ADEQ CLASS II PERMIT APPLICATION

Minerals Research, Inc. – Cottonwood, Arizona

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1. EXECUTIVE SUMMARY

Currently, Minerals Research, Inc. (MRI) owns and operates a crushing and screening facility located in Cottonwood, Arizona which processes a pre-existing copper slag pile for various industrial mineral applications. In 2009 MRI contacted the Arizona Department of Environmental Quality (AZDEQ) regarding its proposed slag processing project in Cottonwood Arizona. Project-specific plans were submitted to AZDEQ along with a formal request for a permit determination. In 2009, MRI sought guidance from ADEQ on whether it required a Class II permit for its proposed copper slag crushing and recycling operation. On December 11, 2009, ADEQ responded that no permit was required based on the information provided. MRI subsequently constructed and began operation of the Cottonwood facility in 2015.

In 2017, ADEQ conducted an inspection while Superstition Crushing was onsite. This inspection generated discussion about whether a general permittee (Superstition Crushing) and MRI's no permit required facility could be co-located. On July 3, 2018, MRI again met with ADEQ to discuss the type of permit needed. At that meeting, MRI discussed its ongoing operation and its intent to continue to crush slag to produce abrasives, roofing granules and other products and the types of equipment used at the facility. ADEQ's permit section gave guidance that MRI should apply for the crushing and screening general permit and that Superstition Crushing (or other crushing and screening general permittee) should operate pursuant to MRI's permit when doing work onsite. MRI duly applied for the crushing and screening general permit on July 10, 2018 and ADEQ issued an Authorization to Operate (ATO) to operate under the crushing and screening general permit on July 10, 2018. MRI subsequently applied for a renewal and ADEQ issued a renewed authorization to operate on June 10, 2022.

Following an on-site inspection of MRI's Cottonwood plant on June 13, 2023, ADEQ informed MRI that ADEQ now believed that it would be appropriate for MRI to operate under a Class II individual permit instead of the crushing and screening general permit. Since then, MRI has been fully cooperating with ADEQ in pursuit of the requested Class II individual permit, which we have committed to submit to ADEQ no later than October 31, 2023. ADEQ and MRI entered into a consent order on October 12, 2023, memorializing agreed operating conditions that MRI will follow while the permit application is being processed. This application includes the site-wide potential to emit (PTE) in Appendix A and the dust control plan in Appendix B.

2. ADEQ CLASS II APPLICATION FORM

SECTION 3.1

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

Air Quality Division

1110 West Washington • Phoenix, AZ 85007 • Phone: (602) 771-2338

STANDARD CLASS II PERMIT APPLICATION FORM

(As required by A.R.S. § 49-426, and Chapter 2, Article 3, Arizona Administrative Code)

1. Permit to be issued to (Business license name of organization that is to receive permit):
   MINERALS RESEARCH, INC.
2. Mailing Address: 4620 S COACH DRIVE
   City: TUCSON State: ARIZONA ZIP: 85714
3. Name (or names) of Responsible Official: MICHAEL VICK
   Phone:(520)748-9362 Fax:(520)748-9364 Email: mikevick@mineralsresearch.com
4. FacilityManager/ContactPersonandTitle: STEPHANGOSSELIN, PLANT OPERATIONSMANAGER
   Phone:(450)561-6092 Fax: (928)852-0063 Email: stephan.gosselin@mineralsresearch.com
5. Facility Name: COTTONWOOD PLANT
   Facility Location/Address (Current/Proposed): 705 EAST BIRCH STREET
6. City: COTTONWOOD County: YAVAPAI ZIP: 86326
   Indian Reservation (if applicable, which one): NA
   Latitude/Longitude, Elevation: 34.733946/-112.009791, 3412’
7. General Nature of Business: CRUSHING, SCREENING, PACKAGING SLAG
8. Type of Organization:
   X Corporation ☐ Individual Owner ☐ Partnership ☐ Government Entity ☐ LLC
   ☐ Other _____
9. Permit Application Basis: X New Source ☐ Revision ☐ Renewal of Existing Permit
   For renewal or modification, include existing permit number (and exp. date): _____
   Date of Commencement of Construction or Modification:
   Primary Standard Industrial Classification Code: 3295
10. I certify that I have knowledge of the facts herein set forth, that the same are true, accurate and complete to the best of my knowledge and belief, and that all information not identified by me as confidential in nature shall be treated by ADEQ as public record. I also attest that I am in compliance with the applicable requirements of the Permit and will continue to comply with such requirements and any future requirements that become effective during the life of the Permit. I will present a certification of compliance to ADEQ no less than annually and more frequently if specified by ADEQ. I further state that

I will assume responsibility for the construction, modification, or operation of the source in accordance with Arizona Administrative Code, Title 18, Chapter 2 and any permit issued thereof.

Signature of Responsible Official: _____

Printed Name of Signer/Official Title: Michael D. Vick

Date: 10/31/23 Telephone Number: (520)748-9362

3. PROCESS DESCRIPTION

Minerals Research, Inc. (MRI) currently processes copper slag in Cottonwood, Arizona. The primary products manufactured from the copper slag are but not limited to; loose abrasives, roofing sand, roofing granules, road aggregates, asphalt fillers, and cement additives. Copper slag is an iron silicate that is a byproduct of the refining of copper ore. The slag was placed in a molten state from the blast furnace for several decades resulting in a large deposit. The following is the process MRI uses to beneficially reuse the copper slag for its various products.

3.1 Drilling and Blasting

The raw slag must be drilled and blasted to break it up sufficiently for recovery by earth-moving equipment. The equipment typically used consists of an excavator and a front-loader. Water is used for dust control during drilling and blasting operations.

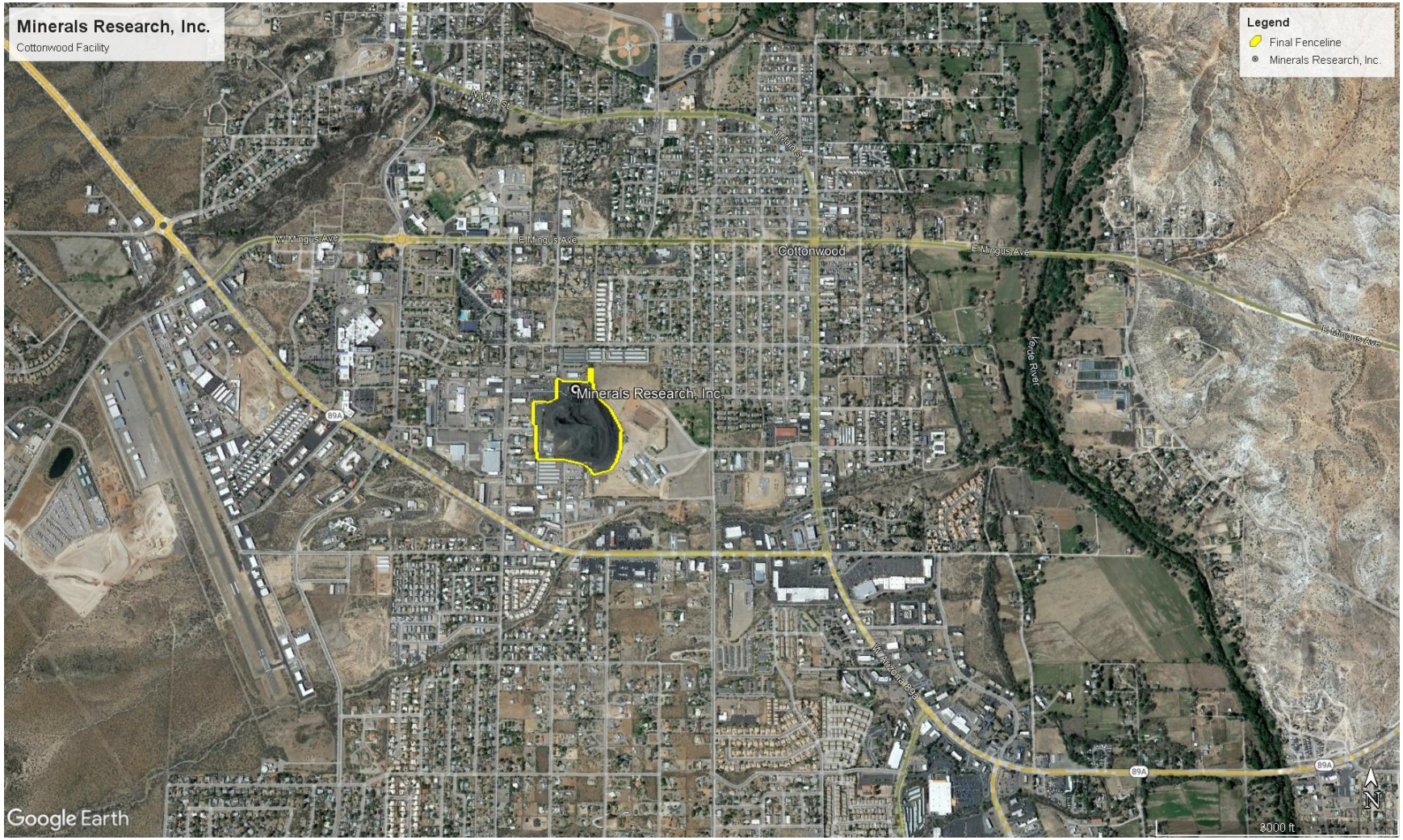
3.2 Primary Crushing and Screening

A front-loader feeds the recovered slag into a vibratory feeder. This feeder feeds the raw slag to a screen. From the screen, the raw slag is sized with the oversized material being fed to a cone crusher and the undersized material going to a stockpile (secondary feed) which is the feed for a secondary crushing and screening process. The crushed oversize is then redirected back to the screen for sizing. This is a closed-loop crushing circuit. The primary crushing and screening process utilizes water for dust control and suppression. This entire process is a wet process, and the secondary feed stockpile is kept in a wet state to control wind erosion.

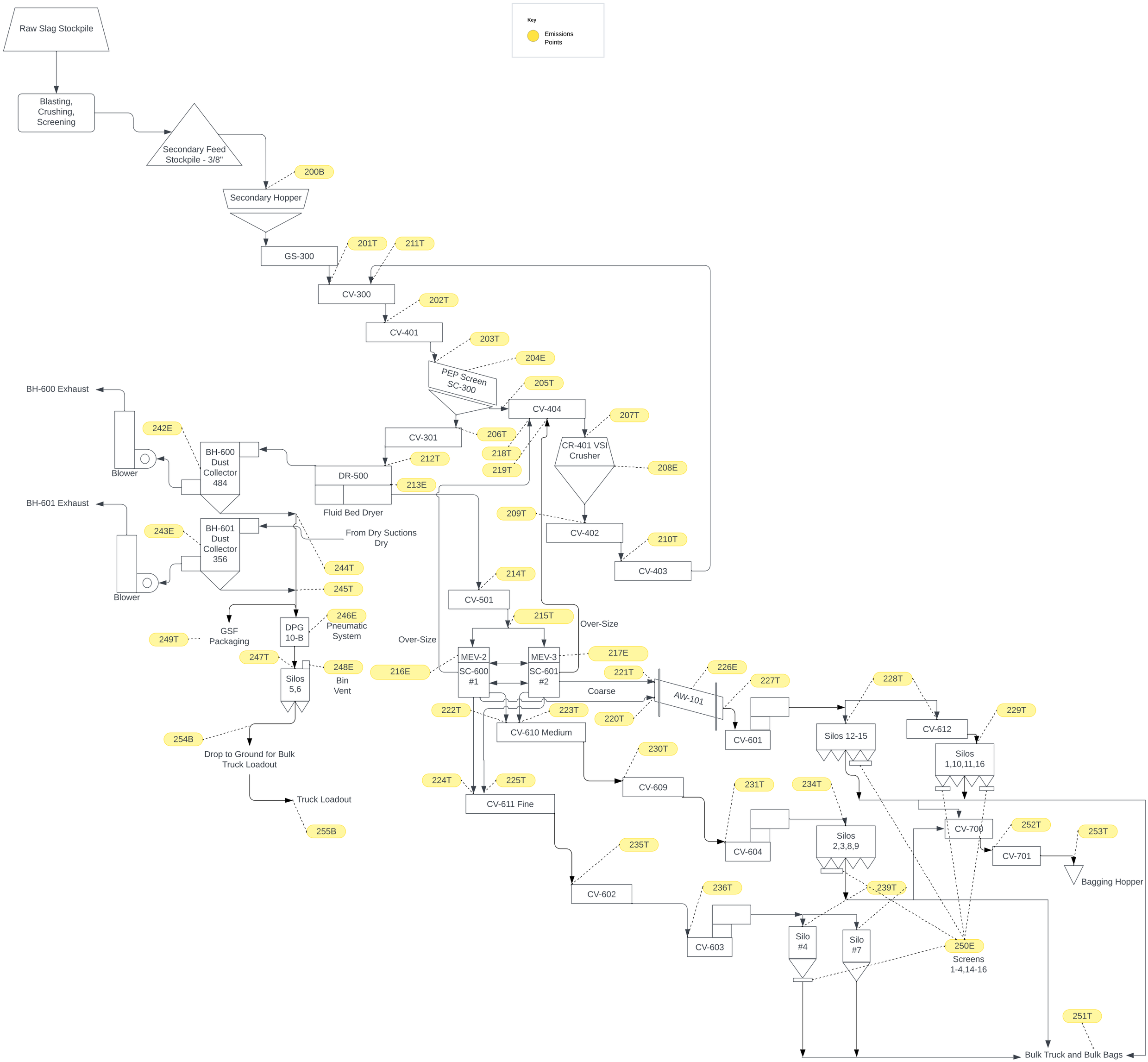
3.3 Secondary Crushing and Screening

A front-loader recovers material from the secondary feed stockpile and feeds a belt feeder. The belt feeder conveys the secondary feed to a screen. The oversize is fed to a vertical shaft impact crusher and the undersize is fed to a fluidized bed dryer. The crushed oversize is then redirected back to the screen for sizing. This is a closed-loop crushing circuit. Up to the point at which material is fed to the fluidized bed dryer, water is used for dust control. The fluidized bed dryer dries the material and also air classifies removing nearly all of the minus 140-mesh fraction. All air and dust are collected and processed through a filtered baghouse dust collector. The fines collected are directed to a silo and/or packaged. The dried plus ~140-mesh material is fed to two (2) tertiary screens for specific sizing of the various products produced by MRI. All product streams are conveyed to enclosed storage silos for bulk shipping and/or packaging. Screening and conveying beyond the dryer is controlled using a filtered baghouse dust collection system.

