NESHAP

Subpart 7E compliance, with Hg emission data presented from two Nevada operations (Goldstrike and Twin Creeks) to show that these facilities are in compliance with allowable limits.

This somewhat convoluted analysis portends that 2 autoclave examples from Nevada operations show that these facilities are, respectively, utilizing 0.2% to 10.9% of the 84 lb/ton allowable Hg emission; and 14.2% to 27.4% of the allowable 0.8 lb/ton concentrate carbon-based mercury retort emission limit. It is then assumed a nominal 10.0% and 20.0%, respectively, will be utilized at Stibnite. This results in an estimated 21.34 lb/yr emissions from the autoclave and 3.36 lb/yr retort emissions. The ** footnote suggests the actual autoclave emissions will be an extremely low 0.2 lb/yr.

The assertion that these two facilities operate in compliance with the federal portion of the Nevada permit is not conclusive evidence that the Stibnite facility will meet the standard without showing that the ore composition, process parameters and operational factors are comparable.

NESHAP Subpart 7E Mercury Sources

Subpart 7E Description	**Oper. ton/yr**	**hr/yr**	**% of Subpart 7E for Controlled Systems**	**Controlled Hg Emissions lb/hr**	**Hg Emissions* lb/yr**	**ton/yr**
Autoclave	** 0.107	8,760	10.0%	0.002	21.34	0.011
Refinery Sources (Kiln, EW, Retort, Furnace)	0.008	1,248	20.0%	0.003	3.36	0.002
Total 7439-97-6	0.115			0.005	24.70	0.012

*Based on Similar Source Hg Reporting Levels provided below

**Expected actual emissions from Autoclave: 0.0105 g/hr, 2.3E-05 lb/hr, 0.20 lb/yr (M3 2019)

Similar Source Hg Reporting Levels
Goldstrike Autoclaves 2 & 3 (2015 & 2016 Hg Reports) = 10.9%
Twin Creeks Autoclaves 1 & 2 (2015 & 2016 Hg Reports) = 0.2%
Goldstrike Refinery (2015 & 2016 Hg Reports) = 14.3%
Twin Creeks Refinery (2015 & 2016 Hg Reports) = 27.4%

Review of the cited sources is confusing. There is an obvious and considerable difference in the two example reported values with no explanation for the difference or why the nominal values for the analysis were selected. The State of Nevada regulates more than 35 mines with applicable thermal process units, and has accumulated hundreds of emission test results. There is no indication in the DEQ application as to why these two particular test results were offered to demonstrate compliance with the applicable NESHAP requirements. The Goldstrike autoclaves report 32 lb/yr in 2016 and a facility-wide release of 271 lb/yr and has ranged from 166 to 709 lb/yr over the previous decade. The unusually low 0.2 lb/yr attributed to (M3 2019) is an undated and unlabeled excel sheet attachment to an email requesting various process information with the single cited value in a column title "Final Cleaned Autoclave Vent Offgas to Atmosphere." It is not discernable from the referenced material what facility or process stream this test result applies to and any indication is appropriate for consideration in relation to the Stibnite proposal.

The application also references pages from the Nevada Operating permit. The NDEP Barrick Goldstrike Mine Class 1 Permit is 148 pages and does not include an antimony facility. The Draft DEQ Permit, in contrast, is 34 pages and requires almost no toxic metal monitoring, testing, reporting or assessment during the life of the mining operation.

Additional comments were provided discussing the relative jurisdictional risk of other states to that of Idaho.

DEQ Response:

PRI confirmed in the response to a request for additional information that the emissions data from Barrick Goldstrike Mines relied upon to estimate emissions is representative of the proposed autoclave and process, and that the remaining thermal source will not be constructed and will be replaced instead by a dewatering/packaging circuit. As a result, the antimony process dryer and bagging operation emission sources Sb1 and Sb2 were removed from the permit.

While it is acknowledged that there are differences between Idaho and Nevada regulatory programs and requirements, compliance with applicable federal regulations and state Rules for the Control of Air Pollution in Idaho (Rules) are required to obtain a PTC. Beyond the explicit Hg emission limits for sources in NESHAP Subpart 7E, HAP and TAP particulate metals are regulated indirectly (i.e., surrogate limits) via facility wide fugitive dust requirements, material throughput and operational limits, PM emission limits, and control device requirements. DEQ views these limits as sufficient to ensure compliance with applicable HAP and TAP requirements based on estimates of potential emissions and predicted modeled TAP concentrations, and the accuracy of autoclave and refinery emission sources estimates will ultimately be determined via testing as required by NESHAP Subpart 7E.

