CLASS I AIR QUALITY PERMIT

DRAFT PERMIT No. 96653

PERMITTEE: **South32 Hermosa Inc.**
FACILITY: **South32 Hermosa Inc.**
PLACE ID: **142145**
DATE ISSUED: **Date Pending**
EXPIRY DATE: **Date Pending**

SUMMARY

This Class I air quality permit is issued to South32 Hermosa Inc., the Permittee, for the construction and operation of the South32 Hermosa Project. The facility is located at 749 Harshaw Road, Patagonia, Santa Cruz, AZ 85624.

South32 Hermosa Inc. (South32 Hermosa) is a mineral exploration and development company focused on the exploration and potential development of the Hermosa Project near Patagonia, Arizona, in Santa Cruz County. The South32 Hermosa Project includes underground mining of the following two deposits:

- Taylor sulfide deposit (Taylor), a high-grade zinc-lead-silver deposit.
- Clark oxide deposit (Clark), a high-grade manganese-zinc-silver deposit.

The facility's potential to emit for nitrogen oxides, carbon monoxide, single hazardous air pollutant (acetaldehyde, acrolein, formaldehyde, and methanol), and hazardous air pollutants is greater than major source thresholds. Therefore, this facility is classified as a major source as defined in Arizona Administrative Code (A.A.C.) R18-2-101.75 and therefore requires a Class I permit pursuant to A.A.C. R18-302.B.1.a.

This permit is issued in accordance with Arizona Revised Statutes (A.R.S.) § 49-426. It contains requirements from Title 18, Chapter 2 of the A.A.C. and Title 40 of the Code of Federal Regulations (CFR). All definitions, terms, and conditions used in this permit conform to those in the A.A.C. R18-2-101 et. seq. and Title 40 of the CFR, except as otherwise defined in this permit.

This page is left blank intentionally.

Table of Contents

ATTACHMENT "A": GENERAL PROVISIONS

I. PERMIT EXPIRATION AND RENEWAL

A. This permit is valid for a period of five (5) years from the date of issuance.
[A.R.S. § 49-426.F, A.A.C. R18-2-306.A.1]

B. The Permittee shall submit an application for renewal of this permit at least six (6) months, but not more than eighteen (18) months, prior to the date of permit expiration.
[A.A.C. R18-2-304.D.2]

II. COMPLIANCE WITH PERMIT CONDITIONS

A. The Permittee shall comply with all conditions of this permit including all applicable requirements of the Arizona Revised Statutes (A.R.S.) Title 49, Chapter 3, and the air quality rules under Title 18, Chapter 2 of the Arizona Administrative Code. Any permit noncompliance is grounds for enforcement action; for permit termination, revocation and reissuance, revision; or for denial of a permit renewal application. In addition, noncompliance with any federally enforceable requirement constitutes a violation of the Clean Air Act.
[A.A.C. R18-2-306.A.8.a]

B. It shall not be a defense for a Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
[A.A.C. R18-2-306.A.8.b]

III. PERMIT REVISION, REOPENING, REVOCATION AND REISSUANCE, OR TERMINATION FOR CAUSE

A. The permit may be revised, reopened, revoked and reissued, or terminated for cause. The filing of a request by the Permittee for a permit revision, revocation and reissuance, termination, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition.
[A.A.C. R18-2-306.A.8.c]

B. The permit shall be reopened and revised under any of the following circumstances:

1. Additional applicable requirements under the Clean Air Act become applicable to the Class I source. Such a reopening shall only occur if there are three or more years remaining in the permit term. The reopening shall be completed no later than 18 months after promulgation of the applicable requirement. No such reopening is required if the effective date of the requirement is later than the date on which the permit is due to expire, unless the original permit or any of it terms and conditions has been extended pursuant to A.A.C. R18-2-322.B. Any permit revision required pursuant to this subparagraph shall comply with the provisions in A.A.C. R18-2-322 for permit renewal and shall reset the five-year permit term;
[A.A.C. R18-2-321.A.1.a]

2. Additional requirements, including excess emissions requirements, become applicable to an affected source under the acid rain program. Upon approval by the EPA Administrator, excess emissions offset plans shall be deemed to be incorporated into the Class I permit;

[A.A.C. R18-2-321.A.1.b]

3. The Director or the EPA Administrator determines that the permit contains a material mistake or that inaccurate statements were made in establishing the emissions standards or other terms or conditions of the permit; and

[A.A.C. R18-2-321.A.1.c]

4. The Director or the EPA Administrator determines that the permit needs to be revised or revoked to assure compliance with the applicable requirements.