4. SITE & PROCESS FLOW DIAGRAMS


Minerals Research, Inc.
Cottonwood Facility
Legend
Final Fenceline
Minerals Research, Inc.
Main St
W Mingus Ave
E Mingus Ave
Cottonwood
Verde River
Minerals Research, Inc.
89A
Google Earth
3000 ft
N

Cottonwood Plant process flow sheet



5. EQUIPMENT LIST

Equipment List							
Description	**Type of Equipment**	**Maximum Rated Capacity**	**Make**	**Model**	**Serial #**	**Year of mfg**	**Equipment#**
Primary Crushing and Screening Performed by Contractor; Equipment Make and Model Subject to Change.							
GS-300: Hopper Discharge Feeder to CV-300	Feed Hopper	50 TPH	Dakota Manufacturing	Belt Conveyor		2014	201T
CV-300: discharge to CV-401	Conveyor	150 TPH	Dakota Manufacturing	Belt Conveyor		2014	202T
CV-401: PEP Secondary Screen Feed	Conveyor	150 TPH	Dakota Manufacturing	Belt Conveyor		2014	203T
SC-300: PEP Secondary Screen	Screen	150 TPH	TCI Manufacturing	TCI6X18S	19022734	2019	204E
CV-404: VSI Crusher Feed	Conveyor	150 TPH	Dakota Manufacturing	Belt Conveyor		2014	207T
CR-401: VSI Crusher	Crusher	150 TPH	REMco	SandMax Series 1530	CD-01-0076	2013	208E
VSI Crusher Discharge to CV-VSI	Conveyor	150 TPH	REMco	SandMax Series 1530	CD-01-0076	2013	209T
CV-VSI: discharge to CV-403	Conveyor	150 TPH	Dakota Manufacturing	Belt Conveyor		2014	210T
CV-403: VSI Return to CV-300	Conveyor	150 TPH	Dakota Manufacturing	Belt Conveyor		2014	211T
CV-301: Dryer Feed Belt discharge to DR-500	Conveyor	50 TPH	Dakota Manufacturing	Belt Conveyor		2014	212T
DR-500: Fluid Bed Dryer	Dryer	50 TPH	Carrier Vibrating	Model QAD-6060S-25'-6"-10 HP	28213	2014	213E **
CV-501: to MEV2&3 Screen Feed	Conveyor	50 TPH	Dakota Manufacturing	Belt Conveyor		2014	215T
SC-600: MEV2 Tertiary Screen #1	Screen	25 TPH	Midwestern	MEV 510-5 [1]	0614-5110	2014	216E *
SC-601: MEV3 Tertiary Screen #2	Screen	25 TPH	Midwestern	MEV 510-5	0614-5110	2014	217E *
AW-101: Rotary air wash	Rotary air-wash	10 TPH	Minerals Research	In-house	0----0	2023	226E *
CV-601: Coarse Product Feed to CV-612/silos(12-15)	Conveyor	25 TPH	NERAK	WB300A407	1406-2510-100	2014	228T **
CV-612: Silo Shuttle Conveyor Feed to Silos(1,10,11,16)	Conveyor	25 TPH	Minerals Research	Belt Conveyor	0----0	2018	229T
CV-610: Medium Product Feed to CV-609	Conveyor	25 TPH	Dakota Manufacturing	Belt Conveyor		2014	230T
CV-609: Medium Product Feed to AW-102	Conveyor	25 TPH	Dakota Manufacturing	Belt Conveyor		2014	231T
~~AW-102: Rotary air wash~~	~~Rotary air-wash~~	~~10 TPH~~	~~Minerals Research~~	~~In-house~~	~~0----0~~	~~2023~~	~~232E *~~
CV-604: Medium Product Transfer to Silos(1,2,3,8,9)	Conveyor	25 TPH	NERAK	WB300A407	1406-2512-100	2014	234T **
CV-611: Fines Product Feed to CV-602	Conveyor	25 TPH	Dakota Manufacturing	Belt Conveyor		2014	235T
CV-602: Fines Product Feed to AW-603	Conveyor	25 TPH	Dakota Manufacturing	Belt Conveyor		2014	236T
~~AW-103: Rotary Air Wash~~	~~Rotary air-wash~~	~~10 TPH~~	~~Minerals Research, Inc.~~	~~In-house~~	~~0----0~~	~~2017~~	~~237E *~~
CV-603: Fine Product Transfer to Silos(4,7)	Conveyor	25 TPH	NERAK	WB300A407	1406-2511-100	2014	239T **
~~SC-602: Sweco Fines Screen (silo #7)~~	~~Screen~~	3 TPH	~~SWECO~~	~~1S601010~~	~~1S60-384-20~~	~~n/a~~	~~240E **~~
BH-600: Dust Collector 484	Baghouse	40,000 CFM	Donaldson Torit	484RF10	FIG 516885A	1998	242E
BH-601: Dust Collector 356	Baghouse	40,000 CFM	Donaldson Torit	356RFWH12	IG12716310L001`	2018	243E
DPG-10B: Dense Phase Pneumatic System	Pneumatic conveyor		Cyclonaire	DPG-10B	14192-A	2014	246E ***
Bin Vent for GSF Silos (5 & 6)	Bin Vent	3,000 CFM	AEF	n/a	n/a	2014	248E
Silo screens (silos #1-4, 14-16) [2]	Screen		Minerals Research, Inc.	In-house	0----0	2022	250E
CV-700: Paper bag transfer to CV-701	Conveyor	25 TPH	Dakota Manufacturing	Rail conveyor		2015	252T
CV-701: Discharge to bagging hopper	Conveyor	25 TPH	Dakota Manufacturing	Rail conveyor		2105	253T

[1] Drawing# SD515927

[2] We included all of the silo scalping screens

6. FEDERAL AND LOCAL APPLICABLE REQUIREMENTS

MRI will be subject to certain federal and state air regulations. This section summarizes the key air quality regulations that will apply under both federal and state programs.

6.1 Permit Applicability Analysis

6.1.1 ADEQ Class II Applicability

Per A.A.C. R18-2-302.B.2.a., a Class II permit shall be required for a person to begin actual construction of or operate any stationary source that emits, or has the maximum capacity to emit with any elective limits, any regulated NSR pollutant in an amount greater than or equal to the significant level. For purposes of Class II permitting, a "stationary source" includes a source that directly emits or has the potential to emit any regulated air pollutant (see A.A.C. R18-2-101.140).

As summarized in emissions calculations, MRI has potential site-wide non-fugitive source emissions and potential site-wide combined (fugitive and non-fugitive) source emissions for PM_{10} due to the facility's crushing and screening operations. Since the facility has the potential to emit a regulated air pollutant, a Class II permit is required.

6.1.2 New Source Review Applicability

The New Source Review (NSR) permitting program generally requires that a stationary source obtain a permit and undertake other obligations prior to construction of any facility if the proposed project results in the potential to emit air pollution in excess of certain threshold levels.

6.1.2.1 Major NSR Applicability

Two distinct federal NSR permitting programs apply depending on whether the facility is located in an attainment or nonattainment area for a particular pollutant, Prevention of Significant Deterioration (PSD) and Nonattainment Area NSR (NA NSR), respectively. NA NSR permitting applies to new construction or modifications that result in certain emission increases of a particular pollutant for which the area in which the facility is located is classified as "nonattainment". The PSD permitting program applies to projects with certain emissions increases of pollutants for which the area is classified as "attainment" or "unclassifiable."

The Cottonwood facility will be located in the area of Yavapai County classified in attainment with the National Ambient Air Quality Standards (NAAQS) or unclassified for all regulated pollutants. Accordingly, NA NSR does not apply.

Under PSD permitting rules, the major source threshold is 250 tpy unless the facility is listed as a categorical source in A.A.C. R18-2-101.23, which has a lower 100 tpy threshold under A.A.C. R18-2-401.13.b. Slag crushing and screening operations are not categorical sources as defined in R18-2-101.23. Therefore, the PSD major source threshold for MRI is 250 tpy for any individual regulated NSR pollutant (see A.A.C. R18-2-401.13.b).

Note that because MRI is not a categorical source, only non-fugitive emissions are assessed against the 250 tpy major source threshold; fugitive emissions are excluded from the major source applicability

determination.[1] As summarized in emissions calculations, MRI does not trigger Major NSR thresholds. Therefore, MRI will not be subject to PSD review.

6.1.2.2 Minor New Source Review Applicability

Per A.A.C §R18-2-334.A, minor New Source Review (NSR) requirements shall apply

- *When the project involves:*
  - *Construction of any new Class I or Class II source, including the construction of any source requiring a Class II permit under §R18-2-302.01(C)(4); or*
  - *any minor NSR modification to a Class I or Class II source.*

The Cottonwood facility will be classified as a new Class II source, therefore minor NSR requirements will apply.

- *To a regulated minor NSR pollutant emitted by a new stationary source subject to this Section, if the source will have the potential to emit that pollutant at an amount equal to or greater than the permitting exemption threshold.*

The potential to emit of all regulated minor NSR pollutants except for PM_{10} are below the permitting exemption threshold, therefore minor NSR requirements will apply to MRI for PM_{10}.

- *To an increase in emissions of a regulated minor NSR pollutant from a minor NSR modification, if the modification would increase the source's potential to emit that pollutant by an amount equal to or greater than the permitting exemption threshold.*

The proposed project is not a modification to an existing source.

As detailed above, the Cottonwood facility will trigger minor NSR requirements under A.A.C R18-2-334. Pursuant to A.A.C. R18-2-334.C, MRI must submit either a RACT demonstration pursuant to R18-2-334.C.1 & D or a modeling demonstration pursuant to R18-2-334.C.2. MRI has elected to submit a modeling demonstration meeting R18-2-334.C.2 requirements that demonstrates that the facility will not interfere with attainment or maintenance of any NAAQS under separate cover.

6.1.2.3 Part 63 Review Applicability

Per A.A.C R18-2-1101.B, the provisions of 40 C.F.R. § 63(b)(1) apply to the owner or operator of any stationary source that

- *Emits or has the potential to emit any hazardous air pollutant listed in or pursuant to section 112(b) of the Act; and*

MRI has the potential to emit listed hazardous air pollutants, and thus satisfies this condition. However, MRI needs to also satisfy the second condition listed in 40 C.F.R. § 63(b)(1)(ii)

- *Is subject to any standard, limitation, prohibition, or other federally enforceable requirement established pursuant to this part.*

[1] A.A.C. R18-2-401.13.e.

MRI is not subject to any standard or other federally enforceable requirement established pursuant to Part 63. Thus, the Cottonwood facility will not trigger any NESHAPs requirements under A.A.C. R18-2-1101.B.

6.2 Federal and State Applicability Analysis

This section provides an applicability analysis of federal and state requirements for the Cottonwood Facility, including the following:

- New Source Performance Standards
  - 40 CFR 60 Subpart A
  - 40 CFR 60 Subpart LL
  - 40 CFR 60 Subpart UU
  - 40 CFR 60 Subpart OOO
  - 40 CFR 60 Subpart UUU
- National Emission Standards for Hazardous Air Pollutants
  - 40 CFR 63 Subpart A
  - 40 CFR 63 Subpart ZZZZ
  - 40 CFR 63 Subpart AAAAAAA
- Arizona Administrative Code

6.2.1 New Source Performance Standards

New Source Performance Standards (NSPS), located in 40 CFR Part 60, set performance standards for new, modified, or reconstructed sources of the regulated pollutant. The following section details the applicability of NSPS regulations to the MRI's proposed operations.

6.2.1.1 40 CFR 60 Subpart A – General Provisions

Pursuant to the requirements of 40 CFR § 60.1, all affected sources subject to source-specific NSPS are subject to the general provisions of NSPS Subpart A unless specifically excluded by the source-specific NSPS. NSPS Subpart A requires initial notification, performance testing, recordkeeping, and monitoring, provides reference methods, and mandates general control device requirements for all other subparts as applicable.

6.2.1.2 40 CFR 60 Subpart LL – Standards of Performance for Metallic Mineral Processing Plants

Pursuant to the requirements of 40 CFR § 60.380(a), NSPS Subpart LL, Standards of Performance for Metallic Mineral Processing Plants, regulates "… the following affected facilities in metallic mineral processing plants: Each crusher and screen in open-pit mines; each crusher, screen, bucket elevator, conveyor belt transfer point, thermal dryer, product packaging station, storage bin, enclosed storage area, truck loading station, truck unloading station, railcar loading station, and railcar unloading station at the mill or concentrator with the following exceptions. All facilities located in underground mines are exempted from the provisions of this subpart …"

The NSPS Subpart LL provisions in 40 CFR § 60.381 defines "metallic mineral processing plants" as "any combination of equipment that produces metallic mineral concentrates from ore." The current scope of MRI includes the production of loose bulk abrasives, roofing granules, roofing sand, mineral fillers, and aggregates from iron silicate (copper slag), not ore. Therefore, this subpart will not apply to MRI.

