



RESPONSIVENESS SUMMARY

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

AIR QUALITY DIVISION

**RESPONSIVENESS SUMMARY
TO
PUBLIC COMMENTS**

**South32 Hermosa Inc.
Permit No. 96635**

Public Comment Period: January 5, 2024 to February 26, 2024

Public Hearing: February 26, 2024

June 10, 2024



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List of Abbreviations

A.A.C.	Arizona Administrative Code
ADEQ	Arizona Department of Environmental Quality
A.R.S.	Arizona Revised Statutes
ATSDR	Agency for Toxic Substances and Disease Registry
BACT	Best Available Control Technology
CFR	Code of Federal Regulations
CAM	Compliance Assurance Monitoring
EJ	Environmental Justice
EPA	Environmental Protection Agency
HAPs	Hazardous Air Pollutants
Mn	Manganese
MRL	Minimal Risk Level
MSHA	Mine Safety and Health Administration
MW	Megawatt
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO ₂	Nitrogen Dioxide
NO _x	Nitrogen Oxides
NSPS	New Source Performance Standards
NSR	New Source Review
Pb	Lead
PM	Particulate Matter
PM ₁₀	Particulate Matter less than 10 µm nominal aerodynamic diameter
PM _{2.5}	Particulate Matter less than 2.5 µm nominal aerodynamic diameter
PSD	Prevention of Significant Deterioration
PTE	Potential to Emit
QAPP	Quality Assurance Project Plan
TSD	Technical Support Document
TSF	Tailings Storage Facility
SO ₂	Sulfur Dioxide
TSD	Technical Support Document
tpy	tons per year
VOCs	Volatile Organic Compounds

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Table 1: List of Commenters51

I. BACKGROUND

This document contains the Arizona Department of Environmental Quality’s (ADEQ or “Department”) responses to comments received on proposed Air Quality Permit No. 96635 for South32 Hermosa Inc. located in Santa Cruz County, AZ. South32 Hermosa Inc. is an underground mining facility located at 749 Harshaw Road, Patagonia, Arizona 85624. ADEQ accepted comments on the Draft Permit and technical support document (TSD) from January 5, 2024 to February 26, 2024. The Department held a public hearing on February 26, 2024 at the Cafeteria Room at Patagonia Elementary and High School located at 200 Naugle Avenue, Patagonia, Arizona 85624.

The Department received comments from seventy one (71) commenters on the draft permit during the public comment period including the public hearing. Table 1 below lists the commenter, any organization they may represent, and the format of their comment(s).

The Department has grouped the comments into subject areas that focus on different aspects of the proposed draft permit. While the Department has made every effort to group comments into subject areas, some comments may overlap multiple subject areas. Therefore, ADEQ encourages the public to read the entire responsiveness summary. For some comments, the Department has included direct quotes of the comments extracted from the original letter or public hearing transcript. However, ADEQ has shortened many of the comments received to ensure clarity and conciseness. In some cases, the same or similar comments were submitted by multiple commenters. Instead of duplicating each of the comments and responses, ADEQ has listed the comment once and identified the commenters who submitted the same or similar comment.

II. ADEQ RECOMMENDATION

ADEQ recommends the issuance of Air Quality Permit No. 96653 to South32 Hermosa Inc. for the construction and operation of an underground mine that will be located in Patagonia, Arizona in Santa Cruz County. The exploration and development of this area is known as the Hermosa Project. The proposed air quality permit for the facility identifies the applicable rules from the Arizona Administrative Code (A.A.C.) and the Code of Federal Regulations (CFR) which establishes practically enforceable emissions limitations and standards. In addition, it establishes appropriate compliance procedures, including requirements for monitoring, recordkeeping, reporting and performance testing. The facility will be required to carry out these procedures on an ongoing basis to demonstrate that the mine is operating within the limitations established by the air quality permit.

The Department considered comments received during the public comment period into the decision to grant the proposed air quality permit. Any changes made to the proposed air quality permit that occurred as a result of a comment received can be found in Section IV.

III. COMMENTS AND/OR QUESTIONS

A. GENERAL

Comment 1: The commenters oppose the issuance of the proposed air quality permit and state that it must be denied by the Department.

See Commenters: 2, 3, 9, 11, 12, 16, 21, 30, 31, 33, 34, 37, 38, 39, 41, 43, 44, 47, 49, 51, 61, 63, 65, 66, 67, 68, 71

ADEQ Response:

The Department acknowledges the comments. ADEQ responses to specific comments on this matter can be found later in the document.

Comment 2: The commenters state the proposed air quality permit fails to comply with all applicable requirements under the Clean Air Act and the Clean Water Act.

See Commenters: 20, 25, 28, 30, 31, 33, 36, 37, 38, 39, 40, 41, 42, 43, 45, 47, 48, 50, 51, 53, 54, 55, 56, 57, 63, 64, 65, 66, 67, 70

ADEQ Response:

The agency has included all legally-applicable requirements in the air quality permit from state and federal rules. However, water quality requirements are not relevant to this permit and are not included. The facility has to obtain separate permits for applicable water program issues.

Comment 3: The commenters request to delay issuing the proposed air quality permit until certain regulations and/or standards become available, such as regulations for hard rock underground mining, regulations for toxic gas emissions from explosives, standards for manganese emissions, and standards for the new lead deposition standards in 2026 or until EPA revisits the lead NAAQS.

See Commenters: 1, 2, 3, 4, 9, 10, 11, 12, 16, 21, 26, 30, 31, 33, 34, 37, 38, 39, 40, 41, 42, 43, 44, 47, 49, 51, 54, 60, 61, 62, 63, 65, 66, 67, 68, 69, 71

ADEQ Response:

Under Arizona Revised Statutes (A.R.S.) § 41-1030, the Department cannot delay action on a permit based on the premise that there is not yet an applicable regulation promulgated. In addition, as stated in the application, emissions from underground operations and blasting are removed by the mine ventilation system and exhausted through the vent raises. The criteria air pollutants and hazardous air pollutants (HAPs) resulting from the underground operations were either included in the ambient air dispersion analysis while compared to the National Ambient Air Quality Standard (NAAQS) or evaluated against toxicological guidelines such as Arizona

Ambient Air Concentrations and Minimum Risk Levels set by the Agency for Toxic Substances and Disease Registry (ATSDR).

Furthermore, emissions from underground operations are not emitted at levels that exceed the applicable standards, even when combined with estimates of surface emissions. With respect to working conditions within the mine, ADEQ does not have jurisdiction over the matter through the air quality permit that addresses ambient emissions and impacts. It should however be noted that under A.R.S. § 49-448.1, South32 will need to comply with all applicable Mine Safety and Health Administration (MSHA) standards.

Comment 4: Commenters state that the facility should be permitted as a major source under the Clean Air Act's Prevention of Significant Deterioration (PSD) program and that it should comply with Best Available Control Technology (BACT) requirements.

See Commenters: 18, 20, 22, 25, 26, 28, 29, 30, 31, 32, 33, 36, 37, 38, 39, 40, 42, 45, 47, 48, 50, 53, 55, 56, 57, 61, 63, 64, 65, 66, 70

ADEQ Response:

The facility will be permitted as a major source since it has the potential to emit above major source thresholds for particulate matter (PM) with an aerodynamic diameter lesser than 10 microns, nitrogen oxides (NO_x) and hazardous air pollutants as defined in A.A.C. R18-2-101.75. b and c. However, it does not have the potential to emit regulated pollutants above PSD thresholds as defined in A.A.C. R18-2-401.13.b. The facility's potential to emit is illustrated in the technical support document (TSD). Since the PSD program does not apply to the facility, BACT requirements are not applicable.

Comment 5: The Commenter mentions there is a lack of resources at the state and EPA. There are no regulations for hard rock underground mining.

See Commenter: 1

ADEQ Response:

The Department acknowledges the comment. The permit includes all the applicable requirements for operations like the Hermosa mine.

Comment 6: The commenter states the area surrounding the facility will be polluted.

See Commenter: 6

ADEQ Response:

As documented by the technical support document, South32's dispersion modeling analysis and ADEQ's rigorous technical review of it confirmed that the emissions from the proposed facility will comply with all applicable federal ambient standards.

Comment 7: The commenter is concerned about soil pollution.

See Commenter: 12

ADEQ Response:

There are no soil pollution requirements prescribed in Title 18, Chapter 2 of the Arizona Administrative Code. Therefore, the Department does not have the authority to consider soil pollution requirements in the context of this permit.

Comment 8: The commenter states concerns with various conditions being "unenforceable as a practical matter".

See Commenter: 18, 20, 22, 25, 26, 28, 30, 31, 32, 33, 36, 37, 38, 39, 40, 42, 45, 47, 48, 50, 51, 53, 54, 55, 56, 57, 61, 63, 64, 65, 66

ADEQ Response:

The Department has appropriately identified applicable state and federal air quality rules that apply to the facility. Emissions limitations and/or standards included in the proposed air quality permit will be verified by monitoring, recordkeeping and/or reporting requirements. In addition, testing requirements are required for applicable air pollution control devices. For example, the facility is required to conduct performance tests on the stacks of the dust collection systems. This allows the facility to demonstrate compliance with the emissions limitations and/or standards for the dust collection systems. Hence, ADEQ has determined that the terms of the permit are enforceable as a practical matter.

B. AMBIENT AIR MONITORING

Comment 9: The commenter notes concerns about the facility conducting its own ambient air monitoring.

See Commenters: 5, 25, 33, 39, 40, 41, 45, 48, 60, 61, 64, 67

ADEQ Response:

Even though the facility will conduct its own ambient air monitoring, the Department reviewed and approved its quality assurance project plan (QAPP). The QAPP governs the installation, operation and maintenance of ambient air monitors. The facility is required to submit quarterly and annual reports to demonstrate its adherence to the quality assurance requirements. Self-monitoring is a very common practice in permitting actions nationwide.

Comment 10: The commenter recommends ambient air monitors to be relocated or added to ensure dust control measures are adequate.