[A.A.C. R18-2-321.A.1.d]

C. Proceedings to reopen and issue a permit, including appeal of any final action relating to a permit reopening, shall follow the same procedures as apply to initial permit issuance and shall, except for reopenings under Condition III.B.1 above, affect only those parts of the permit for which cause to reopen exists. Such reopening shall be made as expeditiously as practicable. Permit reopenings for reasons other than those stated in Condition III.B.1 above shall not result in a resetting of the five-year permit term.

[A.A.C. R18-2-321.A.2]

IV. POSTING OF PERMIT

A. The Permittee shall post this permit or a certificate of permit issuance at the facility in such a manner as to be clearly visible and accessible. All equipment covered by this permit shall be clearly marked with one of the following:

[A.A.C. R18-2-315.A]

1. Current permit number; or

2. Serial number or other equipment identification number (equipment ID number) that is also listed in the permit to identify that piece of equipment.

B. A copy of the complete permit shall be kept on site.

[A.A.C. R18-2-315.B]

V. FEE PAYMENT

The Permittee shall pay fees to the Director pursuant to A.R.S. § 49-426(E) and A.A.C. R18-2-326.

[A.A.C. R18-2-306.A.9 and -326]

VI. EMISSIONS INVENTORY QUESTIONNAIRE

A. The Permittee shall complete and submit to the Director an emissions inventory questionnaire no later than June 1 of each year.

[A.A.C. R18-2-327.A.1.a]

B. The emissions inventory questionnaire shall be on an electronic or paper form provided by the Director and shall include the information required by A.A.C. R18-2-327.A.3 for the previous calendar year.

[A.A.C. R18-2-327.A.3]

C. The Permittee shall submit to the Director an amendment to an emissions inventory questionnaire, containing the documentation required by A.A.C. R18-2-327.A.3, whenever the Permittee discovers or receives notice, within two years of the original submittal, that incorrect or insufficient information was submitted to the Director by a previous emissions inventory questionnaire. The amendment shall be submitted to the Director within 30 days of discovery or receipt of notice. If the incorrect or insufficient information resulted in an incorrect annual emissions fee, the Director shall require that additional payment be made or shall apply an amount as a credit to a future annual emissions fee. The submittal of an amendment shall not subject the Permittee to an enforcement action or a civil or criminal penalty if the original submittal of incorrect or insufficient information was not due to willful neglect.

[A.A.C. R18-2-327.A.4]

VII. COMPLIANCE CERTIFICATION

A. The Permittee shall submit a compliance certification to the Director semiannually, which describes the compliance status of the source with respect to each permit condition. The first certification shall be submitted no later than May 15th, and shall report the compliance status of the source during the period between October 1st of the previous year and March 31st of the current year. The second certification shall be submitted no later than November 15th, and shall report the compliance status of the source during the period between April 1st and September 30th of the current year.

[A.A.C. R18-2-309.2.a]

B. The compliance certifications shall include the following:

1. Identification of each term or condition of the permit that is the basis of the certification;

[A.A.C. R18-2-309.2.c.i]

2. Identification of the methods or other means used by the Permittee for determining the compliance status with each term and condition during the certification period. The methods and other means shall include, at a minimum, the methods and means required under R18-2-306.A.3. If necessary, the Permittee also shall identify any other material information that shall be included in the certification to comply with section 113(c)(2) of the Clean Air Act, which prohibits knowingly making a false certification or omitting material information;

[A.A.C. R18-2-309.2.c.ii]

3. Status of compliance with the terms and conditions of the permit for the period covered by the certification, including whether compliance during the period was continuous or intermittent. The certification shall be based on the methods or means designated in Condition VII.B.2 above. The certifications shall identify each deviation (including any deviations reported pursuant to Condition XI.B of

this Attachment) during the period covered by the certification and take it into account for consideration in the compliance certification;

[A.A.C. R18-2-309.2.c.iii]

4. For emission units subject to 40 CFR Part 64, the certification shall also identify as possible exceptions to compliance any period during which compliance is required and in which an excursion or exceedance defined under 40 CFR Part 64 occurred;

[A.A.C. R18-2-309.2.c.iii]

5. Other facts the Director may require to determine the compliance status of the source.

[A.A.C. R18-2-309.2.c.iv]

C. A copy of all compliance certifications shall also be submitted to the EPA Administrator.

[A.A.C. R18-2-309.2.d]

D. If any outstanding compliance schedule exists, a progress report shall be submitted with the semi-annual compliance certifications required in Condition VII.A above. The progress reports shall contain the information required by A.A.C R18-2-309.5.d.