Comment 7 – NPT: Fugitive emissions from the tailings storage facility

The permit does not, but must, include the potential for fugitive emissions from the tailings storage facility. There are no fugitive emissions from the tailings storage facility in the emissions inventory or appended to the Statement of Basis. Significant fugitive emissions were seen from the tailings storage facility of the Thompson Creek Mine based on an aerial tour of the Thompson Creek Mine, and similar emissions are expected from the project. In addition to PM10 emissions, fugitive tailings would have higher metals and cyanide concentrations than other fugitive emissions at the mine and would thus be more injurious to the environment. The potential to emit concentrations of PM10, metals, and cyanide from the tailings storage facility should be included in the emissions inventory and modeled emissions scenarios and appropriate emissions controls should be identified in the permit.

DEQ Response:

A response and HAP/TAP application addendum were submitted by PRI that included new HAP and TAP emission estimates, including cyanide and carbon disulfide from the TSF (tailings storage facility). In the response to a request for additional information, PRI confirmed it will have one TSF as identified in Figure 1 of the PTC application, in the Meadow Creek drainage upstream of the Hangar Flats pit and adjacent to (west of) the Hanger Flats Development Rock Storage Facility (DRSF). The TSF has the potential to emit mercury and hydrogen cyanide (HCN) due to evaporative flux. Spent ore from the mill will be pumped (not hauled) to the TSF as thickened tailings slurry. This process will not create criteria pollutant nor HAP/TAP emissions. The majority of the TSF surface will be either wet beach or a supernatant liquid, with some dry areas. PM from dry beach areas was estimated using EPA's wind erosion equations in AP-42 Section 13.2.5, Industrial Wind Erosion. These equations predicted that a fastest-mile wind speed of over 19 meters per second (m/s) is required to cause windblown dust from a flat, dry tailings surface. Based on SGP onsite meteorological data, the highest fastest-mile wind speed recorded was only 12.5 m/s, resulting in no estimated emissions of windblown dust and dust metal emissions from the TSF. While these emission estimates were supported, reasonable precautions to minimize dust from any high-wind events forecast to exceed 25 mph (11.2 m/s) is required in the permit (Permit Condition 2.5).

Comment 8 – NPT: Mercury emissions from the lime kiln

Mercury emissions from the lime kiln are not quantified. Although there are no Hg limits or controls proposed for emission units associated with the lime production in the permit, there is Hg in the carbonate rock at Stibnite and Hg in the limestone will be released from the lime kiln. Mercury emissions should be accurately characterized, and there should be controls for Hg on the lime kiln regardless of the legal loopholes in the Idaho Administrative Procedures Act rules.

DEQ Response:

A response and HAP/TAP application addendum were submitted by PRI that included new HAP and TAP emission estimates, including emissions from the lime kiln based on a metals concentration profile of the source limestone.

Mercury emissions from the lime kiln were estimated by assuming all mercury in the limestone feed is volatilized and emitted. For each non mercury metal HAP and TAP, emissions from the lime kiln were calculated as PM emissions multiplied by the median metal concentration measured.

As detailed in the Mercury Emission Standard section of the Statement of Basis, as a source category lime manufacturing plants are subject to NESHAP 40 CFR 63, Subpart AAAAA (5A) and as such HAP emissions from the lime kiln (including mercury) are therefore exempt from this standard. Although there are no NSPS and NESHAP standards applicable to the SGP lime kiln, a baghouse control device was proposed and is required for the lime kiln (Permit Condition 5.11).

Comment 9 – NPT: Fugitive dust and VOC emissions from the on-site landfarm

The potential for fugitive dust and volatile organic compound ("VOC") emissions from the on-site landfarm has not been included in the emissions inventory. The Project will be operating a landfarm onsite, as identified in the Forest Service Stibnite Gold Project Draft Environmental Impact Statement (EIS). As identified by the Federal Remediation Technologies Roundtable, "landfarming sites must be managed properly to prevent both on-site and off-site issues with contamination. Leachate collection, fugitive dust emission control, adequate monitoring, and environmental safeguards are required." Landfarm emissions should be characterized and subject to facility-wide fugitive dust and VOC control requirements.