6.2.1.3 40 CFR 60 Subpart UU – Standards of Performance for Asphalt Processing and Asphalt Roofing Manufacture

Pursuant to the requirements of 40 CFR § 60.470(a), NSPS Subpart UU, Standards of Performance for Asphalt Processing and Asphalt Roofing Manufacture, regulates "…each saturator and each mineral handling and storage facility at asphalt roofing plants; and each asphalt storage tank and each blowing still at asphalt processing plants, petroleum refineries, and asphalt roofing plants."

The NSPS Subpart UU provisions in 40 CFR § 60.471 defines "Asphalt roofing plant" as "a plant which produces asphalt roofing products (shingles, roll roofing, siding, or saturated felt)." The current scope of MRI involves the manufacture of roofing granules and roofing sand used in the production of asphalt roofing products, but MRI does not produce asphalt roofing products. Therefore, this subpart does not apply to MRI.

6.2.1.4 40 CFR 60 Subpart OOO – Standards of Performance for Nonmetallic Mineral Processing Plants

Pursuant to the requirements of 40 CFR § 60.670(a)(1), NSPS Subpart OOO, Standards of Performance for Nonmetallic Mineral Processing Plants, regulates "… the following affected facilities in fixed or portable nonmetallic mineral processing plants: each crusher, grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, enclosed truck or railcar loading station. Also, crushers and grinding mills at hot mix asphalt facilities that reduce the size of nonmetallic minerals embedded in recycled asphalt pavement and subsequent affected facilities up to, but not including, the first storage silo or bin are subject to the provisions of this subpart."

The NSPS Subpart OOO provisions in 40 CFR § 60.671 defines "Nonmetallic mineral processing plants" as "any combination of equipment that is used to crush or grind any nonmetallic mineral wherever located, including lime plants, power plants, steel mills, asphalt concrete plants, Portland cement plants, or any other facility processing nonmetallic minerals except as provided in §60.670 (b) and (c)." The operations at MRI are not considered Nonmetallic Mineral Processing, and therefore, this subpart does not apply to MRI.

6.2.1.5 40 CFR 60 Subpart UUU – Standards of Performance for Calciners and Dryers in Mineral Industries

Pursuant to the requirements of 40 CFR § 60.730(a), NSPS Subpart OOO, Standards of Performance for Nonmetallic Mineral Processing Plants, regulates "… each calciner and dryer at a mineral processing plant. Feed and product conveyors are not considered part of the affected facility. For the brick and related clay products industry, only the calcining and drying of raw materials prior to firing of the brick are covered."

The NSPS Subpart UUU provisions in 40 CFR § 60.731 defines "Mineral processing plant" as "any facility that processes or produces any of the following minerals, their concentrates or any mixture of which the majority (>50 percent) is any of the following minerals or a combination of these minerals: alumina, ball clay, bentonite, diatomite, feldspar, fire clay, fuller's earth, gypsum, industrial sand, kaolin, lightweight aggregate, magnesium compounds, perlite, roofing granules, talc, titanium dioxide, and vermiculite." The current scope of MRI involves less than 50% production of roofing granules. Therefore, this subpart does not apply to MRI.

6.2.2 National Emission Standards for Hazardous Air Pollutants for Source Categories

National Emission Standards for Hazardous Air Pollutants (NESHAP) for Source Categories, located in 40 CFR Part 63, have been promulgated for source categories that emit hazardous air pollutants (HAP). A facility that

is a major source of HAP is defined as having potential emissions greater than 25 tpy of total HAPs and/or 10 tpy of a single HAP. Facilities with a potential to emit HAP at an amount less than the major source thresholds are otherwise considered an "area source." The NESHAP allowable emission limits are most often established on the basis of a maximum achievable control technology (MACT) determination for the particular source. The NESHAP apply to sources in specifically regulated industrial source categories (Clean Air Act [CAA] Section 112(d)) or on a case-by-case basis (CAA Section 112(g)) for facilities not regulated as a specific industrial source type.

MRI will be classified as an area source of HAP because it will have potential HAP emissions less than the major source thresholds. The determination of applicability for NESHAP requirements for area sources of HAP are detailed in the following sections. Pursuant to the requirements of 40 CFR § 63.1(a)(2), all affected sources subject to source-specific NESHAP are subject to the general provisions of NESHAP Subpart A unless specifically excluded by the source-specific NESHAP.

6.2.2.1 40 CFR 63 Subpart A – National Emissions Standards for Hazardous Air Pollutants General Provisions

All "affected sources" subject to a NESHAP Subpart are also subject to the applicable General Provisions of NESHAP Subpart A unless specifically excluded by a specific NESHAP Subpart. NESHAP Subpart A includes the following requirements for affected sources subject to a specific NESHAP Subpart:

- Initial construction/reconstruction notification;
- Initial startup notification;
- Performance tests;
- Performance test date initial notification;
- General monitoring requirements;
- General recordkeeping requirements; and
- Semi-annual monitoring system and/or excess emission reports.

Because MRI includes an affected source subject to a specific NESHAP Subpart, the NESHAP Subpart A General Provisions will apply.

6.2.2.2 40 CFR 63 Subpart LLLLL - National Emission Standards for Hazardous Air Pollutants: Asphalt Processing and Asphalt Roofing Manufacturing

Pursuant to the requirements of 40 CFR §63.8681(a), NESHAP Subpart LLLLL, National Emission Standards for Hazardous Air Pollutants: Asphalt Processing and Asphalt Roofing Manufacturing, applies to owners and operates of asphalt processing facilities and/or asphalt roofing manufacturing facilities. While MRI produces materials used in asphalt roofing manufacturing, it does not manufacture asphalt roofing. Therefore, MRI will not be subject to the requirements of NESHAP Subpart LLLLL.

6.2.2.3 40 CFR 63 Subpart AAAAAAA - National Emission Standards for Hazardous Air Pollutants for Area Sources: Asphalt Processing and Asphalt Roofing Manufacturing

Pursuant to the requirements of 40 CFR §63.111559(a), NESHAP Subpart AAAAAAA, National Emission Standards for Hazardous Air Pollutants for Area Sources: Asphalt Processing and Asphalt Roofing Manufacturing, applies to owners and operates of asphalt processing facilities and/or asphalt roofing manufacturing facilities. While MRI produces materials used in asphalt roofing manufacturing, it does not manufacture asphalt roofing. Therefore, MRI will not be subject to the requirements of NESHAP Subpart AAAAAAA.

6.2.3 Arizona Administrative Code (A.A.C.)

MRI is subject to regulations contained in A.A.C. R18 Chapter 2 (Air Pollution Control). Table 6-1 through Table 6-4 contain summaries of the applicable ADEQ requirements for the Cottonwood facility. Additional details regarding methods used for determining compliance are contained in Table 6-5 through Table 6-7.

Table 6-1. MRI – State Regulatory Applicability Analysis – Article 3

Applicable Regulation ID	Applicable Regulation Title	Equipment Potentially Applicable To	Comments
A.A.C. R18-2-302	Applicability; Registration; Classes of Permit	Facility-wide	Site-wide non-fugitive source emissions are expected to be greater than the permitting exemption thresholds and will also be less than the major source thresholds. As such, MRI will obtain an ADEQ Class II permit.
A.A.C. R18-2-304	Permit Application Processing Procedures	Facility-wide	MRI will complete the applicable standard application form provided by the Director and supply all information required by the form's filing instructions.
A.A.C. R18-2-309	Compliance Plan; Certification	Facility-wide	MRI will submit an annual compliance certification in accordance with the timelines and procedures specified in this section.
A.A.C. R18-2-310.01	Reporting Requirements	Facility-wide	MRI will report to the Director any emissions in excess of the limits established by this Chapter or the applicable permit limits in accordance with the timelines and procedures specified in this section.
A.A.C. R18-2-315	Posting of Permit	Facility-wide	MRI will post the permit or certificate of permit issuance on location at the Cottonwood facility.
A.A.C. R18-2-326	Fees Related to Individual Permits	Facility-wide	MRI will pay the required fees to the Director based on the requirements described in this Section.
A.A.C. R18-2-327	Annual Emissions Inventory Questionnaire	Facility-wide	MRI will complete and submit to the Director an annual emissions inventory questionnaire.
A.A.C R18-2-330.F	Public Participation	Facility-wide	MRI will post a notice containing the information required in R18-2-330.C.3. at where the Cottonwood facility is located.
A.A.C. R18-2-334	Minor New Source Review	Facility-wide	MRI will comply with the requirements of this rule by performing an ambient air quality assessment for each regulated minor NSR pollutant subject to this section.

Table 6-2. MRI – State Regulatory Applicability Analysis – Article 6

Applicable Regulation ID	Applicable Regulation Title	Equipment Potentially Applicable To	Comments
A.A.C. R18-2-605	Roadways and Streets	Roadways. Material transportation.	MRI will utilize good modern practices (e.g., temporary paving, dust suppressants, wetting down, detouring or by other reasonable means) to keep dust and other particulates to a minimum.
A.A.C. R18-2-606	Material Handling	Handling, transporting, or conveying of materials.	MRI will prevent excessive amounts of particulate matter from becoming airborne by taking reasonable precautions (e.g., use of spray bars, wetting agents, dust suppressants, covering the load, and hoods).
A.A.C. R18-2-607	Storage Piles	Material stacking, piling, or storing	MRI will prevent excessive amounts of particulate matter from becoming airborne by taking reasonable precautions (e.g., minimizing fall of material, spray bars, chemical stabilization, wetting, or covering).
A.A.C. R18-2-614	Evaluation of Nonpoint Source Emissions	► Crushing and Screening ► Dryers ► Material Handling ► Explosive Blasting ► Storage Piles	MRI will comply with the 40% opacity requirement for all non-point sources. MRI will conduct an initial visual assessment, and if any visible emissions are detected, will follow-up with an EPA Method 9 evaluation.

Table 6-3. MRI – State Regulatory Applicability Analysis – Article 7

Potentially Applicable Regulation		Equipment Potentially Applicable To	Comments
ID	Title		
A.A.C. R18-2-702	General Visible Emissions Standard	► Exhaust vent raises/shafts ► Dust collectors ► Cooling towers	MRI will comply with the 20% opacity requirement for all existing point sources. MRI will conduct an initial visual assessment, and if any visible emissions are detected, will follow-up with an EPA Method 9 evaluation. Note that engines and tanks are not considered "existing" per definition of "existing emissions unit" pursuant to A.A.C. §R18-2-701(16).
A.A.C R-18-2-726	Standards of Performance for Sandblasting Operations	► Material Transfer ► Storage Piles ► Handling, transporting, or conveying of materials.	Dust emitted from explosive blasting will be controlled in accordance with R18-2-726.

Table 6-4. MRI – State Regulatory Applicability Analysis – Article 9 and 11

Potentially Applicable Regulation		Equipment Potentially Applicable To	Comments
ID	Title		
A.A.C. R18-2-901	Standards of Performance for New Stationary Sources	Various	MRI will comply with the requirements of this section by complying with applicable NSPS described in Section 9.2.1 above, including R18-2-901.1 (A), 71 (OOO), and 77 (UUU).

Table 6-5. MRI Applicable Regulatory Requirements of A.A.C. R18-2-700 and Methods for Determining Compliance

Regulatory Citation for Applicable Requirements	Description of Requirements	Methods Used for Determining Compliance
A.A.C. R18-2-702.B.3.	For all sources described in A.A.C. R18-2-702.A (except as otherwise provided in Title 18, Chapter 2 of the A.A.C. relating to specific types of sources): • Opacity ≤ 20% If the presence of uncombined water is the only reason for an exceedance of the opacity limit, the exceedance shall not constitute a violation.	Facility procedure; records of monthly visual surveys; records of Method 9 observations.

Table 6-6. MRI. Applicable Regulatory Requirements of A.A.C. R18-2-900 and Methods for Determining Compliance

Regulatory Citation for Applicable Requirements	Description of Requirements	Methods Used for Determining Compliance
40 CFR 60.7(a)(1) A.A.C. R18-2-901.1	Provide notification of the date construction (or reconstruction as defined under 40 CFR 60.15) commenced postmarked no later than 30 days after such date. This requirement does not apply in the case of mass-produced facilities which are purchased in completed form.	Facility procedure, submittal of notifications, maintenance of records.
40 CFR 60.7(a)(3) A.A.C. R18-2-901.1	Provide notification of the actual date of initial startup postmarked within 15 days after such date.	Facility procedure, submittal of notifications, maintenance of records.
40 CFR 60.7(a)(4) A.A.C. R18-2-901.1	Submit a notification of any physical or operational change to an existing facility which may increase the emission rate of any air pollutant to which a standard applies, unless that change is specifically exempted under an applicable subpart or in 40 CFR 60.14(e). This notice shall be postmarked 60 days or as soon as practicable before the change is commenced and shall include information describing the precise nature of the change, present and proposed emission control systems, productive capacity of the facility before and after the change, and the expected completion date of the change.	Submittal of notifications, maintenance of records.

Regulatory Citation for Applicable Requirements	Description of Requirements	Methods Used for Determining Compliance
40 CFR 60.7(a)(6) A.A.C. R18-2-901.1	Submit a notification of the anticipated date for conducting the opacity observations required by 40 CFR 60.11(e)(1). The notification must also include, if appropriate, a request for the Administrator to provide a visible emissions reader during a performance test. The notification must be postmarked not less than 30 days prior to such date.	Submittal of notifications, maintenance of records.
40 CFR 60.7(b) A.A.C. R18-2-901.1	Maintain records of: • The occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility; • Any malfunction of the air pollution control equipment; and Any periods during which a continuous monitoring system or monitoring device is inoperative.	Facility procedure; maintenance of records.
40 CFR 60.7(c) A.A.C. R18-2-901.1	Submit excess emissions and monitoring systems performance report and/or summary report form to the Administrator semiannually, except when more frequent reporting is specifically required by an applicable subpart; or the Administrator, on a case-by-case basis, determines that more frequent reporting is necessary to accurately assess the compliance status of the source. All reports shall be postmarked by the 30th day following the end of each six-month period.	Submittal of report, maintenance of records.
40 CFR 60.7(f) A.A.C. R18-2-901.1	Maintain a file of all measurements in a permanent form suitable for inspection. Retain the file for at least two years following the date of such measurements.	Facility procedure; maintenance of records.
40 CFR 60.8(a) A.A.C. R18-2-901.1	Completion of performance test in accordance with 40 CFR 60.8 demonstrating compliance with applicable limits within 60 days after achieving the maximum production rate, but no later than 180 days after initial startup. Submittal of written report of the results of the performance tests to the Director and Administrator.	Performance of EPA Reference Method Tests.
40 CFR 60.11(d) A.A.C. R18-2-901.1	At all times, including periods of startup, shutdown, and malfunction, maintain, and operate, to the extent practicable, any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions.	Facility procedure; maintenance of records.