See Commenters: 8, 60

ADEQ Response:

Under the Minor New Source Review (NSR) program, the facility must demonstrate that the proposed project will not interfere with attainment and maintenance of NAAQS. The facility has fulfilled this requirement using a modeling analysis. In accordance with Appendix W, modeling is the preferred method for demonstrating compliance with the NAAQS and for determining the most appropriate emissions limitations for new and existing sources. When a preferred model is available, model results, including the appropriate background, are sufficient for air quality demonstrations and establishing emissions limitations. Following the EPA's and Department's Guidance, the facility performed a modeling analysis using the EPA's preferred model known as AERMOD. The modeled results, in combination with the background concentration, demonstrate compliance with NAAQS. Therefore, there is no legal requirement to mandate the facility to install "primary" ambient air monitors along the property boundary and use ambient air monitoring data for the NAAQS compliance demonstration.

The monitoring program outlined in the permit is not intended for NAAQS compliance demonstration, but rather focuses on community impacts. Its goal is to provide the community with data about potential cumulative impacts resulting from the proposed air quality permit, in conjunction with existing natural and human-made sources. The Brush Hill monitor was chosen because of its location being directly downwind of the proposed area, situated between the facility and potentially affected local

communities. Other factors influencing its selection include site accessibility, power availability, and security. It should also be addressed that the road leading from the south of Brush Hill Ranch to Patagonia is fully paved, including the section passing close to the monitor. This paving ensures minimal impact from road dust on the monitor.

The Department has determined that the Brush Hill monitor will adequately provide regional air quality data and the exposure levels to the communities once the facility is built and operational. As such, there is no need to add additional "remote" monitors.

Comment 11: The commenter states the proposed air quality permit does not properly address ambient air monitoring, sampling and analysis of PM_{2.5}, PM₁₀, manganese and lead.

See Commenter: 8

ADEQ Response:

The Department has included all applicable requirements in the proposed air quality permit to enforce the containment of the pollutants mentioned above within the facility's property boundary. While the Department does not have the authority to further regulate emissions of federal hazardous air pollutants (HAPs) such as manganese at this time, it has limited particulate matter emissions that contain manganese. Moreover, lead concentrations were conservatively estimated by assuming that they are in the 75th percentile of substrate readings. Additionally, the facility will implement an extensive fugitive dust control plan to minimize the amount of particulate matter emissions of the pollutants mentioned above. If ambient particulate matter concentrations are held at or below the expected levels, it is expected that ambient lead concentrations will also be held at or below acceptable levels.

C. PERMIT APPLICATION

Comment 12: The commenters express concerns over climate change even if the facility were to switch to line power as indicated by the permit application which requires power generation elsewhere and thus, defeats the purpose according to the commenters.

See Commenters: 12, 13, 41, 62

ADEQ Response:

Since there is inadequate power available at the site, the facility will use a set of generators to start mining operations. They have opted to use more natural gas generators instead of diesel generators which are cleaner. Once the facility switches to line power when it becomes available, emissions would be significantly reduced. The facility would remove and/or use their generators for emergency purposes. In addition, line power may come from cleaner sources such as solar and renewable energy as electric utility companies are actively transitioning away from fossil fuels.

Comment 13: The commenters note the permit application does not clearly explain different mining plans and/or operating scenarios.

See Commenters: 12, 41

ADEQ Response:

The facility submitted two (2) mining plans – Plan I and Plan II to the Department. In accordance with the mining plans, the facility has developed comprehensive road networks for air dispersion modeling and emission calculations. Figures 2-3, 2-4 and 2-5 in the modeling report detail road routes as well as the ambient air boundary. The facility has provided detailed information about vehicle types, models, and materials transported along each road segment in the emission inventory spreadsheets submitted to the Department. Vehicle types are included in permit application in Table A-35a. Additionally, the facility has supplied maps displaying the road routes within the property for both Plan I and Plan II. The Department has verified the transport routes, ensuring consistency among the routes outlined in the mining plan, the emission calculations, and the modeling process. The road emissions from Plan I and Plan II were estimated and modeled separately, with the results presented in the modeling report.

It should be noted that the air quality program is constrained to regulating road emission sources solely within the facility's property. It does not extend to regulating sources once they leave the property and enter public roads. While off-site emissions resulting from a project can be considered secondary emissions and modeled under the PSD program, the facility is exempt from addressing secondary emissions as it is regulated under the minor NSR program, which limits modeling to emissions directly from the source itself.

Comment 14: The commenter mentions they are missing components in the permit application (specific components referenced are identified in the response below).

See Commenter: 27

ADEQ Response:

1. Projected pollution numbers for ore and service trucks are included in the application.
2. The effect of soil and roadway stability after blasting is not necessary to be included in the air quality permit application.
3. The full chain analysis (including subsidence issues with the interruption of underground water and oil depletion) is not necessarily to be included in the air quality permit application.
4. South32 has its own meteorology monitoring station and site-specific weather data was used in the application.
5. Mineral content of the airborne dust is included in the application. Depending on the dust emitted from what operation, the mineral content (site-specific metal constituent data) of the dust was conservatively assumed to be the same as the maximum mineral content of the material (ore or rock) that operation is processing. The particulate emissions from each process operation were calculated and then multiplied by the available site-specific metal constituent data to calculate metal HAP emissions. For mineral content from road emissions, where site-specific data were not available, the statewide data from the 2019 USGS “Scientific Investigations Report 2019–5077” report on Red Mountain¹ were used.

Comment 15: Commenter states the facility is registered in the State of Nevada rather than the State of Arizona.

See Commenter: 48

ADEQ Response:

The Department has confirmed that the company is registered with the Arizona Corporation Commission.

D. COMPLIANCE & ENFORCEMENT

¹ John D Horton; Carma A San Juan; Maurice A Chaffee. 2020. “Data to accompany U.S. Geological Survey Scientific Investigations Report 2019-5077: Geochemical and mineralogical study of the Red Mountain porphyry copper-molybdenum deposit and vicinity, Santa Cruz County, Arizona”. *U.S. Geological Survey* (<https://www.sciencebase.gov/catalog/item/5d8e59bde4b0c4f70d0ccdbf>). DOI: 10.5066/P9BS56JZ.

Comment 16: The commenters ask about penalties if there were to be a violation.

See Commenters: 7, 19, 40, 53, 63

ADEQ Response:

The Department has a set of tools and resources it may use to address violations. Any violation of the proposed air quality permit would be enforceable under Arizona Revised Statutes (A.R.S.) § 49-463. Penalties of up to \$10,000 per day per violation may be collected from the facility. In addition, orders of abatement as well as injunctions may be filed as authorized by A.R.S. § 49-461 and 49-462.

E. DRAFT PERMIT

Comment 17: The commenter expresses concern with the lack of definitions in the proposed air quality permit.

See Commenter: 63

ADEQ Response:

The Department did not define every term in the proposed air quality permit as definitions can be found in the Arizona Revised Statutes, Arizona Administrative Code or Code of Federal Regulations. Additionally, some of these terms are commonly used and thus, they are also readily available online.

Comment 18: The commenter expresses concerns with the use of the phrases “to the extent practicable” and “good air pollution control practices” in the proposed air quality permit.

See Commenter: 63

ADEQ Response:

“To the extent practicable” and “good air pollution control practices” are common phrases utilized in state and federal rules. They appear in the Arizona Administrative Code as well as the Code of Federal Regulations. For example, New Source Performance Standards (NSPS) or National Emission Standards for Hazardous Air Pollutants (NESHAP) include these common phrases. The NSPS or NESHAP requires facilities to execute certain actions “to the extent practicable”. This means the facility will be expected to be consistent with the conditions of their mining plans and/or

operating scenarios. Moreover, the facility will be required to abide by conditions that lead to “good air pollution control practices”. These common phrases ensure the facility will implement the latest processes, controls and/or technologies available within the mining industry that make a commitment to reduce air pollution.

Comment 19: The commenter states opacity conditions allow the facility to avoid conducting instantaneous surveys of visible emissions in the proposed air quality permit.

See Commenter: 63

ADEQ Response:

Condition II.B of Attachment “B” requires the facility to conduct instantaneous surveys or six-minute observations by a certified observer. At the frequency specified in the proposed air quality permit, the facility is expected to conduct instantaneous surveys. If visible emissions are observed and evaluated against the applicable opacity standard, the result must be documented. If an opacity standard is exceeded, the facility must “adjust or repair the controls or equipment to reduce opacity to less than or equal to the opacity standard”. The Department believes these conditions are appropriate and abide by applicable regulatory requirements.

Comment 20: The commenter believes permit shields may be protecting the facility from complying with all applicable requirements in the proposed air quality permit.

See Commenter: 63

ADEQ Response:

The objective of a permit shield is not to shield the facility from complying with all applicable requirements. As required by A.A.C. R18-2-325, “each Class I or II permit shall specifically identify all federal, state, and local air pollution control requirements applicable to the source at the time the permit is issued. The permit shall state that compliance with the conditions of the permit shall be deemed compliance with any applicable requirement as of the date of permit issuance, provided that such applicable requirements are included and expressly identified in the permit. To include permit shields in a proposed air quality permit is a standard practice. The permit shields will not protect the facility from any enforcement actions and thus, the facility remains subject to all applicable requirements.

Comment 21: The commenters argue the proposed air quality permit is deficient because it does not include monitoring, recordkeeping and reporting requirements to ensure compliance with generic standards like opacity standards.

See Commenters: 20, 22, 25, 26, 28, 30, 31, 32, 33, 36, 37, 38, 39, 40, 42, 45, 47, 48, 50, 51, 53, 54, 55, 56, 57, 61, 63, 64, 65, 66

ADEQ Response:

Generic standards are tied to monitoring, recordkeeping and reporting requirements in the proposed air quality permit. For example, the opacity of any plume or effluent from metallic processing operations should not exceed 20 percent. If visible emissions exceed this opacity standard, the facility is expected to follow monitoring, recordkeeping and reporting requirements in Condition II.B.3 of Attachment “B”. Therefore, the draft permit offers an appropriate methodology for addressing generic standards like opacity standards.

Comment 22: Commenter is concerned the facility based its emissions calculations on unrealistic assumptions like the facility’s generators will operate in near-perfect conditions at all times. Moreover, the commenter notes there is a lack of emissions limitations for the facility’s generators and that emissions calculations do not consider periods when they may be operating below 75% load.