DEQ Response:

Although identified as a possible onsite activity in the Plan of Restoration and Operations (PRO), PRI did not propose landfarming activities at the SGP within the PTC application. In the response to a request for additional information, PRI confirmed that landfarming activities are not currently planned. As a result, these activities are not authorized by the PTC. Any activities or operating scenarios not regulated by the permit or otherwise addressed in the application are not expressly permitted, and any changes proposed after permit issuance will need to be evaluated as to whether they may require modification or revision of the PTC.

Comment 10 – NPT: Modeling assumptions

The modeling assumptions used for the access road are incorrect. The modeling assumptions in Table 29 of the Statement of Basis state the access road length is 1.6 miles within the Project boundary, however, the access road proposed by Midas Gold is longer, either three or four miles in length depending on the option.

DEQ Response:

The source ACCRD (Access Road) listed in Table 28 of the Ambient Air Quality Impact Analyses Review Memorandum (Appendix B to the Statement of Basis), refers to the access road portion within the SGP operations boundary that runs from the south gate to the process area. ACCRD is characterized by dust emissions generated from travel of maintenance equipment, light-duty pickup trucks and buses used for employee, visitor, and contractor transportation, and heavy-duty trucks used for cargo (including fuel, consumables, machine parts, ore processing supplies, ore concentrate, etc.) and services (including food supplies, trash, recyclables, etc.) transportation. ACCRD was represented in the model as a series of LINE sources laid along the actual route. The length of ACCRD is 1.6 miles (verified by DEQ by comparing a graphical representation of the modeling input file to aerial photographs on Google Earth) and does not change with modeling scenarios.

Comment 11 – NPT: Density of limestone

The density of limestone in the modeling is unrealistically low at 1.09 g/cm3. A more universally accepted range for limestone density should be used in the modeling.

DEQ Response:

There were 15 emission sources that were modeled using a limestone density of 1.09 g/cm3 ("limestone, dust" in The Engineering Toolbox): LS1-LS12, LSBM, LK, and LCR. The Engineering Toolbox lists a higher density of 1.36 g/cm3 for "limestone, crushed." An argument could be made that this higher density value is more appropriate for some of those 15 emission sources. However, a lower density is the more conservative assumption because it allows material to remain airborne for a longer period of time. Hence, theoretically a lower limestone density suggests higher modeled concentrations. To satisfy the commenter's concern, DEQ performed a sensitivity analysis using a density of 2.74 g/cm3 for those 15 emission sources (while keeping everything else in the model constant). This density value is on the higher end for solid limestone. Results from DEQ's sensitivity analyses show that the modeled particulate concentrations remain unchanged. This is consistent with DEQ's source group analyses in Table 27 of the Ambient Air Quality Impact Analyses Review Memorandum (Appendix B to the Statement of Basis), which show that process/ancillary sources (such as those 15 emission sources) contribute an inconsequential amount to the modeled design concentrations.

Comment 12 – NPT: Commence construction

If Midas Gold does not commence construction of an emissions unit within two years, and an extension to the PTC permit is needed, DEQ should re-open the tribal and public comment period. Midas Gold is sure to be revising its proposed construction and operations scenarios during that time, which will lead to revisions in emissions scenarios and updated PTC permit application submissions. DEQ should provide the public with the opportunity to comment on a PTC permit renewal and any updated application materials submitted by Midas Gold since its original application.

DEQ Response:

General Provision 7.5 states that the permit will expire if construction has not commenced within two years of permit issuance. If construction has not commenced, any request would be evaluated by DEQ for any additional applicable requirements prior to granting an extension.

Comment 13 – ICL: Publicly available report and records

Inspection reports and permit compliance records need to be publicly available on the DEQ website. We will also be asking the Forest Service to provide a link to the DEQ website as part of the Forest Service's implementation and monitoring website. Posting this already-existing information on the agency webpages will eliminate the need for Public Records Requests and increase both project transparency and applicant accountability.

DEQ Response:

At this time, only issued permitting documents relating to air quality are posted online on DEQ's "Issued Permits and Water Quality Certifications" webpage.