Regulatory Citation for Applicable Requirements	Description of Requirements	Methods Used for Determining Compliance
40 CFR 60.11(e) A.A.C. R18-2-901.1	If no performance test under 40 CFR 60.8 is required, completion of opacity observations demonstrating compliance with applicable limits within 60 days after achieving the maximum production rate, but no later than 180 days after initial startup.	Performance of EPA Reference Method 9 Tests.

Table 6-7. MRI Applicable Regulatory Requirements of NSPS and NESHAP and Methods for Demonstrating Compliance

Regulatory Citation for Applicable Requirements	Description of Requirements	Methods Used to Demonstrate Compliance
40 CFR 60 Subpart A A.A.C. R18-2-902	Comply with 40 CFR 60 Subpart A requirements of initial notification, performance testing, recordkeeping and monitoring, and mandates general control device requirements for all other subparts as applicable.	Facility procedure; maintenance of records
40 CFR 63 Subpart A A.A.C. R18-2-1102	Comply with 40 CFR 63 Subpart A requirements of initial notification, performance testing, recordkeeping and monitoring, etc.	Facility procedure; maintenance of records
40 CFR 60 Subpart OOO A.A.C. R18-2-901.71	Comply with 40 CFR 60 Subpart OOO requirements for all affected facilities.	Facility procedure; maintenance of records
40 CFR 60 Subpart UUU A.A.C. R18-2-901.77	Comply with 40 CFR 60 Subpart UUU requirements for dryers.	Facility procedure; maintenance of records

7. MODELING OVERVIEW

This section contains a description of the model selection, meteorological data, terrain data, building wake effects, and receptors that were used in the air dispersion modeling analysis. This modeling analysis follows the Arizona Department of Environmental Quality (ADEQ) Air Dispersion Modeling Guidelines[2].

7.1 Dispersion Model Section

On November 9, 2005, the EPA promulgated the American Meteorological Society / Environmental Protection Agency Regulatory Model (AERMOD) for adoption into the *Guideline on Air Quality Models (Guidelines).*[3] AERMOD includes a state-of-the-science downwash algorithm and utilizes AERMET, a meteorological data preprocessor that utilizes current planetary boundary layer (PBL) theory to calculate the dispersion coefficients (σ_y and σ_z).[4] The modeling analysis was started before the release of the latest version of AERMOD (version 23132) and due to timeline of this application, AERMOD model (version 22112) was used in conducting the modeling analysis. The modeling was performed using the regulatory default option which included:

- Stack-tip downwash; and
- A routine for processing averages when calm wind conditions occur or when meteorological data is missing.

7.2 Meteorological Data

EPA modeling guidance recommends the use of five years of off-site meteorological data or at least one year of on-site meteorological data. MRI utilized two sets of five years of meteorological data collected at the Southeast and Northwest of Phoenix Cement Company (PCC) from 2018 to 2022. The meteorological data collected from the PCC meteorological tower stations were consistent with EPA recommendations for meteorological data instruments and completeness.

The EPA AERMOD program requires meteorological data preprocessed with the AERMET program. The modeling analysis was started before the release of the latest version of AERMET (version 23132) and due to timeline of this application, AERMET program (version 22112) was used in conducting the modeling analysis. AERMET is a two-stage meteorological data processor that reads in data observations, performs quality checks, and derives additional micrometeorological parameters required by AERMOD. In addition to the traditional wind and temperature data, AERMOD uses a combination of data observations and theory to characterize the turbulence in the atmosphere, both at the surface and aloft. AERMET meteorological data were refined for a particular analysis based on the choice of micrometeorological parameters that were linked to the land use and land cover (LULC) around the particular meteorological site. By providing raw surface and upper air station observation data to AERMET along with land use parameters, AERMOD model-ready data were created. AERMET generated both a surface file and vertical profile file to pass meteorological observations and turbulence parameters to AERMOD.

[2] Air Quality Modeling Guidelines for Arizona Air Quality Permits, November 1, 2019.

[3] Code of Federal Regulations, Title 40-Protection of the Environment, Part 51, Appendix W.

[4] Ibid.

7.2.1 AERMET Processing

As requested by ADEQ, MRI has reviewed the Bulk Richardson option as well as the ADJ_U* low wind turbulence option for meteorological data processing. The upper air station used for the AERMET processing was Flagstaff (FGS).

7.3 Terrain

The terrain elevation for each modeled receptor, building, and source was determined using the USGS National Elevation Dataset (NED). Specifically, the USGS NED 1/3 arcsecond (approximately 10-meter resolution) was used.

The terrain height for each modeled receptor was calculated using the AERMOD terrain processor (AERMAP version 18081). In addition to terrain elevation, an additional parameter called the hill height scale is required for each receptor to execute AERMOD's terrain modeling algorithms. AERMOD computes the concentration at each receptor using the dividing streamline method, where, based on the critical height of the terrain, the plume will either go over or around the terrain. The hill height scale was computed by the AERMAP terrain preprocessor for each receptor as a measure of the one terrain feature in the modeling domain that would have the greatest effect on plume behavior at that receptor.

The hill height scale does not represent the critical dividing streamline height itself but supplies the computational algorithms with an indication of the relative relief within the modeling domain for the determination of the critical dividing streamline height for each hour of meteorological data.

According to Section 2.2.1 of the AERMOD Users Guide, the NED array boundary for AERMAP must include all terrain features that exceed a 10 percent elevation slope from any given receptor to properly calculate the hill height scale at each receptor.[5] The domain for the hill height analysis was set to the minimum coverage required for proper handling of elevation slope.

7.4 Building Wake Effects (Downwash)

The emission sources considered in this analysis were evaluated in terms of their proximity to nearby structures. The purpose of this evaluation is to determine if stack discharge might become caught in the turbulent wakes of these structures. Wind blowing around a building creates zones of turbulence that are greater than if the building was absent. Plumes entrained in the zones of turbulence experience enhanced plume growth and restricted plume rise. AERMOD incorporates the Plume Rise Model Enhancements (PRIME) algorithms using dimensions from the EPA's Building Profile Input Program (BPIP) for estimating plumes affected by building wakes. The site layout was used to digitize buildings and structures to be included in the downwash analysis. The Building Profile Input Program for PRIME (BPIPPRM) Version 04274 was used to calculate the downwash values for each point source.

All buildings and structure that will be constructed as part of the modification were included in the downwash evaluation. There are no nearby structures outside of the fenceline that are expected to impact emissions.

[5] U.S. Environmental Protection Agency, *User's Guide for the AMS/EPA Regulatory Model – AERMOD*, Research Triangle Park, North Carolina, EPA-454/B-03-001, September, 2004.

7.5 Receptor Grid

A nested receptor grid have been used to cover a region that extends 10 km beyond the MRI fenceline as requested by ADEQ. Note that all receptor coordinates have been established using the UTM NAD83 coordinate system. The primary nested receptor grid were:[6]

1. The "fenceline grid" is a discrete receptor grid with the receptors spaced at 25-meter intervals along the fenceline.
2. Receptors at 50-meter intervals extending approximately 500 m from ambient air boundary (AAB).
3. The "fine grid" contains 100-meter-spaced receptors extending approximately 1 km from AAB, excluding the receptors within the fenceline.
4. The "medium grid" contains 200-meter-spaced receptors extending from 1 km to 2 km from AAB.
5. The "coarse grid" contains 500-meter-spaced receptors extending from 2 km to 5 km from AAB.
6. The "very coarse grid" contains 1,000-meter-spaced receptors extending from 5 to 10 km from AAB.

7.6 Modeling Results

The MRI Facility modeling results are contained in the PTE workbook.

[6] Per ADEQ, Air Quality Modeling Guidelines for Arizona Air Quality Permits, Section 3.6, November 1, 2019.

APPENDIX A. EMISSIONS CALCULATIONS

Minerals Research, Inc. Controlled Emissions Summary

Process	Controlled PTE (tpy)						
	PM	PM10	PM2.5	SO2	NOX	CO	VOC
Crushing and Screening	4.32	1.98	0.53	--	--	--	--
Dryer	0.22	0.22	0.22	0.02	2.83	2.89	0.16
Stockpiles	0.17	0.08	0.01	--	--	--	--
Unpaved Roads	3.36	0.87	0.09	--	--	--	--
Explosive Blasting	0.04	0.02	1.19E-03	0.02	0.16	0.64	--
Total	**8.10**	**3.17**	**0.85**	**0.04**	**3.00**	**3.53**	**0.16**
m-NSR Threshold	--	7.5	5	20	20	50	20
Exceed?	--	**N**	**N**	**N**	**N**	**N**	**N**

HAP	Maximum Sample Concentration (% Mass)	Emissions (tpy)
Antimony	7.40E-04	5.99E-03
Arsenic	1.80E-02	1.46E-01
Beryllium	2.40E-05	1.94E-04
Cadmium	5.40E-04	4.37E-03
Chromium	2.30E-03	1.86E-02
Cobalt	5.60E-03	4.54E-02
Lead	1.30E-02	1.05E-01
Nickel	8.90E-03	7.21E-02
Selenium	8.90E-04	7.21E-03
Total		0.404923438