See Commenter: 63

ADEQ Response:

The Department did not assume the facility’s generators will operate in near-perfect conditions at all times. In fact, emissions calculations were derived using each of the generator's maximum capacity at 8,760 hours per year. Some of the non-emergency diesel and natural gas generators are subject to National Emission Standards for Hazardous Air Pollutants. These generators must comply with the emissions limitations prescribed in Table 2a or b to Subpart ZZZZ of Part 63. Some of the non-emergency diesel generators are subject to New Performance Standards for Stationary Compression Ignition Internal Combustion Engines. These generators must comply with the emissions limitations prescribed in 40 Code of Federal Regulations (CFR) 60.4204. Some of the non-emergency natural gas generators are subject to New Performance Standards for Stationary Spark Ignition Internal Combustion Engines. These generators must comply with the emissions limitations prescribed in Table 1 to Subpart JJJJ of Part 60.

These non-emergency diesel and natural gas generators are identified in the Equipment List of Attachment “C”.

Given the generator’s potential to emit, the facility voluntarily accepted emissions limitations and standards on the non-emergency diesel generators subject to New Performance Standards for Stationary Compression Ignition Internal Combustion Engines. The facility is prohibited from operating these non-emergency diesel generators for more than 500 hours per year. They will be operated intermittently as if they were emergency generators (exclusively for backup or emergency purposes). Moreover, non-emergency natural gas generators subject to New Performance Standards for Stationary Spark Ignition Internal Combustion Engines must be interlocked to ensure they operate at 75% to 100% load. Peak performance of these non-emergency natural gas generators will minimize emissions. At 75% to 100% load, selective catalytic reduction and oxidation catalyst systems will be optimized. Ultimately, this compliance requirement will reduce emissions as well as offset emissions created during startups and shutdowns.

Comment 23: The commenter notes fugitive emissions were mischaracterized or not properly defined in the proposed air quality permit.

See Commenter: 63

ADEQ Response:

The Department characterized fugitive and non-fugitive emissions accurately in the proposed air quality permit. Non-fugitive emissions will be emitted from stacks or vents, or captured and routed to air pollution control equipment. Sections III through VII of Attachment “B” include requirements for non-fugitive emissions. Section VIII of Attachment “B” defines fugitive emissions as non-point sources of fugitive dust in the facility. Fugitive emissions will come from open roads, parking lots, stockpiles and tailings storage facilities. These determinations are consistent with how these fugitive and non-fugitive emissions are characterized in other air quality permits for mines.

Comment 24: The commenter is concerned that secondary emissions are missing as there are no off-site emissions from loading and transporting of ores as well as concentrates into trucks on public roads.

See Commenter: 12

ADEQ Response:

The Department acknowledges that secondary emissions will result from the operation and construction of the facility. Under both state and federal law, secondary emissions can be considered in air dispersion analyses for PSD projects. This facility does not have the potential to emit above PSD thresholds as defined in A.A.C. R18-2-401.13.b.. Since the facility is not a PSD source, the Department does not have the authority to address secondary emissions through this air permit. Regardless, the facility is committed to reducing secondary emissions. For example, containers will be sealed as ores and concentrates are loaded as well as transported into trucks on public roads. In addition, the facility has entered an agreement to help maintain public roads with Santa Cruz County.

Comment 25: The commenter notes that certain conditions contain the phrase “uncombined water” which is not defined and thus, it is not clear what would constitute a violation of opacity standards.

See Commenter: 63

ADEQ Response:

Under Arizona Administrative Code R18-2-101.99 and 148, particulate matter emissions are defined as “finely divided solid or liquid materials other than uncombined water”. Uncombined water is defined as “condensed water containing analytical trace amounts of other chemical elements or compounds”. Uncombined water does not contribute to particulate matter emissions. If there is an opacity exceedance, the facility can make a demonstration that the opacity exceedance was caused by uncombined water. Otherwise, the Department will treat it as a violation and take appropriate action to remedy the violation.

Comment 26: The commenter is concerned the conditions in the proposed air quality permit are not clear and enforceable for the Exploration and Voluntary Remediation Project (E&VRP).

See Commenter: 63

ADEQ Response:

The Department processed an air quality registration and permit determination request for the E&VRP back in 2018. It was determined that the facility’s potential to emit was below permitting exemption thresholds. Therefore, no air quality registration or permit was required for the E&VRP. Regardless, conditions for the E&VRP were included in the proposed air quality permit in Section I of Attachment “B”. These were

added to make it clear which activities fall under the facility's exploratory phase known as the E&VRP. These activities are listed in Condition I.A.1.a of Attachment "B". During the E&VRP, the facility is required to remain below permitting exemption thresholds. It must maintain records to demonstrate compliance with Condition I.A.2 of Attachment "B". Upon request, these records should be made available to the Department.

Lastly, it is important to note that the facility is still in its exploratory phase as mentioned above. The activities that fall under the facility's exploratory phase are described in Condition I.A.1.a of Attachment "B". The facility plans to continue to conduct these activities until the proposed air quality permit is issued. Per Condition I.A.2 of Attachment "B", the facility is required to remain below permitting exemption thresholds. Once the facility transitions from its exploratory phase to its operation phase if the proposed air quality permit is issued, this change will trigger the permitted equipment and activities set forth in Attachment "C".

Comment 27: The commenter states the proposed air quality permit" does not identify the location of Clark or Taylor.

See Commenter: 63

ADEQ Response:

In the permit application, Figures 5-3 through 5-14 include maps of Clark and Taylor. In addition, Clark and Taylor are further described in the proposed air quality permit. The equipment list indicates which emissions units will be located at Clark and Taylor. Lastly, Clark and Taylor are discussed in the dust control as well as tailings management plan.

Comment 28: The commenter does not understand what an "hour" or "day" is as stated in Condition II.D.2 of Attachment "B".

See Commenter: 63

ADEQ Response:

The Department has used this approach for other mining facilities. The hourly limit is for a calendar hour. The daily limit is for a calendar day.

Comment 29: The commenter is not sure about the use or composition of emulsions described in Condition II.D.2 of Attachment "B".

See Commenter: 63

ADEQ Response:

The facility plans to use emulsions because it provides for more complete combustion in wetter environments such as those found in an underground mine. The emission factors for the emulsion chosen are guaranteed by the manufacturer and thus, were utilized to determine the facility's potential to emit.

Comment 30: In Attachment "B" Condition II.D.1 and 2, The commenter questions the emission factors for blasting that were used to draft Conditions II.D.1 and 2 of Attachment "B".

See Commenter: 63

ADEQ Response:

The Department has conducted a thorough review and evaluation of the emission factors for blasting and thus, it believes the emission factors are reasonable. For blasting, testing methodologies were examined to determine the appropriate emulsion formulation, and compared to other emission factors used for blasting by state agencies as well as mines with similar backgrounds.

Comment 31: The commenter is concerned about the manufacturer's specifications and O&M plan mentioned in Condition II.D.4 of Attachment "B".

See Commenter: 63

ADEQ Response:

Manufacturer's specifications and O&M plans are a common concept in permits to ensure that process and control equipment are being maintained optimally. Manufacturer's specifications and O&M plans are required to be maintained on-site. ADEQ inspectors will conduct unannounced inspections to check this requirement. The facility must demonstrate that they are maintaining their equipment in accordance with the specifications.

Comment 32: The commenter is unsure about what regulations may apply to the screen mentioned in Condition III of Attachment "B".

See Commenter: 63

ADEQ Response:

The screen described in Condition III.B of Attachment “B” is subject to New Source Performance Standards (NSPS) 40 Code of Federal Regulations (CFR) Part 60 Subpart LL. If a screen is not subject to NSPS 40 CFR Part 60 Subpart LL, it is subject to A.A.C. R18-2-721.

Comment 33: The commenter notes that a major source permit cannot rely on mathematical equations to establish applicable emissions limitations as written in Condition III.A.2 of Attachment “B”.

See Commenter: 63

ADEQ Response:

The mathematical equations are part of the applicable regulations. These apply to all the emission sources subject to Condition III.A.2 of Attachment “B”.

Comment 34: The commenter notes that conditions requiring “wet suppression” are not enforceable saying that the facility could utilize the wet suppression for an hour every five years.

See Commenter: 63

ADEQ Response:

Condition III.A.3 of Attachment “B” states that wet suppression should be applied “at all times”. It also states that it “*does not require addition of water to the extent that the controlled material adheres to conveyor belts or feeders or clogs transfer points*”. This means wet suppression should be applied right below where the material adheres to the conveyor belts, feeders or clogs transfer points. It should be noted that such language has been placed in several mining permits and has been successfully enforced by the Department.

Comment 35: The commenter argues that performance testing is infrequent across the proposed air quality permit.

See Commenter: 63

ADEQ Response:

The Department has determined the frequency of performance testing based on emissions, limitations and/or air pollution controls. In the mining industry, annual performance testing, or performance testing every two (2) to three (3) years, or even once per permit term which is five (5) years, is common. Therefore, the performance testing frequency stipulated in the proposed air quality permit is reasonable for ongoing demonstrations of compliance with emission limitations.

Comment 36: The commenter asked where the stacks will be located.

See Commenter: 63

ADEQ Response:

Conditions across the proposed air quality permit indicate whether an emissions source has a stack.

Comment 37: The commenter questions the control efficiencies assumed such as 70% for “watering” and 85% for “partial enclosure”.

See Commenter: 63

ADEQ Response:

The control efficiencies referenced were used in the emission calculations. For the emission calculations, the facility proposed emission factors as well as the control efficiencies based on manufacturer's guarantees, AP-42 (*EPA's Compilation of Air Pollution Emission Factors*), published literature research articles, EPA guidances, and other approved reference permits, etc., for each process. The Department did a thorough review of the facility's proposed emission factors and control efficiencies, and had numerous meetings and engineering discussions with the facility to finalize these emission factors and control efficiencies used in the emission calculations. It believes the emission calculations are reasonable and relatively conservative. For the 85% control factor for “partial enclosure”, the Department went through a comprehensive literature/reference review and agreed on a conservative control factor of 85%. For the 70% control factor for “watering”, a similar methodology can be found in the dust control plan - how to apply an optimal level of water to achieve a control factor of 70%.

Comment 38: The commenter was not sure in Condition III.B.5 of Attachment “B” what emission unit or units the requirements for wet scrubbers applies to, and argued that there are no installation, operating or maintenance requirements for the scrubbers.

See Commenter: 63

ADEQ Response:

As addressed clearly in Condition III.B.5, the requirements for wet scrubbers apply to “any affected facility using a wet scrubbing emission control device”. It should be noted that these conditions have to be read with the context of applicable O & M and manufacturer specification obligations. The requirements in this condition are sufficient.