Application materials (and Tier I permit-required plans) are posted during the public comment period for each respective permitting action on DEQ's "Public Comment Opportunities" webpage, and inspection reports and compliance documents are not currently posted online.

As public records, DEQ encourages interested parties to request copies of such documents. Public record requests can be made online at DEQ's "Public Records Request" webpage.

Comment 14 – SSFS: Impact analysis

The impact analysis underestimates potential emissions by assuming the emissions scenario will be the same throughout the entire life of mining.

Emissions from blasting, mining, and materials management were modeled as a volume source inside a pit at year seven, after several years of mining will have deepened the pits. Emissions escaping from the pits from blasting and associated ore transport and handling would be greater and have more impact per volume of ore processed in the earlier years when pits are less deep. Emissions may also vary due to spatial distribution over the different years the mine is in operation. Thus, the predicted ambient air quality impacts may be underestimated by not analyzing the maximum potential daily emissions during earlier years when the pits are less deep or not analyzing the different spatial distribution or potentially different concentrations from one pit and disposal area to the next.

DEQ Response:

Emissions from mining operations (drilling, blasting, material extraction and movement, mobile mine machinery use, and other ancillary sources) vary for each year of the life of the mine (LOM). However, for the modeling analyses, the mining operation potential emissions were estimated using conservatively high maximum activity rates as limited in the permit and summarized in Table 3 of the Ambient Air Quality Impact Analyses Review Memorandum (Appendix B to the Statement of Basis), (i.e., extracting and hauling 180,000 tons per day (T/day) of ore or development rock). The maximum mine production rate is approximately 42.7 MMT/yr; however, a maximum daily production rate of 180,000 T/day used for potential emission calculations results in a conservatively higher production rate of approximately 65.7 MMT/yr, approximately 50 percent higher than the projected production rate. Also, the modeled emissions were based on maximum short-term activity rates occurring continuously, including blasting emissions based on one blast occurring every hour for the applicable 1-hour standards, and two blasts occurring every day for the applicable 24-hour standards. Actual blasting is not expected to exceed one blast per day.

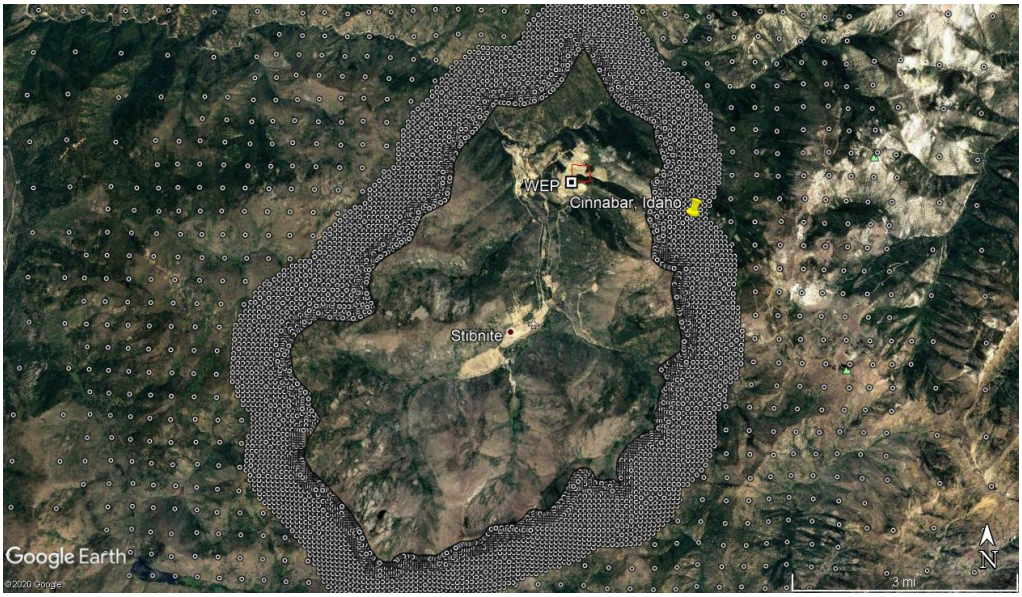
Accurately accounting for all potential configurations is effectively impossible. DEQ contends that other conservative assumptions in analyses (such as assuming that design value modeled values occur simultaneously with design value background concentration values) will offset any unintended underestimation of emissions that occur because of uncertainties and variabilities.