MRI COTTONWOOD PLANT - MAXIMUM POTENTIAL TO EMIT CALCULATIONS WORKSHEET - AIR PERMIT APPLICATION

Primary Plant and Secondary Plan

Source No.	Description		Total Process Rate TPD	Total Process Rate TPY	% of Plant Feed	PM Emissions Factor (lbs/ton of throughput)	PM10 Emissions Factor (lbs/ton of throughput)	PM2.5 Emissions Factor (lbs/ton of throughput)	Emission Factor Source	lb/ton	PM Emissions TPY	PM10 Emissions TPY	PM2.5 Emissions TPY	Capture Reduction Factor	Controls Reduction Factor	PM Emissions (lbs) Non Fugitive	PM Emissions (lbs) Fugitive	Total PM Emissions (lbs) Fugitive & Non Fugitive	PM10 Emissions (lb/day) Non Fugitive	PM10 Emissions (lbs) Non Fugitive	PM10 Emissions (lbs) Fugitive	PM10 Emissions (lbs) Fugitive	Total PM10 Emissions (lbs) Fugitive & Non Fugitive	PM2.5 Emissions (lb/day) Non Fugitive	PM2.5 Emissions (lbs) Non Fugitive	PM2.5 Emissions (lb/day) Fugitive	PM2.5 Emissions (lbs) Fugitive	Total PM2.5 Emissions (lbs) Fugitive & Non Fugitive
	Total Maximum Plant Operating Hours (hr/yr	5840																										
	Limited to 16-hour/day by Use Permit					10	hrs/day																					
	Primary Plant crushing hours (hr/yr	750				365	days/yr																					
Primary Crushing/Screening Plar			**2,200**	**150,000**																								
101B	Batch Drop to Primary Hopper/Grizzly		2,200	150,000	1	0.0011122	0.000526	7.96578E-05	AP-42 Ch 13.2.4 Expression 1	2000	8.34E-02	3.95E-02	5.97E-03				8.34E-02	8.34E-02				3.95E-02	3.95E-02				5.97E-03	5.97E-03
102T	Primary Hopper Discharge		2,200	150,000	1	0.00014	0.000046	0.000013	AP-42 Ch 11.19.2-2 (Controlled, Conveyor Transfer Point	2000	1.05E-02	3.45E-03	9.75E-04				1.05E-02	1.05E-02				3.45E-03	3.45E-03				9.75E-04	9.75E-04
103T	Hopper Disch Belt to Screen Feec		2,200	150,000	1	0.00014	0.000046	0.000013	AP-42 Ch 11.19.2-2 (Controlled, Conveyor Transfer Point	2000	1.05E-02	3.45E-03	9.75E-04				1.05E-02	1.05E-02				3.45E-03	3.45E-03				9.75E-04	9.75E-04
104T	6x14 Screen Feed Bel		4,085	278,550	1.857	0.00014	0.000046	0.000013	AP-42 Ch 11.19.2-2 (Controlled, Conveyor Transfer Point	2000	1.95E-02	6.41E-03	1.81E-03				1.95E-02	1.95E-02				6.41E-03	6.41E-03				1.81E-03	1.81E-03
105E	6x14 Screer		4,085	278,550	1.857	0.0022	0.00074	0.00005	AP-42 Ch 11.19.2-2 (Controlled, Screening	2000	3.06E-01	1.03E-01	6.96E-03				3.06E-01	3.06E-01				1.03E-01	1.03E-01				6.96E-03	6.96E-03
106T	6x14 Discharge to Cone Crshr Feec		1,881	128,250	0.855	0.00014	0.000046	0.000013	AP-42 Ch 11.19.2-2 (Controlled, Conveyor Transfer Point	2000	8.98E-03	2.95E-03	8.34E-04				8.98E-03	8.98E-03				2.95E-03	2.95E-03				8.34E-04	8.34E-04
107T	6x14 Discharge Undrs		2,200	150,000	1	0.00014	0.000046	0.000013	AP-42 Ch 11.19.2-2 (Controlled, Conveyor Transfer Point	2000	1.05E-02	3.45E-03	9.75E-04				1.05E-02	1.05E-02				3.45E-03	3.45E-03				9.75E-04	9.75E-04
108T	6x14 Discharge Bel		2,200	150,000	1	0.00014	0.000046	0.000013	AP-42 Ch 11.19.2-2 (Controlled, Conveyor Transfer Point	2000	1.05E-02	3.45E-03	9.75E-04				1.05E-02	1.05E-02				3.45E-03	3.45E-03				9.75E-04	9.75E-04
109T	Cone Crusher Feec		1,881	128,250	0.855	0.00014	0.000046	0.000013	AP-42 Ch 11.19.2-2 (Controlled, Conveyor Transfer Point	2000	8.98E-03	2.95E-03	8.34E-04				8.98E-03	8.98E-03				2.95E-03	2.95E-03				8.34E-04	8.34E-04
110E	Cone Crusher		1,881	128,250	0.855	0.0012	0.00054	0.0001	AP-42 Ch 11.19.2-2 (Controlled, Tertiary Crushing	2000	7.70E-02	3.46E-02	6.41E-03				7.70E-02	7.70E-02				3.46E-02	3.46E-02				6.41E-03	6.41E-03
111T	Cone Crusher Discharge		1,881	128,250	0.855	0.00014	0.000046	0.000013	AP-42 Ch 11.19.2-2 (Controlled, Conveyor Transfer Point	2000	8.98E-03	2.95E-03	8.34E-04				8.98E-03	8.98E-03				2.95E-03	2.95E-03				8.34E-04	8.34E-04
112T	Cone Crusher Disch Conveyor		1,881	128,250	0.855	0.00014	0.000046	0.000013	AP-42 Ch 11.19.2-2 (Controlled, Conveyor Transfer Point	2000	8.98E-03	2.95E-03	8.34E-04				8.98E-03	8.98E-03				2.95E-03	2.95E-03				8.34E-04	8.34E-04
113T	Stacker Conveyor to Stockpile		2,200	150,000	1	0.0011122	0.000526	7.96578E-05	AP-42 Ch 13.2.4 Expression 1	2000	8.34E-02	3.95E-02	5.97E-03				8.34E-02	8.34E-02				3.95E-02	3.95E-02				5.97E-03	5.97E-03
114B	Batch Drop bulk truck loadou		440	30,000	0.2	0.0011122	0.000526	7.96578E-05	AP-42 Ch 13.2.4 Expression 1	2000	1.67E-02	7.89E-03	1.19E-03				1.67E-02	1.67E-02				7.89E-03	7.89E-03				1.19E-03	1.19E-03
Secondary Crushing/Screening Plar			**240**	**87,600**	2.77																							
200B	Batch Drop to Secondary Hopper		240	87,600	1	0.0011122	0.000526	7.96578E-05	AP-42 Ch 13.2.4 Expression 1	2000	4.87E-02	2.30E-02	3.49E-03				4.87E-02	4.87E-02			1.26E-01	2.30E-02	2.30E-02			1.91E-02	3.49E-03	3.49E-03
201T	GS-300: Hopper Discharge Feeder to CV-300		240	87,600	1	0.00014	0.000046	0.000013	AP-42 Ch 11.19.2-2 (Controlled, Conveyor Transfer Point	2000	6.13E-03	2.01E-03	5.69E-04				6.13E-03	6.13E-03			1.10E-02	2.01E-03	2.01E-03			3.12E-03	5.69E-04	5.69E-04
202T	CV-300: discharge to CV-401		240	87,600	1	0.00014	0.000046	0.000013	AP-42 Ch 11.19.2-2 (Controlled, Conveyor Transfer Point	2000	6.13E-03	2.01E-03	5.69E-04				6.13E-03	6.13E-03			1.10E-02	2.01E-03	2.01E-03			3.12E-03	5.69E-04	5.69E-04
203T	CV-401: PEP Secondary Screen Feec		665	242,827	2.75	0.00014	0.000046	0.000013	AP-42 Ch 11.19.2-2 (Controlled, Conveyor Transfer Point	2000	1.70E-02	5.59E-03	1.58E-03				1.70E-02	1.70E-02			3.06E-02	5.59E-03	5.59E-03			8.65E-03	1.58E-03	1.58E-03
204E	SC-300: PEP Secondary Screen		665	242,827	2.75	0.0022	0.00074	0.00005	AP-42 Ch 11.19.2-2 (Controlled, Screening	2000	2.67E-01	8.98E-02	6.07E-03				2.67E-01	2.67E-01			4.92E-01	8.98E-02	8.98E-02			3.33E-02	6.07E-03	6.07E-03
205T	PEP Discharge Overs to CV-404		420	153,300	1.75	0.00014	0.000046	0.000013	AP-42 Ch 11.19.2-2 (Controlled, Conveyor Transfer Point	2000	1.07E-02	3.53E-03	9.96E-04				1.07E-02	1.07E-02			1.93E-02	3.53E-03	3.53E-03			5.46E-03	9.96E-04	9.96E-04
206T	PEP Discharge Unders to CV-301		240	87,600	1	0.00014	0.000046	0.000013	AP-42 Ch 11.19.2-2 (Controlled, Conveyor Transfer Point	2000	6.13E-03	2.01E-03	5.69E-04				6.13E-03	6.13E-03			1.10E-02	2.01E-03	2.01E-03			3.12E-03	5.69E-04	5.69E-04
207T	CV-404: VSI Crusher Feed		431	157,154	1.75	0.00014	0.000046	0.000013	AP-42 Ch 11.19.2-2 (Controlled, Conveyor Transfer Point	2000	1.10E-02	3.61E-03	1.02E-03				1.10E-02	1.10E-02			1.98E-02	3.61E-03	3.61E-03			5.60E-03	1.02E-03	1.02E-03
208E	CR-401: VSI Crusher		431	157,154	1.75	0.0012	0.00054	0.0001	AP-42 Ch 11.19.2-2 (Controlled, Tertiary Crushing	2000	9.43E-02	4.24E-02	7.86E-03				9.43E-02	9.43E-02			2.33E-01	4.24E-02	4.24E-02			4.31E-02	7.86E-03	7.86E-03
209T	VSI Crusher Discharge to CV-402		431	157,154	1.75	0.00014	0.000046	0.000013	AP-42 Ch 11.19.2-2 (Controlled, Conveyor Transfer Point	2000	1.10E-02	3.61E-03	1.02E-03				1.10E-02	1.10E-02			1.98E-02	3.61E-03	3.61E-03			5.60E-03	1.02E-03	1.02E-03
210T	CV-402: discharge to CV-403		431	157,154	1.75	0.00014	0.000046	0.000013	AP-42 Ch 11.19.2-2 (Controlled, Conveyor Transfer Point	2000	1.10E-02	3.61E-03	1.02E-03				1.10E-02	1.10E-02			1.98E-02	3.61E-03	3.61E-03			5.60E-03	1.02E-03	1.02E-03
211T	CV-403: VSI Return to CV-300		431	157,154	1.75	0.00014	0.000046	0.000013	AP-42 Ch 11.19.2-2 (Controlled, Conveyor Transfer Point	2000	1.10E-02	3.61E-03	1.02E-03				1.10E-02	1.10E-02			1.98E-02	3.61E-03	3.61E-03			5.60E-03	1.02E-03	1.02E-03
212T	CV-301: Dryer Feed Belt discharge to DR-500		240	87,600	1	0.00014	0.000046	0.000013	AP-42 Ch 11.19.2-2 (Controlled, Conveyor Transfer Point)	2000	6.13E-03	2.01E-03	5.69E-04				6.13E-03	6.13E-03			1.10E-02	2.01E-03	2.01E-03			3.12E-03	5.69E-04	5.69E-04
213E **	DR-500: Fluid Bed Dryer	Enclosed	240	87,600	1	0.0268	0.0146	0.00402	AP-42 Ch 11.19.2-4 (Flash Drying with Fabric Filte	2000	1.17E+00	6.39E-01	1.76E-01	100.00%	99.50%	1.17E+00	0.00E+00	1.17E+00	3.50E+00	6.39E-01	0.00E+00	0.00E+00	6.39E-01	9.65E-01	1.76E-01	0.00E+00	0.00E+00	1.76E-01
214T	DR-500 Dryer Discharge to CV-501		211	77,088	0.88	0.003	0.0011	0.00045	AP-42 Ch 11.19.2-2 (Uncontrolled, Conveyor Transfer Point	2000	1.16E-01	4.24E-02	1.73E-02				1.16E-01	1.16E-01			2.32E-01	4.24E-02	4.24E-02			9.50E-02	1.73E-02	1.73E-02
215T	CV-501: to MEV2&3 Screen Feed		211	77,088	0.88	0.003	0.0011	0.00045	AP-42 Ch 11.19.2-2 (Uncontrolled, Conveyor Transfer Point	2000	1.16E-01	4.24E-02	1.73E-02				1.16E-01	1.16E-01			2.32E-01	4.24E-02	4.24E-02			9.50E-02	1.73E-02	1.73E-02
216E *	SC-600: MEV2 Tertiary Screen #1	Enclosed	106	38,544	0.44	0.3	0.072	0.045	AP-42 Ch 11.19.2-2 (Uncontrolled, Fines Screening	2000	5.78E+00	1.39E+00	8.67E-01	99.00%	99.00%	5.72E-02	5.78E-02	1.15E-01	7.53E-02	1.37E-02	7.60E-02	1.39E-02	2.76E-02	4.70E-02	8.59E-03	4.75E-02	8.67E-03	1.73E-02
217E *	SC-601: MEV3 Tertiary Screen #2	Enclosed	106	38,544	0.44	0.3	0.072	0.045	AP-42 Ch 11.19.2-2 (Uncontrolled, Fines Screening	2000	5.78E+00	1.39E+00	8.67E-01	99.00%	99.00%	5.72E-02	5.78E-02	1.15E-01	7.53E-02	1.37E-02	7.60E-02	1.39E-02	2.76E-02	4.70E-02	8.59E-03	4.75E-02	8.67E-03	1.73E-02
218T	Chute: SC-600 Oversize Feed to CV-404		5.28	1,927	0.022	0.003	0.0011	0.00045	AP-42 Ch 11.19.2-2 (Uncontrolled, Conveyor Transfer Point	2000	2.89E-03	1.06E-03	4.34E-04				2.89E-03	2.89E-03			5.81E-03	1.06E-03	1.06E-03			2.38E-03	4.34E-04	4.34E-04
219T	Chute: SC-601 Oversize Feed to CV-404		5.28	1,927	0.022	0.003	0.0011	0.00045	AP-42 Ch 11.19.2-2 (Uncontrolled, Conveyor Transfer Point	2000	2.89E-03	1.06E-03	4.34E-04				2.89E-03	2.89E-03			5.81E-03	1.06E-03	1.06E-03			2.38E-03	4.34E-04	4.34E-04
220T	Chute: SC-600 Feed to AW 101		37	13,490	0.154	0.003	0.0011	0.00045	AP-42 Ch 11.19.2-2 (Uncontrolled, Conveyor Transfer Point	2000	2.02E-02	7.42E-03	3.04E-03				2.02E-02	2.02E-02			4.07E-02	7.42E-03	7.42E-03			1.66E-02	3.04E-03	3.04E-03
221T	Chute: SC-601 Feed to AW-101		37	13,490	0.154	0.003	0.0011	0.00045	AP-42 Ch 11.19.2-2 (Uncontrolled, Conveyor Transfer Point	2000	2.02E-02	7.42E-03	3.04E-03				2.02E-02	2.02E-02			4.07E-02	7.42E-03	7.42E-03			1.66E-02	3.04E-03	3.04E-03
222T	Chute: SC-600 Feed to CV-610		37	13,490	0.154	0.003	0.0011	0.00045	AP-42 Ch 11.19.2-2 (Uncontrolled, Conveyor Transfer Point	2000	2.02E-02	7.42E-03	3.04E-03				2.02E-02	2.02E-02			4.07E-02	7.42E-03	7.42E-03			1.66E-02	3.04E-03	3.04E-03
223T	Chute: SC-601 Feed to CV-610		37	13,490	0.154	0.003	0.0011	0.00045	AP-42 Ch 11.19.2-2 (Uncontrolled, Conveyor Transfer Point	2000	2.02E-02	7.42E-03	3.04E-03				2.02E-02	2.02E-02			4.07E-02	7.42E-03	7.42E-03			1.66E-02	3.04E-03	3.04E-03
224T	Chute: SC-600 Feed to CV-611		32	11,563	0.132	0.003	0.0011	0.00045	AP-42 Ch 11.19.2-2 (Uncontrolled, Conveyor Transfer Point	2000	1.73E-02	6.36E-03	2.60E-03				1.73E-02	1.73E-02			3.48E-02	6.36E-03	6.36E-03			1.43E-02	2.60E-03	2.60E-03
225T	Chute: SC-601 Feed to CV-611		32	11,563	0.132	0.003	0.0011	0.00045	AP-42 Ch 11.19.2-2 (Uncontrolled, Conveyor Transfer Point	2000	1.73E-02	6.36E-03	2.60E-03				1.73E-02	1.73E-02			3.48E-02	6.36E-03	6.36E-03			1.43E-02	2.60E-03	2.60E-03
226E *	AW-101: Rotary air wash	Enclosed	74	26,981	0.308	0.0268	0.0146	0.00402	AP-42 Ch 11.19.2-4 (Flash Drying with Fabric Filte	2000	3.62E-01	1.97E-01	5.42E-02	99.00%	99.50%	3.62E-01	7.30E-01	1.09E+00	1.08E+00	1.97E-01	2.18E+00	3.98E-01	5.95E-01	2.97E-01	5.42E-02	6.00E-01	1.10E-01	1.64E-01
227T	AW-101: Rotary air wash feed to CV-601		74	26,981	0.308	0.003	0.0011	0.00045	AP-42 Ch 11.19.2-2 (Uncontrolled, Conveyor Transfer Point	2000	4.05E-02	1.48E-02	6.07E-03				4.05E-02	4.05E-02			8.13E-02	1.48E-02	1.48E-02			3.33E-02	6.07E-03	6.07E-03
228T **	CV-601: Coarse Product Feed to CV-612/silos(12-15	Enclosed	74	26,981	0.308	0.003	0.0011	0.00045	AP-42 Ch 11.19.2-2 (Uncontrolled, Conveyor Transfer Point	2000	4.05E-02	1.48E-02	6.07E-03	95.00%	99.00%	3.84E-04	2.02E-03	2.41E-03	7.72E-04	1.41E-04	4.07E-03	7.42E-04	8.83E-04	3.16E-04	5.77E-05	1.66E-03	3.04E-04	3.61E-04
229T	CV-612: Silo Shuttle Conveyor Feed to Silos(1,10,11,16		74	26,981	0.308	0.003	0.0011	0.00045	AP-42 Ch 11.19.2-2 (Uncontrolled, Conveyor Transfer Point	2000	4.05E-02	1.48E-02	6.07E-03				4.05E-02	4.05E-02			8.13E-02	1.48E-02	1.48E-02			3.33E-02	6.07E-03	6.07E-03
230T	CV-610: Medium Product Feed to CV-609		74	26,981	0.308	0.003	0.0011	0.00045	AP-42 Ch 11.19.2-2 (Uncontrolled, Conveyor Transfer Point	2000	4.05E-02	1.48E-02	6.07E-03				4.05E-02	4.05E-02			8.13E-02	1.48E-02	1.48E-02			3.33E-02	6.07E-03	6.07E-03
231T	CV-609: Medium Product Feed to CV-604		74	26,981	0.308	0.003	0.0011	0.00045	AP-42 Ch 11.19.2-2 (Uncontrolled, Conveyor Transfer Point	2000	4.05E-02	1.48E-02	6.07E-03				4.05E-02	4.05E-02			8.13E-02	1.48E-02	1.48E-02			3.33E-02	6.07E-03	6.07E-03
~~232E *~~	~~AW-102: Rotary air wash (Future~~	~~Enclosed~~	~~24~~	~~26,981~~	~~0.308~~	~~0.0268~~	~~0.0146~~	~~0.00402~~	~~AP-42 Ch 11.19.2-4 (Flash Drying with Fabric Filte~~																			
~~233T *~~	~~AW-102: Rotary air wash feed to CV-604~~		~~24~~	~~26,981~~	~~0.308~~	~~0.003~~	~~0.0011~~	~~0.00045~~	~~AP-42 Ch 11.19.2-2 (Uncontrolled, Conveyor Transfer Point~~																			
234T **	CV-604: Medium Product Transfer to Silos(1,2,3,8,9	Enclosed	74	26,981	0.308	0.003	0.0011	0.00045	AP-42 Ch 11.19.2-2 (Uncontrolled, Conveyor Transfer Point	2000	4.05E-02	1.48E-02	6.07E-03	95.00%	99.00%	3.84E-04	2.02E-03	2.41E-03	7.72E-04	1.41E-04	4.07E-03	7.42E-04	8.83E-04	3.16E-04	5.77E-05	1.66E-03	3.04E-04	3.61E-04
235T	CV-611: Fines Product Feed to CV-605		63	23,126	0.264	0.003	0.0011	0.00045	AP-42 Ch 11.19.2-2 (Uncontrolled, Conveyor Transfer Point	2000	3.47E-02	1.27E-02	5.20E-03				3.47E-02	3.47E-02			6.97E-02	1.27E-02	1.27E-02			2.85E-02	5.20E-03	5.20E-03
236T	CV-602: Fines Product Feed to CV-603		63	23,126	0.264	0.003	0.0011	0.00045	AP-42 Ch 11.19.2-2 (Uncontrolled, Conveyor Transfer Point	2000	3.47E-02	1.27E-02	5.20E-03				3.47E-02	3.47E-02			6.97E-02	1.27E-02	1.27E-02			2.85E-02	5.20E-03	5.20E-03
~~237E *~~	~~AW-103: Rotary Air Wash~~	~~Enclosed~~	~~63~~	~~23,126~~	~~0.264~~	~~0.0268~~	~~0.0146~~	~~0.00402~~	~~AP-42 Ch 11.19.2-4 (Flash Drying with Fabric Filte~~																			
~~238T *~~	~~AW-103: Rotary Air Wash Feed to CV-603~~		~~63~~	~~23,126~~	~~0.264~~	~~0.003~~	~~0.0011~~	~~0.00045~~	~~AP-42 Ch 11.19.2-2 (Uncontrolled, Conveyor Transfer Point~~																			
239T **	CV-603: Fine Product Transfer to Silos(4,7)	Enclosed	63	23,126	0.264	0.003	0.0011	0.00045	AP-42 Ch 11.19.2-2 (Uncontrolled, Conveyor Transfer Point	2000	3.47E-02	1.27E-02	5.20E-03	95.00%	99.00%	3.30E-04	1.73E-03	2.06E-03	6.62E-04	1.21E-04	3.48E-03	6.36E-04	7.57E-04	2.71E-04	4.94E-05	1.43E-03	2.60E-04	3.10E-04
~~240E **~~	~~SC-602: Overs/ Fines Screen (silo #7~~	~~Enclosed~~	~~63~~	~~23,126~~	~~0.264~~	~~0.3~~	~~0.072~~	~~0.045~~	~~AP-42 Ch 11.19.2-2 (Uncontrolled, Fines Screening~~																			
~~241E **~~	~~SC-602: Overs/ Fines Screen discharge to silo #7~~	~~Enclosed~~	~~63~~	~~23,126~~	~~0.264~~	~~0.003~~	~~0.0011~~	~~0.00045~~	~~AP-42 Ch 11.19.2-2 (Uncontrolled, Conveyor Transfer Point~~																			
242E	BH-600: Dust Collector 484	Enclosed																										
243E	BH-601: Dust Collector 356	Enclosed																										
244T *	Dust Collector 484 discharge to DPG-108/packaging	Enclosed	14.40	5,256	0.06	0.003	0.0011	0.00045	AP-42 Ch 11.19.2-2 (Uncontrolled, Conveyor Transfer Point	2000	7.88E-03	2.89E-03	1.18E-03	95.00%	99.00%	7.49E-05	3.94E-04	4.69E-04	1.50E-04	2.75E-05	7.92E-04	1.45E-04	1.72E-04	6.16E-05	1.12E-05	3.24E-04	5.91E-05	7.04E-05
245T **	Dust Collector 356 discharge to DPG-108/packaging	Enclosed	14.40	5,256	0.06	0.003	0.0011	0.00045	AP-42 Ch 11.19.2-2 (Uncontrolled, Conveyor Transfer Point	2000	7.88E-03	2.89E-03	1.18E-03	95.00%	99.00%	7.49E-05	3.94E-04	4.69E-04	1.50E-04	2.75E-05	7.92E-04	1.45E-04	1.72E-04	6.16E-05	1.12E-05	3.24E-04	5.91E-05	7.04E-05
246E ***	DPG-108: Dense Phase Pneumatic System	Enclosed	20.16	7,358	0.08	0.003	0.0011	0.00045	AP-42 Ch 11.19.2-2 (Uncontrolled, Conveyor Transfer Point	2000	1.10E-02	4.05E-03	1.66E-03	95.00%	99.00%	1.05E-04	5.52E-04	6.57E-04	2.11E-04	3.84E-05	1.11E-03	2.02E-04	2.41E-04	8.62E-05	1.57E-05	4.54E-04	8.28E-05	9.85E-05
247T ***	Discharge from DPG-108 to GSF Silos (5 & 6)	Enclosed	20.16	7,358	0.08	0.003	0.0011	0.00045	AP-42 Ch 11.19.2-2 (Uncontrolled, Conveyor Transfer Point	2000	1.10E-02	4.05E-03	1.66E-03	95.00%	99.00%	1.05E-04	5.52E-04	6.57E-04	2.11E-04	3.84E-05	1.11E-03	2.02E-04	2.41E-04	8.62E-05	1.57E-05	4.54E-04	8.28E-05	9.85E-05
248E	Bin Vent for GSF Silos (5 & 6)	Enclosed																										
249T *****	GSF Packaging	Enclosed	8.64	3,154	0.04	0.00014	0.000046	0.000013	AP-42 Ch 11.19.2-2 (Controlled, Conveyor Transfer Point	2000	2.21E-04	7.25E-05	2.05E-05	90.00%			2.21E-05	2.21E-05			3.97E-05	7.25E-06	7.25E-06			1.12E-05	2.05E-06	2.05E-06
250E	Silo screens (silos#1-4,14-16)		219.84	11,463	0.92	0.0036	0.0022	0.00054	AP-42 Ch 11.19.2-2 (Controlled, Fines Screening	2000	2.06E-02	1.26E-02	3.10E-03				2.06E-02	2.06E-02			4.84E-01	1.26E-02	1.26E-02			1.19E-01	3.10E-03	3.10E-03
251T **	Product Packaging & Bulk Loading silos 1-16		154	56,169	0.6412	0.0011122	0.000526	7.96578E-05	AP-42 Ch 13.2.4 Expression 1	2000	3.12E-02	1.48E-02	2.24E-03	95.00%	99.00%	2.97E-04	1.56E-03	1.86E-03	7.69E-04	1.40E-04	4.05E-03	7.39E-04	8.79E-04	1.16E-04	2.13E-05	6.13E-04	1.12E-04	1.33E-04
252T ****	CV-700: Paper bag transfer to CV-701		66	24,072	0.2748	0.0011122	0.000526	7.96578E-05	AP-42 Ch 13.2.4 Expression 1	2000	1.34E-02	6.33E-03	9.59E-04				1.34E-02	1.34E-02			3.47E-02	6.33E-03	6.33E-03			5.25E-03	9.59E-04	9.59E-04
253T ****	CV-701: Discharge to bagging hoppe		66	24,072	0.2748	0.0011122	0.000526	7.96578E-05	AP-42 Ch 13.2.4 Expression 1	2000	1.34E-02	6.33E-03	9.59E-04				1.34E-02	1.34E-02			3.47E-02	6.33E-03	6.33E-03			5.25E-03	9.59E-04	9.59E-04
254B	Silo 6 drop to bulk loadou		20	7,358	0.08	0.0011122	0.000526	7.96578E-05	AP-42 Ch 13.2.4 Expression 1	2000	4.09E-03	1.94E-03	2.93E-04				4.09E-03	4.09E-03			1.06E-02	1.94E-03	1.94E-03			1.61E-03	2.93E-04	2.93E-04
255B	Bulk truck loadout GSF		20	7,358	0.08	0.0011122	0.000526	7.96578E-05	AP-42 Ch 13.2.4 Expression 1	2000	4.09E-03	1.94E-03	2.93E-04				4.09E-03	4.09E-03			1.06E-02	1.94E-03	1.94E-03			1.61E-03	2.93E-04	2.93E-04
TOTAL EMISSIONS FROM PROCESSING PLANT NON-POINT SOURCES											**15.0937**	**4.3694**	**2.1452**			**1.6516**	**2.6655**	**4.3171**		**0.8646**	**1.1159**	**1.9805**			**0.2477**		**0.2833**	**0.5310**