Comment 39: The commenter noted that in Condition III.B.5.f of Attachment “B”, the weekly opacity monitoring is not frequent enough.

See Commenter: 63

ADEQ Response:

ADEQ disagrees with this comment. Weekly opacity monitoring has been successfully employed in a number of mining permits. ADEQ has determined that the use of the weekly monitoring, periodic performance testing and the general duty obligation to follow manufacturer specifications and good air pollution practices will serve as reasonable requirements to ensure optimal performance and to track ongoing compliance.

Comment 40: The commenter was not sure that in Condition III.B.6 of Attachment “B”, for the dust collectors emission limits what the “emission exhaust point to the atmosphere” means.

See Commenter: 63

ADEQ Response:

The “emission exhaust point to the atmosphere” means the dust collectors exhaust point to the atmosphere.

Comment 41: In Condition IV.A.3 of Attachment “B”, the commenter noted that there is no monitoring of fuel sulfur content, cetane index, or aromatic content.

See Commenter: 63

ADEQ Response:

ADEQ acknowledges this comment. A permit condition was added to require the Permittee to keep the fuel records to demonstrate compliance with this condition.

Comment 42: The commenter noted that some conditions of Attachment “B” simply cited some regulatory provisions directly, which is not enough.

See Commenter: 63

ADEQ Response:

This language is directly from the federal regulations that this project is subject to. This way of referencing regulatory requirements high-level is relatively common in ADEQ permits and they are effective because the referenced provisions are identified clearly.

Comment 43: The commenter noted that some conditions of Attachment “B” have language like “manufacturer’s emission-related written instructions” or “those emission-related settings that are permitted by the manufacturer”, which is too vague, and the permit should include fully what these instructions or emission-related settings are.

See Commenter: 63

ADEQ Response:

This language is directly from the federal regulations that this project is subject to. It is the Permittee’s responsibility to have a good understanding of these instructions and emission-related settings and comply with these requirements. ADEQ inspectors will be able to review records on site to check for adherence to these obligations.

Comment 44: The commenter noted Condition IV.A.5.b of Attachment “B” does not include which engine is equipped with a particulate filter or whether the use of diesel particulate filters is required.

See Commenter: 63

ADEQ Response:

This language is directly from the federal regulations that this project is subject to. The use of diesel particulate filters is not required. The condition only requires that if an engine is equipped with a diesel particulate filter, the requirement has to be met.

Comment 45: The commenter had confusion about Condition IV.A.6 of Attachment “B”, such as Condition IV.A.4.a does not set forth applicable emission standards, and Condition IV.A.6.b allows South32 to completely ignore Condition IV.A.6.a.

See Commenter: 63

ADEQ Response:

This language is from the federal regulations that this project is subject to, and is sufficiently clear. Condition IV.A.4.a does establish applicable certification emission standards for certified engines. Condition IV.A.6.a and Condition IV.A.6.b are just two options allowed for the Permittee to demonstrate compliance from the federal regulations. If the commenter disagrees with the federal regulations, please feel free to file an appeal to EPA.

Comment 46: The commenter noted that in Condition IV.B.2.a of Attachment “B”, it does not include the operation requirements of “selective catalytic reduction (SCR) and oxidation catalysts (OxCat)”, and it is not enough to simply state that a control device will be installed and operated.

See Commenter: 63

ADEQ Response:

There is the operation requirement of SCR and OxCat in the permit. All engines are required to be interlocked, and the interlock automatically requires the SCR and OxCat to operate when the temperature at the catalyst achieves the manufacturer’s minimum design temperature. This is the basic requirement to ensure that the units are operated properly and controls applied. Also when a control device is purchased it will have the manufacturer’s instructions and operating specifications which operators will need to follow to ensure the control device works effectively.

Comment 47: The commenter argued that in Condition IV.B.3 of Attachment “B”, the emission limits allows South32 to emit above PSD major source thresholds.

See Commenter: 63

ADEQ Response:

ADEQ acknowledges this comment. The permit only included the emission limits from the applicable federal regulations. The permit has been updated to reflect the manufacturer guarantee’s emission limits which were also used in the emission calculations and modeling analysis.

Comment 48: The commenter argued that in Condition IV.B.4.a of Attachment “B”, there should not be two options for the Permittee to demonstrate compliance, and South32 can just comply with Condition IV.B.4.a(1) without testing at all. The commenter had the same question for Condition IV.B.5.

See Commenter: 63

ADEQ Response:

The language in this condition came directly from the applicable federal regulations. According to the applicable regulations, it is correct that if the Permittee chooses to comply with Condition IV.B.4.a(1), they don’t need to comply with IV.B.4.a(2). This also explains the question the commenter had for Condition IV.B.5.

Comment 49: The commenter questioned about propane use in Condition IV.B.4.b and air-to-fuel ratio controllers in Condition IV.B.4.c of Attachment “B”.

See Commenter: 63

ADEQ Response:

The language in these conditions came directly from the applicable federal regulations. The 100-hour propane use limit is for each engine. Recording the hours of using propane is a sufficient monitoring requirement to demonstrate compliance.

Comment 50: The commenter was not sure what engines Condition IV.C of Attachment “B” applies to, and in Attachment “C” it does not list “site rating” in “brake HP”.

See Commenter: 63

ADEQ Response:

It is written in Condition IV.C.1 what engines Condition IV.C applies to. In Attachment “C” natural gas engines and diesel engines are clearly labeled, and maximum capacity is also included.

Comment 51: The commenter was concerned that in Condition VI.C of Attachment “B” there is no monitoring requirement to assure compliance with these throughput limits.

See Commenter: 63

ADEQ Response:

It is the Permittee’s responsibility to keep tracking and monitor how much concrete is processed on a daily basis. The Permittee has to comply with the throughput limits and prove to ADEQ that they have been complying with them. Once ADEQ conducts an unannounced inspection, the Permittee should be able to show the inspector the proof that the Permittee has been complying with this condition.

Comment 52: The commenter noted that Condition VI.E of Attachment “B” requires the Permittee to operate and maintain air pollution controls on the operation of the equipment subject to this section, but there is no monitoring required to assure South32 would effectively do these.

See Commenter: 63

ADEQ Response:

ADEQ disagrees with this comment. There is an opacity standard as well as periodic opacity monitoring requirement in this section. If through periodic monitoring the compliance with the opacity standard is demonstrated, ADEQ can infer that the Permittee is following good air pollution control practices for minimizing emissions as required.

Comment 53: The commenter was concerned that in Attachment “B” Condition VII.A it is not clear what equipment in Attachment “C” is subject to this section.

See Commenter: 63

ADEQ Response:

Attachment “B” Condition VII is for Unclassified Sources as regulated in Arizona Administrative Code (A.A.C.) R18-2-730. The equipment subject to A.A.C. R18-2-730 is subject to Attachment “B” Condition VII.

Comment 54: In Condition VII.B of Attachment “B”, the commenter noted that a Title V permit cannot rely on math equations to establish applicable emission limits, and there is no monitoring that would assure compliance with the PM, SO₂ and NO_x standards.

See Commenter: 63

ADEQ Response:

The language is directly from the applicable regulations, and it is not clear why a Title V permit cannot rely on the applicable regulations. Furthermore, the PM, SO₂ and NO_x emissions from the emission units under this section are extremely unlikely to exceed the emission standards, so additional monitoring is not necessary.

Comment 55: The commenter noted that Condition VII.C.1 Attachment “B” states four evaporator units, but in Attachment “B” there are only three evaporator units, and there is no monitoring to assure compliance with the evaporator units operation limit.

See Commenter: 63

ADEQ Response:

ADEQ has updated Attachment “C” to include four evaporator units. There is a monitoring requirement to record and monitor the operation hours.

Comment 56: The commenter was not sure in Attachment “B” Condition VII.C.6 and 7 what emission units subject to Condition VII actually emit hydrogen cyanide, sodium cyanide dust or dust from solid cyanide, and from where,

and there should be monitoring and testing requirements to assure compliance of this condition.

See Commenter: 63

ADEQ Response:

The facility will not be storing sodium cyanide in solid form and additionally, there is no significant potential for hydrogen cyanide emissions. Consequently, no monitoring or testing requirements are stipulated.

Comment 57: For Attachment “B” Condition VII.D, the commenter noted that dust collector WTP1LS is not identified in Attachment “C”, and it does not set forth meaningful limits on emissions or the operation of WTP1LS.

See Commenter: 63

ADEQ Response:

Dust collector WTP1LS is already listed in Attachment “C”. The emission estimate can be found in the application. This is a small dust collector and is considered inherent process equipment to the WasteWater Treatment Plant and is expected to produce very minimal emissions and therefore not a candidate for associated limits and testing.

Comment 58: For Attachment “B” Condition VII.D, the commenter argued that monthly visible emission observations are not sufficient.

See Commenter: 63

ADEQ Response:

As explained earlier in the responsiveness summary, ADEQ takes into account the expected level of emissions, the general duty clauses that govern air pollution control principles while defining monitoring frequencies. In this instance, ADEQ has determined that a monthly opacity monitoring scheme is acceptable.

Comment 59: For Attachment “B” Condition VIII, the commenter was not sure what “nonpoint source” is.

See Commenter: 63

ADEQ Response:

As mentioned before, definitions can be found in the state or federal regulations, permit application, or are also available online. For example, for “nonpoint source”, A.A.C. R18-2-101 explains: “*Nonpoint source*” means a source of air contaminants which lacks an identifiable plume or emission point.

Comment 60: The Commenter states that the “Emergency Provision” condition is no longer consistent with Title V of the Clean Air Act and must be removed from the draft Title V permit. In July of 2023, the EPA finalized a rule removing the “emergency” affirmative defense provision from Title V regulations at 40 CFR 70.88. The Commenter argues that affirmative defense undermines practical enforceability.

See Commenters: 18, 25, 26, 28, 30, 31, 33, 37, 38, 40, 41, 42, 45, 50, 53, 54, 55, 57,63), 64, 70

ADEQ Response:

Changes to state Title V programs require state action including rulemaking. Rulemaking requires docket opening, a note of proposed or summary rulemaking, and other formalities. None of these have occurred, and the Emergency Condition remains part of the Title V permit program and therefore can remain in the permit until a rulemaking removing it occurs.