Comment 15 – SSFS: Cinnabar site

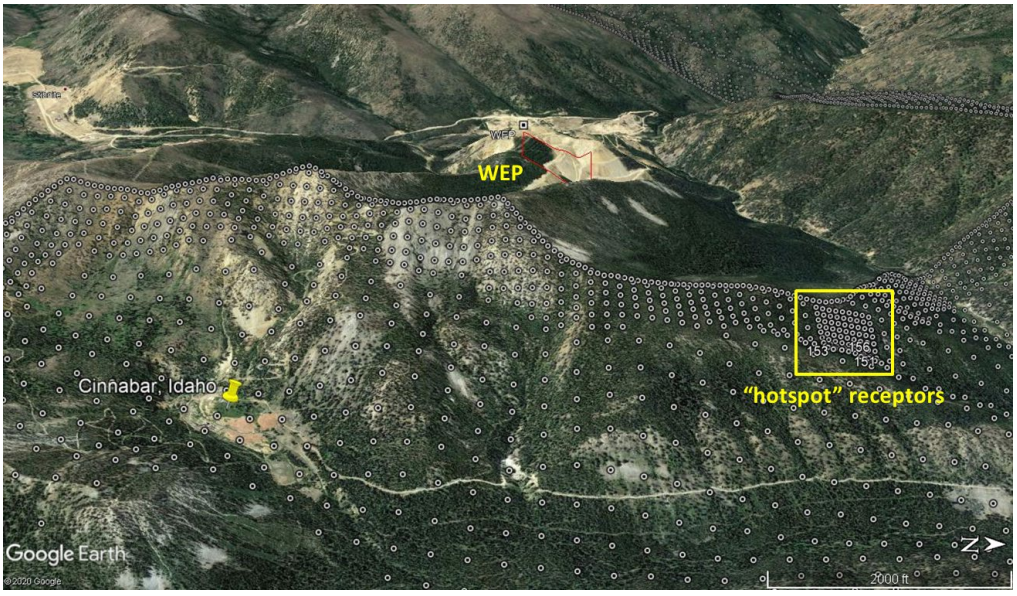
The impacts analysis failed to consider particulate ambient air concentrations at the Cinnabar site. The permit application proposes mining rates of 180,000 tons material per day from the West End pit. The West End pit is located in the Sugar Creek drainage about two kilometers northeast of Cinnabar Peak. Modeling shows that particulate ambient air concentrations at Cinnabar Peak would exceed NAAQS limits and qualitatively show that lower mining rates at the West End pit of about 120,000 tons per day would be required in winter to barely comply with ambient air quality standards. There is no demonstration of NAAQS compliance for winter conditions. Therefore, a permit that allows operations during winter conditions cannot be issued. (If the permit applicant argues that the scenario modeled isn't representative, the burden is on the applicant to provide a representative modeling analysis. If there is less activity in the winter, then there would be more activity in the warmer seasons where there would be a serious potential for dust to reach the annual levels throughout. The draft permit's dust control efforts would be challenged to meet the levels modeled and needed to show compliance assuming 93% control efficiency.)

DEQ Response:

The figure below shows the location of West End Pit (WEP) with respect to Cinnabar. It shows that WEP is located to the west, not northeast, of Cinnabar.



The figure below (note that north is facing to the right) shows the locations of WEP, Cinnabar, and the hotspot receptors that show modeled violations of 24-hour PM10 NAAQS when using the BULKRN met dataset.



To evaluate the degree of NAAQS compliance confidence for 24-hour PM_{10}, DEQ performed a weight-of-evidence analysis as described in Section 4.1.4 of the Ambient Air Quality Impact Analyses Review Memorandum (Appendix B to the Statement of Basis). NAAQS compliance was demonstrated in the application using meteorological data processed with an EPA-approved method using regional cloud cover to calculate stability parameters rather than site-specific monitored solar radiation and measured temperature differences with height.