[A.A.C. R18-2-309.5.d]

VIII. CERTIFICATION OF TRUTH, ACCURACY AND COMPLETENESS

Any document required to be submitted by this permit, including reports, shall contain a certification by a responsible official of truth, accuracy, and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

[A.A.C. R18-2-309.3]

IX. INSPECTION AND ENTRY

Upon presentation of proper credentials, the Permittee shall allow the Director or the authorized representative of the Director to:

A. Enter upon the Permittee's premises where a source is located, emissions-related activity is conducted, or where records are required to be kept under the conditions of the permit;

[A.A.C. R18-2-309.4.a]

B. Have access to and copy, at reasonable times, any records that are required to be kept under the conditions of the permit;

[A.A.C. R18-2-309.4.b]

C. Inspect, at reasonable times, any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit;

[A.A.C. R18-2-309.4.c]

D. Sample or monitor, at reasonable times, substances or parameters for the purpose of assuring compliance with the permit or other applicable requirements; and

[A.A.C. R18-2-309.4.d]

E. Record any inspection by use of written, electronic, magnetic or photographic media.
[A.A.C. R18-2-309.4.e]

X. ACCIDENTAL RELEASE PROGRAM

If this source becomes subject to the provisions of 40 CFR Part 68, then the Permittee shall comply with applicable provisions according to the timeline specified in 40 CFR Part 68.
[40 CFR Part 68]

XI. EXCESS EMISSIONS, PERMIT DEVIATIONS, AND EMERGENCY REPORTING

A. Excess Emissions Reporting
[A.A.C. R18-2-310.01.A, B, and C]

1. Excess emissions shall be reported as follows:

   a. 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 myDEQ, 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 XI.A.1.b below.

      (2) Detailed written notification by submission of an excess emissions report within 72 hours of the notification pursuant to Condition XI.A.1.a(1) above.
      [A.A.C. R18-2-310.01.A]

   b. The report shall contain the following information:

      (1) Identity of each stack or other emission point where the excess emissions occurred;
      [A.A.C. R18-2-310.01.B.1]

      (2) Magnitude of the excess emissions expressed in the units of the applicable emission limitation and the operating data and calculations used in determining the magnitude of the excess emissions;
      [A.A.C. R18-2-310.01.B.2]

      (3) Time and duration, or expected duration, of the excess emissions;
      [A.A.C. R18-2-310.01.B.3]

      (4) Identity of the equipment from which the excess emissions emanated;
      [A.A.C. R18-2-310.01.B.4]

      (5) Nature and cause of such emissions;
      [A.A.C. R18-2-310.01.B.5]

(6) If the excess emissions were the result of a malfunction, the steps taken to remedy the malfunction and the steps taken or planned to prevent the recurrence of such malfunctions;

[A.A.C. R18-2-310.01.B.6]

(7) Steps that were or are being taken to limit the excess emissions; and

[A.A.C. R18-2-310.01.B.7]

(8) If the excess emissions resulted from startup or malfunction, the report shall contain a list of the steps taken to comply with any permit procedures governing source operation during periods of startup or malfunction.

[A.A.C. R18-2-310.01.B.8]

2. In the case of continuous or recurring excess emissions, the notification requirements shall be satisfied if the source provides the required notification after excess emissions are first detected and includes in such notification an estimate of the time the excess emissions will continue. Excess emissions occurring after the estimated time period, or changes in the nature of the emissions as originally reported, shall require additional notification pursuant to Condition XI.A.1 above.

[A.A.C. R18-2-310.01.C]

B. Permit Deviations Reporting

The Permittee shall promptly report deviations from permit requirements, including those attributable to upset conditions as defined in the permit, the probable cause of such deviations, and any corrective actions or preventive measures taken. Where the applicable requirement contains a definition of prompt or otherwise specifies a timeframe for reporting deviations, that definition or timeframe shall govern. Where the applicable requirement does not address the timeframe for reporting deviations, the Permittee shall submit reports of deviations according to the following schedule:

1. Notice that complies with Condition XI.A.1 above is prompt for deviations that constitute excess emissions;

[A.A.C. R18-2-306.A.5.b.i]

2. Notice that is submitted within two (2) working days of discovery of the deviation is prompt for deviations of permit conditions identified by Condition II.C.2 of Attachment "B";

[A.A.C. R18-2-306.A.5.b.ii]

3. Except as provided in Conditions XI.B.1 and 2 above, prompt notification of all other types of deviations shall be every 6 months, concurrent with the semiannual compliance certifications required in Section VII, and can be submitted via myDEQ, the Arizona Department of Environmental Quality's online portal.

[A.A.C. R18-2-306.A.5.b.ii]

C. Emergency Provision

1. An "emergency" means any situation arising from sudden and reasonably unforeseeable events beyond the control of the source, including acts of God, that require immediate corrective action to restore normal operation, and that causes the source to exceed a technology-based emission limitation under the permit, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error.