The affirmative defense provisions do not undermine the practical enforceability of the permit. All the startup/shutdown emissions will comply with the limits in its permit. If emissions may exceed permit limits as a result of a malfunction, it is clear that malfunction emissions are not included in potential to emit and the possibility of malfunction does not void the effectiveness of limits.

Comment 61: The commenter noted that the permit lacks specific information regarding the location and design of pollutant emitting activities, does not specifically explain what applicable requirements apply, and does not present adequate data regarding potential air emissions.

See Commenter: 18, 25, 28, 30, 31, 33, 37, 38, 39, 40, 42, 45, 47, 48, 50, 53, 54, 55, 56, 57, 61, 63, 64, 70

ADEQ Response:

The permit does include all the applicable requirements to protect the environment and public health. The location and design of pollutant emitting activities and the data regarding potential air emissions can be found in the application and technical supporting document (TSD), which usually is not listed in the permit. This style of permit writing is consistent with all ADEQ permits and can be seen to have been used effectively in other mining permits.

Comment 62: The commenter noted that the permit does not specify the pollutant emitting operations that would be permitted, does not identify where these operations will be located, and does not provide details regarding the equipment. The permit does not specifically identify the equipment serial numbers or other identifying information, their make and model, their design, and their emission stacks or other functionally equivalent openings.

See Commenter: 18, 20, 22, 25, 26, 28, 29, 30, 31, 32, 33, 36, 37, 38, 39, 40, 42, 45, 47, 48, 50, 53, 54, 55, 56, 57, 61, 63, 64, 65, 70

ADEQ Response:

In Attachment "B" of the permit, under each section there is a subsection "Applicability", which tells what equipment in Attachment "C" the requirements in this section apply to. Attachment "C" shows what regulation(s) the equipment is subject to, and in Attachment "B" there are detailed requirements from that regulation(s). Most of the information can be found in the application or in the permit Attachment "C" equipment list. South32 cannot construct or operate before this permit is issued, and most of the equipment has not been purchased yet. The serial number, make and model of some equipment is unknown at this point.

Comment 63: The commenter was concerned that South32 has not justified the emission calculations. The emissions appear to be based on unrealistic assumptions. The permit does not establish any annual limits on air emissions. The permit authorizes South32 to exceed the major source threshold. The permit appears to authorize a virtually unlimited amount of air pollution from the Hermosa Project.

See Commenters: 18, 25, 28, 30, 31, 33, 37, 38, 40, 41, 42, 45, 50, 53, 54, 55, 56, 57, 64, 70

ADEQ Response:

For emission calculations, as mentioned earlier, South32 proposed emission factors and control factors based on manufacturer's guarantee, AP-42 (EPA's Compilation of Air Pollution Emission Factors), published literature research articles, and other approved reference permits, etc. for each process. ADEQ did a thorough review of South32's proposed emission factors and control factors, and had numerous meetings and engineering discussions with South32 to finalize these emission factors and control factors used in the emission calculations. ADEQ believes the emission calculations are reasonable and relatively conservative. The permit has detailed throughput limits and operation limits, which determine the annual emission limits.

Comment 64: The commenter was concerned that this permit does not establish sufficient operational limitations and requirements, does not require adequate monitoring and testing of emission sources, and does not provide meaningful protection of ambient air quality standards.

See Commenter: 18, 25, 28, 30, 31, 33, 38, 40, 42, 45, 50, 53, 54, 55, 57, 64

ADEQ Response:

ADEQ disagrees with this. The permit does establish sufficient and stringent operational limitations and requirements, and does have sufficient monitoring and testing requirements. ADEQ reviewed the South32 modeling report thoroughly and conducted modeling analysis in-house as well and proved that this project will not interfere with attainment or maintenance of any National Ambient Air Quality Standard (NAAQS).

Comment 65: The commenter was concerned that this project will emit large amounts of HAPs and should use maximum achievable control technology (MACT) to limit emissions.

See Commenter: 18, 20, 22, 25, 28, 30, 31, 32, 33, 36, 37, 38, 39, 40, 41, 42, 45, 46, 48, 50, 51, 53, 55, 56, 57, 61, 64, 65, 66, 67

ADEQ Response:

The permit does require compliance with all applicable MACT. All "categorical MACT" standards from the Clean Air Act have been included in the permit. The vast majority of the hazardous air pollutants (HAPs) emissions at the Hermosa Project are combustion emissions from natural gas and diesel engines. These are regulated by Section 112 of the Clean Air Act [National Emission Standards for Hazardous Air Pollutants (NESHAP)] 40 CFR Part 63 Subpart ZZZZ, which also incorporates Section 111 of the Clean Air Act [New Source Performance Standards

(NSPS)] Subparts IIII and JJJJ for certain engines. The NESHAP and applicable NSPS are listed in Attachment “B”, Condition IV.A, IV.B, and IV.C of the draft permit with sufficient monitoring, recordkeeping and reporting requirements. NESHAP Subpart CCCCCC, gasoline distribution, applies when the line power alternate operating scenario is in effect.

Comment 66: The commenter was concerned that ADEQ's permitting process is not transparent and ADEQ is rushing this permit approval.

See Commenter: 40

ADEQ Response:

This is not true. ADEQ has gone through a thorough review of the permit application and modeling report for the South32 Hermosa Project and has included all applicable requirements in the permit, to ensure that the environment and public health will not be significantly impacted.

Comment 67: The commenter noted that the 20% opacity standard in the permit is too high and not acceptable.

See Commenter: 25, 28, 45, 48

ADEQ Response:

These standards are directly from the state and federal regulations. The 20% opacity standard is written in the current state law Arizona Administrative Code Title 18 Chapter 2 Article 7 Section 702 (A.A.C. R18-2-702.B.3). In federal regulations (40 C.F.R. § 60.382(a)) mining process equipment subject to the NSPS is generally subject to a 7% stack opacity limit or a 10% process fugitive limit.

Comment 68: The commenter requested to change "Permittee" back to "applicant" in Attachment “A”, Condition XIV.B, according to A.A.C. R18-2-304.H.

See Commenter: 58

ADEQ Response:

ADEQ acknowledged this comment and has updated the permit.

Comment 69: The commenter requested that in Attachment “B”, Condition I.A.2, it should state “Until retired or transferred as described in Condition I.A.4, ...”.

See Commenter: 58

ADEQ Response:

ADEQ acknowledged this comment and has updated the permit.

Comment 70: The commenter noted that in Attachment “B”, Condition II.C.2.a, the Department lists all of Condition I as requiring prompt reporting. This is inappropriate as most of Condition I merely establishes definitions. Condition C.2.a should be revised to Specify Condition I.A.2, I.A.3, I.B.2.a and I.B.2.b.

See Commenter: 58

ADEQ Response:

ADEQ acknowledged this comment and has updated the permit.

Comment 71: The commenter noted that the permit has an onerous compliance obligation concerning the installation and operations of a PM₁₀ and PM_{2.5} ambient monitor, and ADEQ’s authority on the inclusion of these requirements is unclear.

See Commenter: 58

ADEQ Response:

The Department disagrees with the comment. ADEQ is using its authority under A.A.C. R18-2-306.A.3.d and A.A.C. R18-2-306.A.3.c to require this monitoring. It will help provide reassurance to the community that the impacts from the facility will not pose an adverse risk to human health.

Comment 72: The commenter noted that many annual testing requirements in the permit are not necessary.

See Commenter: 58

ADEQ Response:

ADEQ went through a thoughtful exercise to determine appropriate testing frequencies for various emission sources at the facility. ADEQ has determined that the requirements are necessary for reasonable assurance of ongoing compliance with the emission limits identified in the permit.

Comment 73: The commenter noted that the permit includes a dust control plan, public access restriction plan, as well as a tailings management plan (TMP), but ADEQ's authority to require the inclusion of these plans is unclear.

See Commenter: 58

ADEQ Response:

The Department disagrees with the comment. It has determined that these plans provide practical concepts to expand on the requirements of Article 6 of the Arizona Administrative Code.

Comment 74: The commenter noted that the proposed permit Condition VIII.B.3.c.(2) states that ADEQ can prescribe recommendations or stricter requirements for the TMP based on the annual review of TMP. A.A.C. R18-2-321 and A.R.S. Title 41 establishes the limits of ADEQ's authority to reopen the permit for cause and ADEQ cannot expand upon that authority by permit. Similarly, ADEQ cannot avoid the requirements applicable to "appealable agency action" by including provisions in the permit that would allow ADEQ to make changes without an opportunity for review.

See Commenter: 58

ADEQ Response:

ADEQ acknowledges this comment. This Condition VIII.B.3.c.(2) has been removed.

Comment 75: The commenter noted it is not clear what requirements apply and how to assure compliance.

See Commenter: 70

ADEQ Response:

The permit includes all the applicable requirements with citations to show where the requirements come from, and the methodologies to assure compliance.

F. EMISSIONS CALCULATIONS

Comment 76: The commenter states that the S32 emission estimates primarily relied on the EPA's AP-42 handbook instead of site-specific emission assessments. To obtain the most realistic emission data, the EPA strongly recommends using "site-specific" values through onsite assessments. The commenter questions why ADEQ did not require S32 to use onsite parameter assessment results so that a much more trustworthy conclusion on safe standard compliance could have been presented.

See Commenter: 12

ADEQ Response:

The EPA's AP-42 handbook serves as a primary source for emission factors utilized for air permitting. These factors are standardized and derived from a combination of field studies, industry reports, and other reliable sources. In addition to AP-42, South32 has also relied on emission data from vendors, manufacturer guarantees, information from other states, and literature sources. For a new facility like South32 Hermosa that has not been built yet, obtaining site-specific data isn't feasible, and thus, the cited data sources are considered the most representative of the proposed units and standard air quality engineering practices.

It's worth noting that South32 did incorporate site-specific data into the emission calculations wherever possible. For instance, site-specific wind speeds were utilized to estimate emissions attributed to wind erosion, and site-specific metal concentrations in ores/rocks were employed to estimate the emissions of HAPs related to heavy metals. Additionally, based on the public's comments, ADEQ has revised the emission rates of heavy metal HAPs for surface roads based on site-specific data from the 2019 USGS "Scientific Investigations Report 2019-5077" report.