All modeled violations for 24-hour PM_{10} shown by sensitivity analyses, using BULKRN met data at a proposed mining rate of 180,000 tons material per day (T/day), occur during winter. During winter, fugitive road dust emissions are likely overestimated because of the higher moisture content of material handled or driven over. The permit requires at least 93.3% control of maximum potential fugitive emissions, but the fugitive emissions may in fact be controlled by more than that, especially during winter and periods of precipitation. Also, background concentrations in such remote areas during winter are generally much lower because of the absence of wildfires and dust-generating sources. Background PM_{10} concentrations represent the higher end of the

distribution. Accounting for reduced fugitive emissions during wintertime conditions and accounting for lower background concentrations will easily demonstrate compliance with the 24-hour PM_{10} NAAQS without the need to rerun the model for wintertime conditions. The 180,000 T/yr mining rate was established as a permit limit (Permit Condition 3.5) and is reflected in the modeling for all months of operation.

DEQ is confident that operation of the SGP will not cause or contribute to a violation of NAAQS. This is based on: (1) the submitted application materials and analyses, (2) DEQ's supplemental analyses, and (3) the assumption that the facility is constructed and operated as described in the application and limited by the PTC.

Comment 16 – SSFS: Modeling topography

Modeling using straight-line dispersion of emissions fails to account for the topography of the area, and results in an underestimation of the impacts. The near-field analyses of impacts within 10 kilometers of the project site all assume straight-line dispersion based upon onsite surface winds measured in a central location within the project area, and are only representative of a small area near the monitoring station. Actual dispersion in this area is terrain driven, flowing up, down, and around valleys, and over ridges to the next valley. Assessing impacts using straight-line dispersion therefore may not reflect impacts at all locations and actually underestimate impacts of emissions.

DEQ Response:

DEQ concurs with the commenter that dispersion in complex mountainous terrain is not well characterized by straight-lined Gaussian dispersion models utilizing a single wind direction and speed. DEQ also concurs that a potentially more accurate way to assess impacts of a source in complex terrain would be to use a more refined model with terrain-influenced meteorology and pollutant concentration "memory" from one time-step to the next, such as CALPUFF or other puff models. The objective of the air impact analysis is to satisfactorily evaluate whether the proposed project will not cause a violation of an applicable air quality standard or increment.

The Gaussian, straight-line model AERMOD has been identified by EPA as the "regulatory guideline model" for stationary source permitting, as established in 40 CFR 51, Appendix W (Guideline on Air Quality Models). AERMOD was used by PRI to evaluate NAAQS and TAP increment compliance, and DEQ contends that it is appropriate for this purpose. DEQ also contends that results obtained, using the input parameters described in the application, assure compliance with a high degree of confidence, thereby justifying permit issuance. Also, the PRI PTC is a minor source permit, and use of resource-intensive models such as CALPUFF would be overly burdensome for such projects.

Straight-line Gaussian dispersion models tend to over-predict impacts in complex terrain, especially with increasing distance from the source. However, improved algorithms in the AERMOD model do address terrain effects at a reasonably conservative (over prediction of concentrations) level. Also, studies have generally demonstrated that Gaussian models perform reasonably well at estimating the magnitude of maximum impacts, especially at longer averaging periods; however, they perform poorly at predicting the location and time of maximum impacts. The EPA approved AERMOD Gaussian model has been established as acceptably accurate for assessing air quality impacts from stationary sources, even in rather complex terrain.

Comment 17 – SSFS: Hg from terrestrial sources

The impact analysis fails to account for release of Hg from terrestrial sources. The impacts analysis does not account for Hg respiration from vegetation after uptake. Uptake of Hg by vegetation is the largest point of entry for atmospheric Hg into terrestrial environments. Due to the long history of mining in the area, the predicted impact from respiration is 19% above background levels. The impact analysis did not account for this potential release of Hg.

DEQ Response:

Mercury modeling was not performed by the applicant for the PTC application because it was not required by regulation.

Comment 18 – SSFS: Post-mining conditions

There are no air impact analyses regarding post-mining conditions. The entire air quality analysis says nothing about post-mining conditions, other than the applicant will attempt to revegetate. Because of the climate, metals, and chemicals in the area, there will be limits to the effectiveness of revegetation. The area will remain a source of dust and erosion contaminated with heavy metals. The permit should account for this source of emissions.