Notes:
Building Enclosure efficiency = 90.00%
100% capture has been used for the fluid bed dryer and rotary air wash per meeting with ADEQ on October 5, 202
95% capture efficiency is used for equipment routing to a baghouse per meeting with ADEQ on October 5, 202
For equipment with emission factor of "Flash Drying with Fabric Filter", a control efficiency of 99.5% has been used per AP-42 section 11.19
For equipment routing to a baghouse a control efficiency of 99% has been used per meeting with ADEQ on October 5, 202
*: Controls routed to BH-600 (242E)
**: Controls routed to BH-601 (243E)
***: Controls routed to Bin Vent (248E)
****: Based on historical product split between the two final streams, MRI has routed 70% of the product to bulk loadout/bag and 30% to paper ba
*****: Based on historical product split between the two final streams, MRI has routed 70% of the product to bulk loadout and 30% to GSF packagir

										tpy	tpy	tpy	tpy	tpy	tpy	tpy
Dryer Combustion	Capacity (MMBtuh)	Operating Hours (hrs/yr)	PM Emission Factor (lb/MMBtu)	PM10 Emission Factor (lb/MMBtu)	PM2.5 Emission Factor (lb/MMBtu)	SO2 Emission Factor (lb/MMBtu)	NOX Emission Factor (lb/MMBtu)	CO Emission Factor (lb/MMBtu)	VOC Emission Factor (lb/MMBtu)	PM Emissions	PM10 Emissions	PM2.5 Emissions	SO2 Emissions	NOX Emissions	CO Emissions	VOC Emissions
	9.9	5840	0.00745	0.00745	0.00745	0.00059	0.098	0.1	0.00539	0.2153646	0.215365	0.215365	0.017056	2.832984	2.8908	0.155814

Emission Factors for Natural Gas Combustion in AP-42 Ch 1.4

STOCKPILES	U10* (m/s)	U* (m/s)	Ut* (m/s)	PM EF (ton/acre-year)	PM10 EF (ton/acre-year)	PM2.5 EF (ton/acre-year)	Estimated Surface Area (Acres)	Control Efficiency	PM Emissions (tpy)	PM10 Emissions (tpy)	PM2.5 Emissions (tpy)
	15.9	0.08427	1.02	0.330898114	0.165449057	0.024817359	2.5	0.8	0.1654491	0.0827245	0.0124087

AP-42 Ch 13.2.5 Industrial Wind Erosion, 15.9 m/s max windspeed from Prescott airport, treshold friction velocity for overburden.