Comment 77: The commenter states that South32 significantly underestimated the metal emissions because it did not account for relevant metal concentrations in road soils for the Patagonia Mountains and the Hermosa Mine site, and it neglected the manganese (Mn) concentrations in road soils. According to the USGS report from 2019, the lead (Pb) concentration was 61 times higher than the 1991 report cited by South32. When EPA-recommended

site-specific Pb values are used, the total Pb emission rate could increase by 51% and the ambient impact may exceed the NAAQS.

See Commenter: 12

ADEQ Response:

ADEQ acknowledges the commenter for supplying the USGS “Scientific Investigations Report 2019–5077”. This report was not previously known to ADEQ during the review and processing of the South32 permit application. ADEQ gave significant weight to the USGS report since the data were site-specific and were more up-to-date.

ADEQ carefully reviewed the Pb and Mn data for both soil and rock samples collected within the USGS study area. Because South32 utilizes both on-site and off-site rocks as the foundation for roads, ADEQ determined it is more appropriate to use the rock data than the soil data to estimate the metal HAPs emissions from the roads. Given the large footprint of the roads and the fact that the NAAQS for Pb and the ATSDR guideline value are based on long-term exposure, ADEQ concluded that using average concentrations across the area of concern is reasonable. The area of concern includes the project site and nearby areas with a similar geological formation.

It was determined that the “Ka” or Trachyandesite of Meadow Valley type in the USGS Report is the predominant surface rock type present at the Hermosa Project, and would be representative of rock used at the Hermosa Project. All of the data underlying the 2019 USGS Report were reviewed, and all of the sample sites within the “Ka” area were collected, for a total of 59 lead and 58 manganese data points after negative values were removed. ADEQ determined to use the average values for PTE calculations and ambient air impact analysis, and use upper quartile for acute impact analysis.

Based on the average concentration of 102.5 mg/kg for Pb, ADEQ has revised the emissions from surface roads, resulting in an increase in emissions from 0.0045 tpy to 0.0185 tpy for Plan I and from 0.0078 tpy to 0.0323 tpy for Plan II for surface roads. The facility-wide PTE for Pb is now 1.75 tpy for Plan I and 1.99 tpy for Plan II. ADEQ then re-ran the model with the updated emission rate for surface roads. The modeled concentration, when combined with the background concentration, was 0.096 $\mu\text{g}/\text{m}^3$ for Plan I and 0.091 $\mu\text{g}/\text{m}^3$ for Plan II, both below the NAAQS threshold of 0.15 $\mu\text{g}/\text{m}^3$. It was concluded that the South32 Hermosa project will not interfere with the attainment and maintenance of the NAAQS for Pb.

Similar to lead (Pb), ADEQ employed the average concentration of 702.0 mg/kg for manganese (Mn) to calculate Mn emissions from surface roads.

These emissions were not previously estimated due to the lack of data on Mn concentrations in the soils. The Mn emissions from surface roads were estimated to be 0.128 tpy for Plan I and 0.223 tpy for Plan II. The total PTE for Mn is now 5.46 tpy for Plan I and 7.84 tpy for Plan II.

The revised PTE does not fundamentally change the permit status. The revised modeled results indicate that the lead ambient values remain well below the National Ambient Air Quality Standards (NAAQS) and do not cause a meaningful change in ambient conditions.

Comment 78: The commenter questions the confidence the public should have in current air quality protections, given that modeled air concentrations of Elemental Pb are only 37% below the NAAQS and PM_{2.5} levels are right at the new NAAQS.

See Commenter: 12

ADEQ Response:

Regulatory air dispersion models are designed to be conservative to protect public health and the environment in the face of uncertainty and potential risks.

- South32 estimated emissions based on the potential to emit - the maximum design capacity of its equipment given its operational design and only considering those controls imposed by the permit or by applicable regulations. Essentially, the model (AERMOD) assumes that all emission units emit their maximum emissions concurrently, which is very conservative compared to real-world mining operations.
- South32 calculated the background concentrations based on the design value of the applicable NAAQS. These highest background concentrations were then added to the highest modeled concentrations from the project for the NAAQS compliance demonstration. This approach is conservative, as the highest background concentrations and highest modeled concentrations unlikely occur simultaneously at the same locations.
- The regulatory options in AERMOD may overpredict the project impacts due to the intricate algorithms within the model itself. For example, it is well-known that the model may not provide a realistic treatment of low wind situations, potentially leading to an overprediction in the current regulatory version of AERMOD, particularly for sources with low release heights such as the majority of emissions sources at the South32 Hermosa facility.

Due to multiple layers of conservatism, the models may over-predict ambient impacts from a proposed project. If the modeled impact is below

the NAAQS, it is unlikely that the proposed project will result in a violation of NAAQS in real-world situations.

Comment 79: The commenter states that the estimated emission rates of Mn compounds in S32 are significantly higher compared to Pb compounds, and the EPA has set a much lower exposure tolerance for Mn (Rfc = $0.05 \mu\text{g}/\text{m}^3$). This raises concerns about how ADEQ will protect public health and the environment from the potential health risks associated with Mn, especially considering that Mn is currently not regulated.

See Commenter: 12

ADEQ Response:

The NAAQS for Pb is $0.15 \mu\text{g}/\text{m}^3$ over a 3-month average, whereas the EPA's RfC is $0.05 \mu\text{g}/\text{m}^3$. However, it does not necessarily indicate that Mn has a much lower exposure tolerance than Pb. A RfC is an estimate of a continuous inhalation exposure concentration to people (including sensitive subgroups) that is likely to be without risk of deleterious effects during a lifetime. Due to the difference in exposure duration (3-month average vs lifetime), it is challenging to compare which one has a lower exposure tolerance.

It also should be noted that the RfC of $0.05 \mu\text{g}/\text{m}^3$ was published in 1993 and has not been updated since. More recent studies in peer-reviewed scientific literature suggest that the EPA's RfC may be outdated, with some researchers proposing a substantially higher RfC ranging from 2 to $7 \mu\text{g}/\text{m}^3$ (See: Bailey, LA; Goodman, JE; Beck, BD. (2009). Proposal for a revised Reference Concentration (RfC) for manganese based on recent epidemiological studies. *Regul Toxicol Pharmacol.* 55: 330-339. <http://dx.doi.org/10.1016/j.yrtph.2009.08.005>).

After reviewing the Mn Risk guidelines for public exposure, ADEQ has selected the Minimal Risk Level (MRL) of $0.3 \mu\text{g}/\text{m}^3$ for Mn, as established by the ATSDR, for the assessment. This threshold is derived from chronic exposure (365 days or longer), and the dispersion model (AERMOD) has the capacity to simulate annual average concentrations, making the analysis appropriate. Modeled annual concentrations in local communities fall below the MRL, suggesting that the project is unlikely to pose a risk of adverse effects on public health.

Comment 80: The commenter estimated the modeled concentrations of Mn based on the modeled concentrations for Pb and the ratio of the emission rate of Mn and Pb. The results show that the Mn concentrations exceed the EPA RfC safe

inhalation number significantly.

See Commenter: 12

ADEQ Response:

The averaging time plays a crucial role in calculating modeled concentrations for air pollutants. Since the modeled concentrations for Pb are based on a rolling 3-month average, it's not appropriate to directly apply these to calculate the Mn concentration for comparison against the RfC, which is based on lifetime exposure. The maximum long-term average concentrations are expected to be lower than the maximum short-term average concentrations.

ADEQ determined that it was more appropriate to compare the modeled annual average concentrations against the MRL of $0.3 \mu\text{g}/\text{m}^3$, which is based on exposures of 365 days or longer.

Comment 81: The commenter states that the EPA will release new lead deposition standards expected in 2026. The commenter asked if ADEQ would deny the air permit due to existing non-attainments for Pb and other metals in soil and surface water as observed in watersheds of the Patagonia Mountains immediately surrounding the Hermosa Mine site and the proposed project will lead to further accumulation of pollutants.

See Commenter: 12

ADEQ Response:

Under Arizona law, ADEQ cannot refuse to issue a permit because there is not yet an applicable regulation in place. However, ADEQ must consider the existing applicable regulation when making a determination.

The Secondary NAAQS provide public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings. Given that the South32 Hermosa project's modeled impact falls below the secondary NAAQS for Pb ($0.15 \mu\text{g}/\text{m}^3$ as a rolling 3-month average), the South32 Hermosa project is expected to protect public welfare, including the preservation of soil and surface water.

Comment 82: The commenter notes that S32 used Arizona's average soil metal concentrations to estimate metal emission rates from unpaved road traffic. However, the soil in the mineralized Patagonia Mountain area is documented to have significantly higher concentrations of Pb/Mn. The

commenter expresses concern about potential air concentration exceedances, given that road dust emissions are a dominant source of air pollution from the Hermosa Mine site.

See Commenter: 12

ADEQ Response:

As discussed in Comment 77, ADEQ has revised the emission rates of heavy metal HAPs for surface roads based on site-specific data from the 2019 USGS “Scientific Investigations Report 2019–5077” report. ADEQ reran the model with updated emission rates for Pb and Mn and the modeled concentrations are below the NAAQS or the ATSDR’s guideline values.

Comment 83: The commenter states that the application only accounted for wind erosion from tailing storage facilities and material stockpiles. However, much more surface area accumulates particles with a high metal content through deposition. Over time, this accumulation forms a new source that should be included in the dispersion modeling. Additionally, the commenter states that the metal accumulation over time is not included in the overall road dust metal concentration number nor used in wind-erosion generated particle emissions.

See Commenter: 12

ADEQ Response:

ADEQ appreciates the commenter’s insights into the accumulation of heavy metals in soils over time. However, quantifying the accumulated mass and its impact on soil concentrations, and then integrating these changes into emission estimates due to wind erosion, pose significant challenges. At present, there are neither tools nor guidelines in place to address this issue. ADEQ has not identified any permit applications nationwide aimed at addressing this concern. Due to these challenges, ADEQ strongly relies on the implementation of the Dust Control Plan and Tailings Management Plan, which should minimize emissions due to wind erosion.

Comment 84: The commenter states that the application does not include the emissions related to the onsite and offsite transport of “rotainers” holding Pb and Zn concentrates or holding crushed Mn ores. The commenter expressed concern regarding the potential impact of these emissions on particle concentrations onsite, along offsite public access routes, and regional roads like SR82/83 passing through residential or developed areas.