DEQ Response:

DEQ's requirement for permit issuance is to assure that all operations performed will not cause a violation of NAAQS or a TAP increment. DEQ is confident that emissions and impacts to ambient air resulting from post-mining conditions will be less than those associated with activities during active mining or ore processing.

In the response to a request for additional information, PRI confirmed that post-mining activities at the SGP will not commence until mining is completed in approximately 12 years or more. Post-mining activities will remain subject to permit conditions, including pertinent facility-wide conditions such as fugitive dust, visible emissions, and odor requirements (Permit Conditions 2.1–2.15) and operating limits such as the hauling limit (Permit Condition 3.5). Any activities or operating scenarios not regulated by the permit or otherwise addressed in the application are not expressly permitted, and any changes proposed after permit issuance will need to be evaluated as to whether they may require modification or revision of the PTC.

Comment 19 – NPT: Post-mining conditions

Permit Condition 2.1 should include secondary NAAQS factors when considering what are reasonable precautions. In addition to "...proximity of dust-emitting operations to human habitations and/or activities and atmospheric conditions which might affect the movement of PM...," DEQ should include public welfare protection, proximity to critical habitats, and potential for damage to the environment.

DEQ Response:

PTC permit issuance requires demonstration of compliance with NAAQS and TAP increments. As stated in Section 4.1.2 of the Ambient Air Quality Impact Analyses Review Memorandum (Appendix B to the Statement of Basis), "Modeling for ozone and secondary $PM_{2.5}$ were not performed for this minor stationary source. These analyses are typically associated with applications for major stationary sources. Nonetheless, taking the ratio of the VOC, NO_x, and SO_2 emissions from the SGP facility by the emissions and resulting concentrations of O_3 and secondary $PM_{2.5}$ from EPA's modeled emission rates for precursors (MERPs) guidance yields estimated O_3 and secondary $PM_{2.5}$ concentrations of less than 1 ppb of O_3 and less than 0.1 $\mu g/m^3$ of $PM_{2.5}$ (24-hour and annual) for the SGP facility. These estimated concentrations have a negligible effect on compliance demonstration with the NAAQS."

Comment 20 – NPT: Recordkeeping

There is discrepancy in frequency of the recordkeeping Permit Condition 2.2 ("each day") and inspection Permit Condition 2.4 ("every 12 hours"). Recordkeeping frequency should be adjusted to match the inspection frequency.

DEQ Response:

Permit Condition 2.4 was updated for consistency with the inspection frequency as requested and to ensure that fugitive emissions are reasonably controlled.

Comment 21 – NPT: Winter conditions

Prior to onset of winter conditions each year, the condition of the haul and access roads should be assessed before freeze-up and required maintenance needed to maintain the roads through the winter months should be performed, and any preventative dust suppression activities should be completed before the roads are frozen and liquid application of suppressants or water are unrealistic.

DEQ Response:

Permit Condition 2.6 was updated as requested to include this requirement to help ensure that fugitive emissions are reasonably controlled.

As discussed previously, DEQ believes as suggested that frequent monitoring (at least once every 12 hours) will be required to ensure sufficient application of chemical and water dust suppression and that this is a reasonable precaution in advance of the winter season to minimize fugitive dust from roadways.

Comment 22 – NPT: Designate employees

DEQ should require the permittee to designate specific employees to be the on-site visible and fugitive emissions observers solely responsible for fulfilling the ongoing PTC permit requirements of conducting the required test methods and procedures of EPA Reference Method 9 and Method 22, initiating any appropriate corrective actions, and completing and maintaining recordkeeping.

DEQ Response:

Although designation of specific employees is not required by the permit or by regulation, training on the specified methods is required for observers. Because certification is required for Method 9, only trained employees will be able to perform once-per-day observations of point sources as required by Permit Condition 2.10. Similarly, only employees with an understanding of the procedures of Method 22 will be able to perform the 12-hourly observations of fugitive sources as required by Permit Condition 2.4.

Comment 23 – NPT: Completeness requirement

DEQ should have a 95% completeness requirement for recordkeeping of fugitive and visible emissions inspection records.

DEQ Response:

The permit requires that records be maintained at all times to ensure compliance (General Provision 7.10) and that records be retained for a period of five years.