UNPAVED ROADS		Vehicle Miles Traveled (VMT)	PM Emission Factor (lbs/VMT)	PM10 Emission Factor (lbs/VMT)	PM2.5 Emission Factor (lbs/VMT)	lb/ton	80% Control Efficiency	PM Emissions (TPY)	PM10 Emissions (TPY)	PM2.5 Emissions (TPY)	PM Emissions (lb/day)	PM10 Emissions (lb/day)	PM2.5 Emissions (lb/day)
	Annual	7265	4.627684755	1.193814176	0.119381418	2000	80.00%	3.3620	0.8673	0.0867			
	Daily	38.18	4.627684755	1.193814176	0.119381418		80.00%				35.337001	9.115965	0.9115965

Emission factor from AP-42 Ch 13.2.2, Equation 1a (5.1% Silt Content for Plant Roads, estimated 10 ton average vehicle weight)

EXPLOSIVE BLASTING	Amount of ANFO per blast (tons)	Horizontal Area of Blast (Square Feet)	Number of Blasts per Year	PM Emissions (lbs Per Blast)	PM10 Emission Factor (lbs per blast)	PM2.5 Emission Factor (lbs per blast)	PM Emissions (TPY)	PM10 Emissions (TPY)	PM2.5 Emissions (TPY)	NOX Emissions (TPY)	CO Emissions (TPY)	SO2 Emissions (TPY)
	1.741	6412	11	7.188169447	3.737848112	0.215645083	0.039534932	0.020558165	0.001186048	0.1627835	0.6415585	0.019151

PM Emission Factors from AP-42 Ch 11.9-1 "Western Surface Coal Mining"
Gas Emission Factors from AP-42 Ch 13.3.3-1 "Explosives Detonation"

APPENDIX B. DUST CONTROL PLAN

Minerals Research, Inc. Dust Control Plan

Prepared for ADEQ, October 2023

TABLE OF CONTENTS

1.0 INTRODUCTION

This fugitive Dust Control Plan (plan) has been prepared to address the control of fugitive and airborne dust emissions from the Minerals Research, Inc. (MRI) Plant in Cottonwood, AZ. Operations include the drying, crushing, sizing and packaging of copper slag. This plan is designed to comply with the State of Arizona Department of Environmental Quality Rules and Regulations for air quality.

1.1 PURPOSE

The primary objective of this plan is to formulate a strategy for controlling fugitive or airborne dust emissions at the MRI Facility. This will be accomplished by identifying specific sources and activities which have generate fugitive or airborne dust emissions and the associated controls for each source. Plant personnel should review and follow the procedures outlined in this plan to control potential fugitive dust. As necessary, the scope of this plan will be revised to reflect changes in operations, dust control strategies, or site conditions.

Air emissions point sources are covered separately under the plant's Air Quality Permit administered by ADEQ and are not included in this plan.

1.2 PLAN RESPONSIBILITY

Activity	**Responsible Department**
Visible Emissions Inspections	Production
Watering Schedule and Logs	Production
Corrective Actions	Maintenance
Housekeeping and Material Spill Cleanup	Production/maintenance
Recordkeeping	Management
Reporting	Management
Plan Modification and Update	Management

2.0 FACILITY DESCRIPTION

2.1 SITE OWNERSHIP AND PHYSICAL LOCATION

MRI owns and operates a copper slag processing manufacturing facility located in Cottonwood, AZ. The facility is located at 705 E Birch street.

2.2 TYPE OF MATERIALS PROCESSED

Site activities include primary crushing and screening of the raw copper slag stockpile that involves drilling, blasting, crushing, sizing, and stockpiling of the secondary feed material. The process plant is then fed with this secondary feed to be dried, crushed and sized into different grades of products. The plant is fed from the secondary feed stockpile, by a front-end loader. The slag is then screened to feed either the crusher or the fluid bed dryer. The crusher circuit dust is controlled by watering the secondary feed with sprinklers and the use of water misters in the crushing circuit. Once the product has been dried it will, by means of belt conveyors, be sent to the finishing screens to be sized into a graded product and put into enclosed silos for shipment or bag packaging. This is a closed process (recirculating) and all slag fed into the plant will become an MRI product.

2.3 SITE DRAWING

The site drawing provided in Appendix 1 indicates the following:

- Entire project site boundaries;
- Nearest public roads.

3.0 FUGITIVE DUST EMISSION SOURCES

3.1 Raw copper slag stockpile

The raw copper slag has to be downsized to be able to be used in the secondary process plant. To do so MRI has the slag drilled and blasted before being fed to the primary processing circuit.

3.2 PRIMARY PROCESSING

A front-loader feeds the recovered slag from the raw copper slag stockpile into a vibratory feeder. This feeder feeds the raw slag to a screen. From the screen, the raw slag is sized with the oversized material being fed to a cone crusher and the undersized material going to a stockpile (secondary feed) which is the feed for a secondary crushing and screening process. The crushed oversized material is then redirected back to the screen for sizing. This is a closed-loop crushing circuit. The primary crushing and screening process utilizes water for dust control and suppression. This entire process is a wet process, and the secondary feed stockpile is kept in a wet state to control wind erosion.

3.3 SECONDARY PROCESSING

Crushed slag from the secondary feed stockpile is used to feed the secondary process. The first section going to the crusher is a wet process and water is used to prevent dust emissions; plant feed is wetted as needed and water misters are used in the crushing circuit to prevent the emissions of fugitive dust. Once crushed the product is dried with a natural gas-fired fluid bed dryer. Once the slag is dry it is conveyed to two enclosed screen sizers. These screen sizers produce different granular product grades, and every product is directed, by means of enclosed chutes, to their respective belt conveyors. All conveyor transfer points are enclosed and have air suction connected to the baghouses.

3.4 FINISHED PRODUCT STORAGE

The finished products are conveyed to one of 16 steel silos according to product size. All MRI products can be shipped in bulk or different size bags (paper bags and bulk bags). The silos are aligned in two 8 silos banks. The silos are fed by the means of enclosed belt conveyors directly into the silos or to a shuttle conveyor that feeds the silos according to product designation.

Bagged products are stored in the warehouse or in the plant yard. All pallets of product stored outside are wrapped with shrink wrap to prevent any water damage to the finished product. Bulk loading is done directly under the silos or from the front-end loader. The process is designed to control both fugitive and point source emissions that may occur within the plant process. Potential point source emissions resulting from material transfer points are captured through dust collectors to minimize particulate emissions. Transfer of slag to the plant feed hopper and conveyors in the crushing circuit are controlled by water misters. Potential fugitive dust sources, such as vehicle traffic and wind erosion from slag storage piles, are controlled by good maintenance and wetting of the road surface and storage piles with water and/or the use of dust suppressants.

4.0 FUGITIVE DUST EMISSION SOURCES AND CONTROLS

A list of potential fugitive dust emission sources and activities and a description of the types of dust control procedures to be implemented for each specific plant activity are outlined in the following sections. Plant personnel are responsible for implementing the prescribed controls to control fugitive dust.

4.1 PROCESSING PLANT

Work area examinations will be completed for specific areas within the processing plant. These areas must be inspected by production crews during each work shift. The goal of the work area examinations is to identify and clean up potential spills or accumulation of material resulting from copper slag plant operations. The daily plant inspection and cleanup standard operating procedure (SOP) to follow for these work area examinations and subsequent production inspection forms to be completed are provided in Appendix 2. In addition, production personnel should follow the specific dust control procedures for potential fugitive emission sources outlined in the following tables.

Activity **Potential Source Description** **Dust Control Procedures**	**Conveyors and Transfers Points** Raw material and finished product conveyors and transfer points that are not fully enclosed serve as point sources of fugitive dust throughout the plant. • Inspect and maintain enclosures to minimize fugitive dust at applicable transfer locations. • Clean up any spilled or accumulated material at transfer locations. • Follow O&M Plan procedures if maintenance or repair is needed to minimize fugitive dust.

Activity	**Material Storage Piles**
Potential Source Description	Raw and secondary feed stockpiles and other materials stored in silos and storage buildings.
Dust Control Procedures	• Ensure storage building doors are closed when potential dust generating activities are occurring. • Inspect and clean up any spilled or accumulated material from transfer points into storage buildings or silos. • Inspect building access points and clean up any accumulated material outside of building entrances. • Minimize to maximum extent practical time access doors are left open when entering or exiting storage buildings.

Activity	Paved Roads
Potential Source Description	Paved roads may accumulate dust which may be disturbed by vehicle traffic.
Dust Control Procedures	• Follow posted plant speed limits of 5 mph when driving equipment or vehicles on paved plant roads. • Water paved roads on all plant operating days. Watering roads is not required if roads are maintained in wet condition due to sufficient rainfall or when ice or snow is present on roads. • Sweep paved roads on all plant operating days unless noted rainfall, ice or snow conditions above are present. • Inspect and remove any spilled materials on roads within eight hours of occurrence.

Activity	Unpaved Roads
Potential Source Description	Unpaved haul roads are a potential source of fugitive dust emissions throughout the plant. Traffic on the roads includes raw material hauling trucks, heavy and light equipment, and passenger vehicles.
Dust Control Procedures	• Follow posted plant speed limits of 5 mph when driving equipment or vehicles on unpaved plant roads. • Water unpaved roads on all plant operating days. Watering roads is not required if roads are maintained in wet condition due to sufficient rainfall or when ice or snow is present on roads. • Inspect and remove any spilled materials on roads within eight hours of occurrence.

Activity	Material Loading
Potential Source Description	Loading materials into trucks poses a potential source of fugitive dust emissions.
Dust Control Procedures	• When using a front-end loader to load trucks, minimize the disturbance, vertical drop, and tumbling of the materials being loaded into trucks. • Where practical, avoid loading trucks during periods of high winds to minimize fugitive dust transport. • Ensure loadout spouts from silos are properly seated before loading material from silos into trucks.

Activity	**Material Unloading** Unloading materials from trucks is a potential source of fugitive dust emissions. • Minimize the speed of dumping. • Minimize the material drop height. • Use water from a hose or water truck if necessary to minimize fugitive dust during unloading operations.
Potential Source Description	
Dust Control Procedures	

Activity	**Miscellaneous activities and areas such as:** **- Repair, Clearing or Leveling Operations,** **- Vacant areas** **- Roadway repair or construction** **- Material storage piles** **- Other potential dust generating activities.**
Potential Source Description	Miscellaneous activities have the potential to disturb the earth and are a potential source of dust emissions.
Dust Control Procedures	Uses one or more of the following applications or control measures when conducting miscellaneous activities which may contribute to potential fugitive dust: • Dust suppressants, • Adhesive soil stabilizer, • Cover, • Water or approved wetting agents, • Detour traffic from the area, • Bar access to the area, or • Other means as deemed appropriate

4.2 RAW SLAG OPERATIONS

Activity	**Drilling**
Potential Source Description	Fugitive dust generation during drilling of boreholes.
Dust Control Procedures	• Inspect and monitor to ensure that drilling contractor procedures are utilized to minimize fugitive dust. • Ensure drilling contractors use a dust collector apparatus which covers the borehole and surrounds the drill bit at the rock surface during drilling and physically minimizes the escape of dust. • As needed, ensure the contractor adds water to the drilling process to reduce dust generation.

Activity	**Blasting**
Potential Source Description	Fugitive dust generated during blasts.
Dust Control Procedures	• Monitor blasting contractor hole design and layout. • Monitor to ensure the contractor is consistently producing a maximum amount of fractured crushable rock and a minimum amount of fly rock dust during blasts.

Activity	**Material Handling**
Potential Source Description	Handling materials poses a potential source of fugitive dust emissions.
Dust Control Procedures	• When using a loader, minimize the disturbance, vertical drop, and tumbling of the materials being loaded into truck, hopper or stockpile. • Where practical, avoid handling during periods of high winds to minimize fugitive dust transport.

5.0 VISIBLE EMISSIONS OBSERVATIONS

The goal of the fugitive dust control plan is to ensure adequate dust control practices are implemented so that fugitive dust emissions are minimized and MRI does not cause or allow to be emitted into the atmosphere any fugitive emissions which exhibit opacity greater than 10 percent from permitted plant equipment, 20 percent from miscellaneous point sources of emissions or 40 percent from miscellaneous plant activities, equipment, off-road machinery or roadway and site cleaning. MRI operators shall be trained to identify and implement appropriate fugitive dust control measures to minimize visible emissions from miscellaneous fugitive dust sources throughout the plant.

If fugitive visible emissions are observed from any miscellaneous plant activities or activities explicitly covered under this plan, MRI personnel must follow the procedures and complete the "Visible Emissions From Plant Equipment or Dust Collection" form included in Appendix 3 of this plan. Documentation of visible emissions observations performed will be maintained by MRI's Environmental Department.

6.0 DUST SUPPRESSION ACTIVITIES

The following sections describe dust suppression activities to be followed by MRI personnel.

6.1 DUST SUPPRESSANTS

Water is used to reduce dust as needed to control potential fugitive dust sources before, after and while conducting any dust-generating operations. Currently no dust suppressants are used at the plant. Any chemical dust suppressants must be reviewed and approved by the Environmental Department prior to use. Documentation must be kept which includes dust suppressants to be applied, including product specifications or label instructions for approved usage along with the following:

(a) Method, frequency, and intensity of dust suppressant application.

(b) Type, number, and capacity of dust suppressant application equipment.

(c) Information on environmental impacts and approvals or certifications related to appropriate and safe use for ground application of dust suppressants.

Appendix 4 is reserved to document additional dust suppressants and application equipment used as needed to control fugitive dust.

6.2 DUST SUPPRESSION EQUIPMENT

Dust suppression equipment consists of two 4,000-gallon capacity water tank trucks equipped with rear spray bars, as well as side and front spray nozzles. In addition, the water trucks are equipped with a 50 foot, 1.5-inch hose reel. Approved dust suppressants may be added to water trucks to increase dust control effectiveness as needed. A street sweeper (currently contracted) is also utilized to clean dust from paved roads coming to the plant and at the paved area around the truck scale.