See Commenter: 12

ADEQ Response:

South32 will implement measures to minimize exposures to mining materials during transport by employing sealed containers. Unlike conventional open haulage methods, these sealed containers are closed to the atmosphere and maintain independent integrity in the event of a transportation incident. Utilizing sealed containers will eliminate dust emissions from the transported materials.

G. ENVIRONMENTAL JUSTICE (EJ)

Comment 85: The commenters noted that this permit should not be approved unless South32 has done a complete assessment, arguing that ADEQ is taking advantage of a disadvantaged community by not making appropriate calculations of emissions, adds extra burden to an existing environmentally burdened and disadvantaged community, and ADEQ must do a thorough review based on Title VI of the 1964 Civil Rights Act.

See Commenter: 37, 40, 50, 53, 71

ADEQ Response:

There is an EJ analysis in the application as well as in the technical supporting document (TSD) for a 5-mile radius around this project, which complies with the current EPA EJ requirements. South32 and ADEQ have conducted thorough modeling analysis and based on the modeling analysis results, ADEQ has determined that the issuance of the South32 Hermosa – Hermosa Project air quality permit will not interfere with attainment of the NAAQS, and will not have an adverse impact on the community. Given that the Hermosa Project's impact within the community is well below the NAAQS, it is reasonable to conclude that the community is not being unreasonably burdened by the Hermosa Project.

H. HEALTH RISK

Comment 86: The commenter states that the monitor for measuring Pb background air concentration was not near the Patagonia Mountains. The actual Pb background concentrations could be much higher because the metal content in the soils is high and soils are the main contributors to air particles in most rural, arid areas. The commenter noted that, with adjusted Pb and Mn

background values, the Health Risk Reference numbers for Pb and Mn might exceed the safe standard.

See Commenter: 12

ADEQ Response:

ADEQ disagrees that the Pb background concentrations in the Patagonia Mountains area are significantly higher than those used by South32 in their modeling. Although the soil in the Patagonia Mountains contains relatively higher metal content, the soil must be disturbed to become airborne and potentially increase metal concentrations in the air. The land cover in the Patagonia Mountains is predominantly evergreen forest, grassland/herbaceous, and shrub/scrub, with developed land and open space accounting for a very small percentage.

Vegetation helps stabilize the soil, reducing erosion and the potential for soil particles to become airborne. It acts as a barrier that limits the wind's ability to pick up soil particles, thereby reducing dust and metal emissions. Additionally, plant roots help bind the soil, further reducing the amount of soil that becomes airborne. Therefore, even if the soil has higher metal content, the presence of vegetation likely results in lower metal concentrations in the air.

Comment 87: The commenter expressed that the predicted manganese concentrations from the South32 Hermosa project site are not expected to pose a health risk to nearby residents based on a comparison of these concentrations to the most reliable human health-protective toxicity value for manganese.

See Commenter: 52

ADEQ Response:

ADEQ acknowledges this comment.

I. MODELING

Comment 88: The commenter argued that air dispersion modeling is unreliable for metals and deposition and should not be used.

See Commenter: 12

ADEQ Response:

In accordance with 40 C.F.R. Part 51, Appendix W, modeling is the preferred method for demonstrating compliance with the NAAQS and for determining the most appropriate emissions limits for new and existing sources. When a preferred model is available, model results, including the appropriate background, are sufficient for air quality demonstrations and establishing emissions limits. Arizona's regulations further stipulate that modeling under the minor NSR program must follow 40 CFR 51, Appendix W (see: A.A.C. R18-2-334.H).

Following guidance from the EPA and ADEQ, South32 conducted a modeling analysis using the EPA's preferred model, AERMOD, to assess ambient impacts from the proposed project. AERMOD has undergone rigorous peer scientific reviews and model performance evaluations before being designated as the EPA's preferred model for regulatory applications.

Comment 89: The commenters question why ADEQ allowed Harshaw Road, a public road, to traverse the property of the proposed project or the modeled area, which is not acceptable according to ADEQ's Modeling Guidelines.

See Commenter: 12, 69

ADEQ Response:

The commenter appears to have misunderstood ADEQ's modeling guidelines regarding the ambient air boundary. Contrary to the commenter's interpretation, the guidelines do not prohibit public roads from traversing the property of the proposed project or the modeling domain. Instead, the guidelines specify that any public roads should be considered ambient air, and concentrations at these roads should be modeled for NAAQS compliance demonstration, regardless of whether they are within the property boundaries or not. In this particular case, a segment of Harshaw Road passing through the Hermosa Project was appropriately designated as "ambient air," and concentrations at this segment were modeled as part of the NAAQS compliance demonstration. Similarly, segments of Harshaw Road located off-site were also classified as "ambient air," and their concentrations were modeled accordingly to ensure compliance with NAAQS.

Comment 90: The commenter states that Hermosa's use of the Cross Creek Connector will create air pollution generated by approximately 800 truck trips per day that will traverse this dirt road. This will greatly affect the health and welfare of the children attending the Patagonia schools, which is within the normal regulated zone of 2 miles from the source. ADEQ's own guidelines recommend an expansion beyond the 2 mile, which is needed to consider

the full effect of the ventilated air from the mine site. The ventilated air will travel as far as air pollution does for a long distance far exceeding an encompassment of the school and the local community.

See Commenter: 69

ADEQ Response:

The commenter misinterpreted ADEQ's modeling guidelines regarding the learning site policy. As outlined in the guidelines, if a facility is located within 2 miles or less of a learning site, it becomes subject to the Learning Site Policy. Since there are no learning sites within 2 miles of the proposed Hermosa project, the project is not bound by the learning site policy. It seems the commenter estimated the distance of 2 miles from an off-site location (the Cross Creek Connector), which does not align with the learning site policy. Despite not being subject to the learning site policy, the NAAQS modeling analysis has considered the impacts of emission sources within the project on schools and local communities. As discussed in the TSD, the receptor network encompasses a region extending up to 10 km from the project boundary and covers the town of Patagonia.

It's important to note that under the state minor New Source Review (NSR) program, the permit applicant is required to model the emission sources within their project site boundary. Any off-site emissions associated with the project are not modeled as part of the permitting process.

Comment 91: The commenter raises several concerns about the adequacy of inputs used in modeling the impacts on the NO₂ NAAQS at the Hermosa Project site. Firstly, they question the clarity regarding the location of engines and stacks. Additionally, the commenter expresses concern about the coarse receptor grid used for modeling NO₂ impacts, suggesting that it may not detect potential exceedances of NAAQS associated with engines. Furthermore, the commenter expresses concern that emissions from engine startup and shutdown were not included in the modeling process.

See Commenter: 63

ADEQ Response:

South32 conducted the NO₂ NAAQS modeling analysis in accordance with ADEQ's modeling guidance. Figure 2-7 of the modeling report illustrates the engine locations, which correspond to the Hermosa Project mining plan.

Although South32 set up the receptor network following the recommended spacing outlined in ADEQ's modeling guidance Table 3, further review of the terrain data indicates that a small change in distance could significantly

affect the elevation of receptors due to the complex features. As such, ADEQ conducted additional model test runs with finer receptors (25 meters) in the hotspot areas. ADEQ found that the modeled concentrations for two scenarios (Plan I/2.6 MW and Plan II/2.6 MW) increased, while there was no change for the other two scenarios (Plan I/4.4 MW and Plan II/4.4 MW). The highest modeled concentration from this project increased from 138 $\mu\text{g}/\text{m}^3$ to 148 $\mu\text{g}/\text{m}^3$. Despite this increase, the use of additional finer receptors does not affect the model compliance demonstration and conclusion. ADEQ has updated the TSD accordingly.

The startup and shutdown procedures for engines at South32 are short, with startup lasting less than 15 minutes and shutdown being nearly instantaneous. The modeling assumes that all emission units simultaneously operate at both 75 percent and 100 percent capacity. However, South32 will primarily operate the engines as a power block, meaning only one or a few engines start up or shut down at any given time, while others remain either shut off or within the 75 to 100 percent range. This likely leads to an overestimation of actual emissions in the modeling, which could more than offset the emissions from startup and shutdown processes. Therefore, ADEQ determines that it is reasonable to exclude startup/shutdown in the NO_2 modeling.

Comment 92: The commenter states that the assumed modeled emission rates simply don't correlate with the draft Title V permit. The draft permit does not limit NO_x , particulate matter, and other emissions to at or below the rates presumed in the modeling report and in South32's application.

See Commenter: 63

ADEQ Response:

South32 developed a comprehensive emission inventory including annual, daily, and hourly emission rates derived from maximum annual, daily, and hourly throughputs, process rates, or usage rates. These emissions underwent thorough review and validation by ADEQ. The validated emission rates were then input into the model for the NAAQS compliance demonstration. The maximum annual, daily, and hourly throughputs, process rates, or usage rates were explicitly specified in the draft permitting conditions.

To address the commenter's comments, ADEQ has revised the permitting conditions for Cat 3520 engines and JGC 624 engines (See Revised Permit Section IV in Attachment "B"). The revised permitted emission rates now align with the modeled emission rates.

Comment 93: The commenter noted that:

1. The proposed vehicle traffic is contrary to the 2003 issued planning of ADOT to reduce truck traffic in the SR82/83 corridor.
2. There is no property fence that served as the Ambient Air Boundary location, so the modeling analysis is invalid.

See Commenter: 12

ADEQ Response:

1. ADEQ's air permit has no jurisdiction over traffic routes. The comment is noted for the record.
2. Before commencing operations, South32 will provide ADEQ with a Public Access Restriction Plan, as required in Draft Permit Section IX - PUBLIC ACCESS RESTRICTIONS. To effectively prevent public access, South32 will install fences, supplemented by natural physical barriers in areas where installing fences is impractical. According to the EPA's Revised Policy on Exclusions from "Ambient Air" (https://www.epa.gov/sites/default/files/2019-12/documents/revised_policy_on_exclusions_from_ambient_air.pdf), applicants can use other measures such as video surveillance, clean signage, and routine security patrols as long as the measures can effectively preclude the public access. ADEQ will review the Public Access Restriction Plan to validate its alignment with the modeled ambient air boundary.

Comment 94: The commenter noted that it is unclear which of the alternative operating scenarios was used to obtain dispersion results in the modeling report.