Comment 24 – NPT: AMP

The Statement of Basis refers to an Access Control Plan (ACP) on page 39 and an Access Management Plan (AMP) on page 24, while the PTC permit refers to an Access Management Plan (AMP) on pages 9 and 10. If these are the same plans, we suggest DEQ be consistent in the naming of this plan.

DEQ Response:

The Statement of Basis was updated for consistency with the permit, with all instances now referencing the Access Management Plan as intended.

Comment 25 – TIFO: COC impacts

Both the NAAQS and COC-related analyses provided are largely performed for “average” conditions. Numerous EPA guidance and sound scientific practice indicate that analyses of potential COC impacts should

be conducted at expected typical (central tendency) and reasonable maximum concentrations, with appropriate discussion of the uncertainty and likelihood of worst-case conditions. Even if the input values were shown to be coherent, the modeling presented in the PTC fails with regard to worst case analyses. Even qualitative evaluation for COCs falls short, as there is no discussion of the uncertainty associated with the assertions and conclusions.

DEQ Response:

Permit issuance requires the application demonstrate to DEQ's satisfaction that impacts of applicable pollutants from applicable sources not exceed established standards, as stated in IDAPA 58.01.01.203.02 and 203.03. Agency "satisfaction" represents high confidence of compliance with standards, but it does not require certainty. Also, IDAPA 58.01.01.202.02 (Application Procedures, Estimates of Ambient Concentrations) requires that "All estimates of ambient concentrations shall be based on the applicable air quality models, data bases, and other requirements specified in 40 CFR 51, Appendix W (Guideline on Air Quality Models)." Appendix W dictates the models to be used for air permitting, including those programs that process hourly meteorological data and terrain data used in the models. DEQ-specific guidance and procedures are also provided in the *Idaho Air Modeling Guideline* (*State of Idaho Guideline for Performing Air Quality Impact Analyses*, Idaho Department of Environmental Quality, September 2013, State of Idaho DEQ Air Doc. ID AQ-011. Available at http://www.deq.idaho.gov/media/1029/modeling-guideline.pdf).

The analyses to evaluate compliance must be performed using established methods and data to the extent such methods/data are reasonably representative and available. The following are considered in evaluating whether the compliance demonstration is to DEQ "satisfaction":

- Consistency of methods/data used with requirements of Appendix W and the *Idaho Air Modeling Guideline*.
- Accuracy or conservatism of emission estimates, considering potential uncertainty in estimates and variability in parameters affecting emissions. Permit-required control measures, and associated verification of such measures, affect DEQ confidence of emission estimates.
- Modeled impact levels, the extent of elevated impacts, and the frequency of elevated impacts.
- Potential for exposure. Although the ambient air standards and TAP increments must be met at all ambient air locations, DEQ reviewers exercise a higher degree of scrutiny when modeled levels approach standards and have the potential to impact areas where people are likely to be present, including homes, schools, businesses, and hospitals.

The analyses performed for permit issuance differ from those performed for risk assessments and similar analyses. DEQ does not attempt to characterize the uncertainty and variability in results and analytical input variables beyond that needed to attain agency satisfaction of compliance. Furthermore, the application and the Ambient Air Quality Impact Analyses Review Memorandum (Appendix B to the Statement of Basis), discuss the uncertainty and variability in key variables at an appropriate level considering the magnitude and extent of impacts.

Comment 26 – ICL: Reports and records

Inspection reports, air quality monitoring data, and permit compliance records need to be publicly available on the DEQ website. We will also be asking the Forest Service to provide a link to the DEQ website as part of the Forest Service's implementation and monitoring website. Posting this already-existing information on the agency webpages will eliminate the need for superfluous Public Records Requests and increase both project transparency and applicant accountability.

Based on the information provided in our comments, we request that DEQ return the application to Midas Gold as incomplete. Once Midas Gold has resubmitted a complete application and DEQ has made the appropriate modifications to the permit, the permit should be re-noticed for public comment.

DEQ Response:

As discussed previously, issued permitting documents relating to air quality are posted online on DEQ's "Issued Permits and Water Quality Certifications" webpage.

Application materials (and Tier I permit-required plans) are posted during the public comment period for each respective permitting action on DEQ's "Public Comment Opportunities" webpage.

Because updates to the application, the proposed permit, and technical review were made, an additional 30-day public comment period will also be provided to allow for review and comment on these updates.