6.3 DUST SUPPRESSION APPLICATION SCHEDULE

MRI designated operators shall water roads and other potential fugitive dust sources on all operating days to minimize the generation of fugitive dust. A decreased watering schedule may be implemented if weather conditions such as rain, ice or snow allow for a decreased frequency. Water truck operators will be trained to water frequently enough and in a quantity necessary to minimize visible fugitive emissions.

Operators shall maintain watering logs of all watering activities. These logs document watering each day within the plant (see Appendix 4).

7.0 RECORDKEEPING

7.1 DUST SUPPRESSION ACTIVITIES

MRI must maintain all records on specific dust control actions taken by the facility. These records shall be made available for review by regulatory authorities upon request.

Records include:

- Daily records of watering and sweeping on all paved roads.
- Monthly records of maintenance activities conducted.
- Daily records of watering performed on all unpaved roads.
- Production Inspection Forms

7.2 VISIBLE EMISSIONS OBSERVATIONS

MRI shall maintain documentation of regularly conducted Method 22 and as applicable Method 9 visible emissions observations. Sample forms used to document these observations are provided in Appendix 6.

7.3 INCONSISTENCIES WITH FUGITIVE DUST CONTROL PLAN

MRI shall maintain records of each instance of operation not consistent with the Dust Control Plan. These instances should be recorded through the permit deviation and reporting processes discussed in the reporting section of this plan.

8.0 REPORTING

MRI shall report any emissions in excess of the limits established by the air quality control permit or any deviations from this dust control plan. Appendix 7 is reserved for any communication or reports related to this dust control plan. The following sections outline the procedures to be followed for excess emissions or deviations.

8.1 TELEPHONE, FAX or MyADEQ NOTIFICATION

The ADEQ must be notified by telephone, facsimile or on the MyADEQ website within 24 hours of the time MRI first learned of the occurrence of an excess emission event.

8.2 WRITTEN NOTIFICATION

Detailed written notification of an excess emissions event must be reported within 72 hours of the notification described above.

The written notification report shall contain the following information:

- Identity of each emission point where the excess emissions occurred
- Date, time and duration, or expected duration, of the excess emissions;
- Identity of the equipment from which the excess emissions emanated;
- Nature and cause of such emissions;
- If the excess emissions were the result of a malfunction, steps taken to remedy the malfunction and the steps taken or planned to prevent the recurrence of such malfunctions; and
- Steps taken to limit the excess emissions.
- If the excess emissions resulted from start-up or malfunction, the report shall contain a list of the steps taken to comply with the permit procedures.

APPENDIX 1

FACILITY DRAWING : PROCESSING PLANT, WAREHOUSE AND YARD

APPENDIX 2

DAILY PLANT INSPECTION, CLEAN-UP PRODUCTION, AND INSPECTION FORM

	MRI Plant	**SOP #:**	ENV-009
		Revision #:	1
		Implementation Date:	September 2023
STANDARD OPERATING PROCEDURE:	*Daily Plant Inspection and Clean-Up*	**Last Reviewed/ Date of update :**	9/27/2023
DEPARTMENT:	*ENVIRONMENTAL*	**Approval:**	

PROCEDURES COVERED

- Plant inspections and clean up
- Clean-up scheduling
- Follow-up

RESPONSIBILITIES: Plant Inspection and Clean Up

- The production team will be divided into crews (A - B) and assigned at each shift to walk the plant and maintain it.
- The plant has been divided into the following areas:

Area	**Specific Location within an Area**
Stockpiles, yard and roads	-Raw slag piles -Secondary feed stockpile -Roads to and from the piles
Processing area	- Feed and crushing circuit -dry circuit and screening classification area
Packaging and maintenance warehouse	- Paper bag packaging
Finish product silos	- Alley and side of finish product silos

- At the beginning of the shift each crew will perform mandated inspections.
- Plant operators will fill out an Inspection and Clean-Up Form (Attachment A), including Notifications for clean-up and/or repairs if needed and sign the Inspection and Clean-Up Form.

CLEAN-UP SCHEDULING

• M&M (management and maintenance) will review the Inspection and Clean-Up Form and create the necessary work orders.
• The plant superintendent, in coordination with the maintenance department, will set the clean-up priorities for the day.

FOLLOW-UP

Management personnel will walk and inspect the plant daily to assess clean-up progress. • If it has not been possible to clean-up a spill within 72 hours, M&M will establish a plan accordingly.

RECORDKEEPING AND REPORTING

• The Inspection and Clean-Up Forms will be scanned and saved into a folder managed by Management.
• These records will be available for review during audits and by regulatory authorities upon request.
• MRI will maintain records of each instance of operation not consistent with the Dust Control Plan.

PRODUCTION INSPECTION FORM

Date: _____ Name of competent person: _____

Crew: A B C D E **Shift:** Day Night

Locations

Processing area	**Spills?**	**Method of Cleanup**	
Yard roads and stockpile	Yes No	Front end loader, skid steer and shovel and broom scheduled Notif# Repairs Needed? Yes No Notif#	
Safety Work Area Exam		☐ Safety Equipment (fire ext., pull cords, eye wash, first aid) ☐ Guarding Check box if OK, write N/A if not applicable. If any items are found to ☐ Electrical Equipment (cords, continuity checks, labeling, ☐ Housekeeping be deficient, a notification should be outlets) ☐ Lighting entered and the # noted below. ☐ Environmental Conditions (dust, ice, snow, hot surfaces, ☐ Walkways signage) Notif#	
Processing area	Yes No	Front end loader, skid steer, shovel and broom and water hose scheduled Notif# Repairs Needed? Yes No Notif#	

Safety Work Area Exam		□ Safety Equipment (fire ext., pull cords, eye wash, first aid) □ Guarding Check box if OK, write N/A if not applicable. If any items are found to be deficient, a notification should be entered and the # noted below. □ Electrical Equipment (cords, continuity checks, labeling, outlets) □ Housekeeping □ Lighting □ Environmental Conditions (dust, ice, snow, hot surfaces, signage) □ Walkways Notif#	
Packaging and maintenance warehouse	Yes No	Front end loader, skid steer and shovel and broom scheduled Notif# Repairs Needed? Yes No Notif#	
Safety Work Area Exam		□ Safety Equipment (fire ext., pull cords, eye wash, first aid) □ Guarding Check box if OK, write N/A if not applicable. If any items are found to be deficient, a notification should be entered and the # noted below. □ Electrical Equipment (cords, continuity checks, labeling, outlets) □ Housekeeping □ Lighting □ Environmental Conditions (dust, ice, snow, hot surfaces, signage) □ Walkways Notif#	
Finish product silos	Yes No	Front end loader, skid steer, shovel and broom and water hose scheduled Notif# Repairs Needed? Yes No Notif#	

Safety Work Area Exam	□ Safety Equipment (fire ext., pull cords, eye wash, first aid) □ Guarding Check box if OK, write N/A if not applicable. If any items are found to be deficient, a notification should be entered and the # noted below. □ Electrical Equipment (cords, continuity checks, labeling, outlets) □ Housekeeping □ Lighting □ Environmental Conditions (dust, ice, snow, hot surfaces, signage) □ Walkways Notif#	

APPENDIX 3

VISIBLE EMISSIONS FROM PLANT EQUIPMENT OR DUST COLLECTION

	MRI	**SOP #:**	ENV-002
		Revision #:	1
		Implementation Date:	09/2023
STANDARD OPERATING PROCEDURE:	*Visible Emissions from Plant Equipment or Dust collection System*	**Last Reviewed / Update Date:**	09/27/2023
DEPARTMENT:	*Management*	**Approval:**	

Procedures covered

- Recognizing visible emissions
- Notification of visible emissions
- Visible emissions / Opacity limits summary
- Corrective actions / Preventive measures
- Records

RECOGNIZING VISIBLE EMISSIONS

· If you see dust coming out of *any* part of the plant it *is* a Visible Emission Event:

1. Stop and identify the source (*i.e.* stack, belt, transfer point, spilled pile, exhaust pipe from mobile equipment, etc.)
2. Alert the production shift plant operator.

NOTIFICATION OF VISIBLE EMISSIONS

· Verbal notification to Operations (plant operator)

· Plant operator will assess the situation and alert Maintenance. Corrective actions to be started within 1-hour if needed.

· Shift plant operators will send an email to notify M&M of the visible emissions event. · Once a visible emission event has been identified and notified internally, it starts a 24-hours counter to investigate and conduct corrective actions.

· The following day after the occurrence, a follow-up observation will be conducted by M&M, to verify that the issue has been corrected.

CORRECTIVE ACTIONS / PREVENTIVE MEASURES

· When a malfunction occurs to equipment, emission control devices, continuous monitoring systems, or fugitive emission control systems or enclosures, which result in visible or excess emissions, the Maintenance staff is to be notified.

1. Investigation of the reason for the equipment malfunction – to be conducted by Maintenance in coordination with Operations.
2. Evaluation of the situation and necessary follow-up action(s) to return the equipment to normal operating conditions – to be conducted by Maintenance in coordination with Operations.
3. Corrective actions have to be initiated within 24 hours of discovery of a visible emission event.
4. If needed, equipment shutdown should occur as soon as practical, but not more than 24 hours after discovery if necessary to initiate corrective actions.
5. For any excess emission that cannot be corrected within 72 hours, MRI is required to submit a compliance schedule to the Director (ADEQ) within 21 days of such occurrence.
6. The compliance schedule shall include:
    - A schedule of remedial measures, including an enforceable sequence of actions with milestones, leading to compliance with the permit terms.

RECORDS

· Document problem and corrective actions taken:
    - Shift plant operator will fill out a Visible Emissions form (see Attachment B).
    - Completed Visible Emissions form will be turned in to M&M within 48 hours of the Visible Emissions Event.

· Document all related activities including but not limited to the following:
    - Current Work In Progress
    - Response to Malfunction Conditions
    - Planned Work

Attachment A

Excess Emission Report

EXCESS EMISSIONS REPORT FORM

Permit Requirement:

The Permittee shall report to the Director any emissions in excess of the limits established by this permit. Such report shall be in two parts as specified below:

1. Notification by telephone or facsimile within 24 hours of the time when the Permittee first learned of the occurrence of excess emissions including all available information from Condition XII.A.1.b below.
2. Detailed written notification by submission of an excess emissions report within 72 hours of the notification pursuant to Condition XII.A.1.a.i. above.

GENERAL INFORMATION			
Facility Name:	MRI	**Date of Report:**	
Air Quality Control Permit #:			

EXCEEDANCE INFORMATION			
Identity of Stack/Emissions Point:			
Equipment Which Excess Emissions Originated:			
Date Excess Emission Began:		**Time Excess Emission Began:**	
Date Excess Emission Stopped:		**Time Excess Emission Stopped:**	
Duration of Excess Emissions:		**If not known, Expected Duration of Excess Emissions:**	
Was Excess Emissions Corrected Within 72 Hours?	Yes No If no, a compliance schedule must be submitted within 21 days of occurrence		

Nature and Cause of Emissions	Process Startup:
	Process Shutdown:
	Scheduled Maintenance:
	Breakdown:
	Malfunction:
	Emergency:
	Fuel Problem:
	Other:

CORRECTIVE ACTIONS	
If the excess emissions were the result of a malfunction, steps taken to remedy the malfunction and the steps taken to prevent the recurrence of such malfunctions:	
Steps taken to mitigate emissions and corrective actions taken, including whether the approved procedures for a planned startup, shutdown, or maintenance activity were followed:	

CERTIFICATION OF TRUTH, ACCURACY AND COMPLETENESS

By my signature; I,
hereby certify that based on information and belief formed after reasonable inquiry, the statements and information in this document are true, accurate, and complete.

Signature of responsible official: Date:

Attachment B

Visible Emissions Form

This form is to be completed to document all visible emissions events

GENERAL INFORMATION		
Air Quality Control Permit #:		
Date of event:		
Time of the event:		
VISIBLE EMISSIONS EVENT INFORMATION		
Identity of Stack/Emissions Point:		
Related process/equipment:	Yard roads and stockpile	
	Processing area	
	Packaging and maintenance warehouse	
	Finish product silos	
Date and Time of follow up visual		
Nature and Cause of Emissions	Process Startup:	

	Process Shutdown:
	Scheduled Maintenance:
	Breakdown:
	Malfunction:
	Emergency:
	Fuel Problem:
	Other:

CORRECTIVE ACTIONS		
Response/corrective action taken to remedy the malfunction:		
Date and time corrective actions were initiated and completed:		
Steps taken or procedures suggested to prevent recurrence of the event or malfunction:		

OPERATOR NAME: _____

DATE: _____

APPENDIX 4
WATERING LOGS

MRI WATER LOG

Date:

Y/N

MRI Plant Area Watered Y / N

Inspect Water Spray System for Proper Function

Reason for not watering

Day Operator Rain Truck Repairs Snow/Ice Other

1		YES NO					
2		YES NO					
3		YES NO					
4		YES NO					
5		YES NO					
6		YES NO					
7		YES NO					
8		YES NO					
9		YES NO					
10		YES NO					
11		YES NO					
12		YES NO					
13		YES NO					
14		YES NO					
15		YES NO					
16		YES NO					
17		YES NO					
18		YES NO					
19		YES NO					

20		YES NO					
21		YES NO					
22		YES NO					
23		YES NO					
24		YES NO					
25		YES NO					
26		YES NO					
27		YES NO					
28		YES NO					
29		YES NO					
30		YES NO					
31		YES NO					

Supervisor Review:

Name (printed)

Date Signature

All paved roads shall be watered every day except when roads are damp due to normal precipitation. All unpaved roads subject to vehicle traffic shall be watered every day except when roads are damp due to normal precipitation.