See Commenter: 12

ADEQ Response:

South32 modeled four scenarios: Plan I (on-site TSF only) with 58 2.6 MW natural gas engines; Plan II (involving off-site TSF) with 58 2.6 MW natural gas engines; Plan I with 27 4.4 MW natural gas engines; and Plan II with 27 4.4 MW natural gas engines. The results for all modeled scenarios are presented in the modeling report. South32 also proposes an alternative scenario - using supplied line power when it becomes available. No modeling was done for this scenario because switching to line power will significantly reduce emissions, resulting in lower ambient impacts compared to the four scenarios modeled.

J. COMPLIANCE ASSURANCE MONITORING (CAM)

Comment 95: Commenter states that the Department asserts that CAM does not apply to the Hermosa Project “because it does not have an emission unit with the potential precontrol device emissions equal to or greater than the major source thresholds.”

See Commenter: 63

ADEQ Response:

The permit has been updated to include more stringent emission limits for these engines that are directly based on the emission calculations and the associated modeling analysis. CAM does not apply because the facility does not have an emission unit with potential precontrol device emissions equal to or greater than the major source thresholds. Each of the engines should be considered a single emission unit.

K. REVISE, REVOKE OR TERMINATE PERMIT

Comment 96: What would cause this permit to be revised, revoked, or terminated? Would additional applicable requirements under CAA or when Manganese standards become law be a reason to revise the permit? Would continuous or reoccurring excess emissions be a reason to revoke the permit?

See Commenter: 41

ADEQ Response:

As written in the permit Attachment “A”, Conditions II.A and III.A, any permit noncompliance can, at ADEQ’s discretion, be grounds for modifying or revoking the permit. In the permit Attachment “A”, Condition III.B.1, it says the permit is required to be reopened if new requirements become applicable and more than three years remain in the permit term.

L. TESTING

Comment 97: The commenters noted that emissions testing 180 days after maximum production does not adequately protect the community. Commenters argued that testing should begin immediately and continue daily as production increases, decreases, and at all times regardless of whether the equipment is operating at maximum production. Commenters also argued

that testing should be performed exclusively by a third party, conducted at more testing sites, and that testing sites should send continuous information to ADEQ, EPA, and the town of Patagonia (so excess emissions will be reported immediately and not 6 months after). They have the following questions:

- Does ADEQ have any safeguards in place that address toxic levels of emissions released before maximum production?
- Is there a baseline reading of toxic air pollutant emissions that will initiate a shutdown of operations?
- Since South32 has 6 months to notify ADEQ of deviations from allowable emissions, what conditions can be added to the permit to adequately protect public health (as 6 months is too late to protect public health)?
- What is considered reasonable in terms of all “reasonable” steps taken to minimize the impact of excess emissions on ambient air quality? Suggest that reasonable conditions be added to the permit.
- How many testing sites are at the facility?
- Why were there no emissions testing points along the proposed shipping route to the processing plant?

See Commenter: 18, 25, 26, 28, 31, 33, 35, 37, 38, 40, 41, 42, 45, 46, 48, 50, 53, 54, 55, 57, 59, 63, 64

ADEQ Response:

There might be some misunderstanding of the permit. The permit requires testing “within 60 days of achieving the maximum production rate but no later than 180 days of the initial startup”, but not “180 days after maximum production” as the commenters mentioned. This testing requirement is generally used in the federal regulations and other permits issued by ADEQ. The facility-wide PTE was estimated based on conservative emission factors and conservative control factors and assumptions that all the equipment is operating at the maximum capacity or maximum production rate at the same time (which will actually unlikely to happen in reality). The ambient air impact analysis was conducted based on the facility-wide PTE and proved that the emissions from this project will not result in any significant environmental or public health impact. Hence, ADEQ does not think that conducting tests before the maximum production rate is achieved will provide any additional value.

It is not true that South32 has 6 months to notify ADEQ of deviations from allowable emissions. As clearly addressed in the permit, South32 has 6 months to report the deviations that will not cause any immediate

environmental concerns. For the deviations that will cause immediate environmental concerns, South32 has to report within two (2) working days. For excess emissions (deviations from allowable emission standards), South32 must report within 24-hours with a follow up written report within 72 hours.

There is no baseline reading of toxic air pollutant emissions that will initiate a shutdown of operations in the permit. As mentioned above, if there is an excess emission, South32 has to report within 24-hours with a follow up written report within 72 hours, and ADEQ will review the report and determine whether any enforcement action will be taken against South32.

“Reasonable” steps are not listed in the permit. “Reasonable” steps depend on a number of factors, such as the emission unit that has the excess emission, and the reason that causes the excess emission. It is impossible for ADEQ to list all the “reasonable” steps in the permit. If an excess emission occurs, the Permittee is required to submit the excess emission report immediately and report to ADEQ if any “reasonable” steps are taken and what those steps are. ADEQ will review the report and evaluate if the Permittee has taken all the applicable reasonable steps.

All the testing requirements are cleared listed in the permit, including what emission units should be tested. The testing sites should be where these emission units are.

There are no emissions testing points along the proposed shipping route. ADEQ’s jurisdiction is only within the facility.

M. THEORETICAL DATA VS EMPIRICAL DATA

Comment 98: The commenter was asking what is the justification for using theoretical data (computer modeling) as opposed to local empirical data for issuing this permit?

See Commenter: 48

ADEQ Response:

Under the state minor NSR program, ADEQ must use an approved model to conduct the ambient air quality analysis (A.A.C. R18-2-334.C and R18-2-334.H). ADEQ does not have the option to use empirical data in lieu of modeling.

Following guidance from the EPA and ADEQ, South32 conducted a modeling analysis using the EPA’s preferred model, AERMOD, to assess ambient impacts from the proposed project. AERMOD has undergone

rigorous peer scientific reviews and model performance evaluations before being designated as the EPA's preferred model for regulatory applications.

N. DRAFT TECHNICAL SUPPORT DOCUMENT

Comment 99: The commenter mentions the technical support document (TSD) does not explain why the facility does not exceed major source thresholds. In addition, it asks to update the numerical value of the PM_{2.5} 24-hour background concentration from 7.2 µg/m³ to 8.6 µg/m³ in Tables 8-11.

See Commenter: 58

ADEQ Response:

The Department has updated the TSD based on these comments.

IV. SIGNIFICANT CHANGES MADE TO THE AIR QUALITY PERMIT

The following section discusses any conditions in the air quality permit that were revised as a result of a comment received during the public comment period.

A. Condition IV.A and IV.B in Attachment "B" of the Permit

In the draft permit, these conditions were updated to reflect the manufacturer guaranteed emission limits which were also used in the emission calculations and modeling analysis. The facility-wide PTE is below the PSD thresholds.

B. PTE Tables in the TSD

Changes were made to the PTE tables in the TSD to reflect the public comments. The USGS "Scientific Investigations Report 2019-5077" report was used to re-estimate the metal HAPs emissions from the aboveground road traffic. The metal HAPs emissions from underground road traffic were also re-evaluated using the metal HAPs mass fraction of rock to be more conservative. The PTE for engines was increased to be slightly above the manufacturer's guaranteed values to be more conservative. Please note that these changes do not change any applicable requirements or adversely impact any modeling outcomes.

V. COMMENTERS

Table 1 lists the names of the commenter, the organization they represent (if any), and how the comment was received by the Department.

Table 1: List of Commenters

Commenter No.	Commenter	Organization (if any)	Comment Format
1	Deborah O'Brien		Email
2	Ron Robinson	Patagonia Town Office	Email
3	Tammy Chambers		Email
4	Augustus Danielson		Email
5	Erin Edwards		Email
6	Gerrilynn Conn		Email
7	Joy Herrmann		Email
8	Fritz Sawyer		Email
9	Maritza Rodriguez		Mail
10	Kathryn Schrag		Email
11	Hannah Parraga		Email
12	Chris Werkhoven		Email/PH presentation
13	Gary Nabm		Comment Card
14	Terrie Britton	Arizona Mining Association	Email
15	Steve Trussell	Arizona Mining Association	Email
16	Isabel Schwartz		Email
17	Michael Guymon	Tucson Metro Chamber	Email
18	Gary Townsend		Email
19	Leslie Schupp		Email
20	Laurie Cantillo		Email
21	David Klakovich		Email
22	Linda Shore		Email
23	Ted Maxwell	Southern Arizona Leadership Council	Email
24	Rick Grinnell	Southern Arizona Business Coalition	Email

25	Pat Poulsen		Email
26	Stuart Brody		Email
27	Jay Thompson		Email/PH presentation
28	Robin Lucky		Email
29	Christine Dollaghan		Email
30	Anita Conner	Calabasas Alliance	Email/PH presentation
31	Robert Paulsen		Email
32	Carol Milligan		Email
33	Lorrie Larsen		Email
34	Gary Cole		Email
35	Brad Register		Email/PH presentation/Hand delivered
36	Jeff Chimene		Email
37	Chris Gardner		Email
38	Gayle Perrine		Email
39	Beth Pirl		Email/PH presentation
40	Emily Modellmog	Calabasas Alliance	Email
41	Vanessa Register		Email/PH presentation/Hand delivered
42	Carolyn Shafer		Email/PH presentation
43	Peggy Faucher		Email
44	Dan Brost		Email
45	Julie Arma		Email
46	Pamela Lemke		Email/PH presentation
47	Nancy McCoy		Email
48	Skye Leone		Email/PH presentation
49	Sherrie Nixon		Email
50	Charlene Saltz		Email
51	Wendy Islas		Email
52	Lisa Bailey		Email
53	Valerie Neale		Email
54	Joni Stellar	Patagonia Area Resource	Email/PH presentation

		Alliance	
55	Robert Speckels		Email
56	Miriam Gilbert		Email
57	Julie Holding		Email
58	Brent Musslewhite	South32 Hermosa Inc.	Email
59	Kerry Schwartz		Email
60	Michael Stabile		Email/PH presentation
61	Ed Pirl		Email
62	Robert Gay		Email/PH presentation
63	Jeremy Nichols	Center for Biological Diversity	Email
64	Emily Kachorek		Email
65	Marc Faucher		Email
66	Mary Schoolcraft		Email
67	James Wolfe		Email
68	Andrea Wood	Town of Patagonia	PH presentation/Hand delivered
69	Ernest Edwards		PH presentation/Hand delivered
70	Russ McSpadden	Center for Biological Diversity	PH presentation
71	Richard Boren		Speaker Slip