[A.A.C. R18-2-306.E.1]

2. An emergency constitutes an affirmative defense to an action brought for noncompliance with technology-based emission limitations if Condition XI.C.3 below is met.

[A.A.C. R18-2-306.E.2]

3. The affirmative defense of emergency shall be demonstrated through properly signed, contemporaneous operating logs, or other relevant evidence that:

[A.A.C. R18-2-306.E.3]

a. An emergency occurred and that the Permittee can identify the cause(s) of the emergency;

[A.A.C. R18-2-306.E.3.a]

b. The permitted facility was being properly operated at the time of the emergency;

[A.A.C. R18-2-306.E.3.b]

c. During the period of the emergency, the Permittee took all reasonable steps to minimize levels of emissions that exceeded the emissions standards or other requirements in the permit; and

[A.A.C. R18-2-306.E.3.c]

d. The Permittee submitted notice of the emergency to the Director by certified mail, facsimile, or hand delivery within two working days of the time when emission limitations were exceeded due to the emergency. This notice shall contain a description of the emergency, any steps taken to mitigate emissions, and corrective action taken.

[A.A.C. R18-2-306.E.3.d]

4. In any enforcement proceeding, the Permittee seeking to establish the occurrence of an emergency has the burden of proof.

[A.A.C. R18-2-306.E.4]

5. This provision is in addition to any emergency or upset provision contained in any applicable requirement.

[A.A.C. R18-2-306.E.5]

D. Affirmative Defenses for Excess Emissions Due to Malfunctions, Startup, and Shutdown

1. Applicability

A.A.C. R18-2-310 establishes affirmative defenses for certain emissions in excess of an emission standard or limitation and applies to all emission standards or limitations except for standards or limitations:

a. Promulgated pursuant to Sections 111 or 112 of the Act;
[A.A.C. R18-2-310.A.1]

b. Promulgated pursuant to Titles IV or VI of the Clean Air Act;
[A.A.C. R18-2-310.A.2]

c. Contained in any Prevention of Significant Deterioration (PSD) or New Source Review (NSR) permit issued by the U.S. EPA;
[A.A.C. R18-2-310.A.3]

d. Contained in A.A.C. R18-2-715.F; or
[A.A.C. R18-2-310.A.4]

e. Included in a permit to meet the requirements of A.A.C. R18-2-406.A.5.
[A.A.C. R18-2-310.A.5]

2. Affirmative Defense for Malfunctions

Emissions in excess of an applicable emission limitation due to malfunction shall constitute a violation. When emissions in excess of an applicable emission limitation are due to a malfunction, the Permittee has an affirmative defense to a civil or administrative enforcement proceeding based on that violation, other than a judicial action seeking injunctive relief, if the Permittee has complied with the reporting requirements of A.A.C. R18-2-310.01 and has demonstrated all of the following:
[A.A.C. R18-2-310.B]

a. The excess emissions resulted from a sudden and unavoidable breakdown of process equipment or air pollution control equipment beyond the reasonable control of the Permittee;
[A.A.C. R18-2-310.B.1]

b. The air pollution control equipment, process equipment, or processes were at all times maintained and operated in a manner consistent with good practice for minimizing emissions;
[A.A.C. R18-2-310.B.2]

c. If repairs were required, the repairs were made in an expeditious fashion when the applicable emission limitations were being exceeded. Off-shift labor and overtime were utilized where practicable to ensure that the repairs were made as expeditiously as possible. If off-shift labor and overtime were not utilized, the Permittee satisfactorily demonstrated that the measures were impracticable;
[A.A.C. R18-2-310.B.3]

d. The amount and duration of the excess emissions (including any bypass operation) were minimized to the maximum extent practicable during periods of such emissions;

[A.A.C. R18-2-310.B.4]

e. All reasonable steps were taken to minimize the impact of the excess emissions on ambient air quality;

[A.A.C. R18-2-310.B.5]

f. The excess emissions were not part of a recurring pattern indicative of inadequate design, operation, or maintenance;

[A.A.C. R18-2-310.B.6]

g. During the period of excess emissions there were no exceedances of the relevant ambient air quality standards established in Title 18, Chapter 2, Article 2 of the Arizona Administrative Code that could be attributed to the emitting source;

[A.A.C. R18-2-310.B.7]

h. The excess emissions did not stem from any activity or event that could have been foreseen and avoided, or planned, and could not have been avoided by better operations and maintenance practices;

[A.A.C. R18-2-310.B.8]

i. All emissions monitoring systems were kept in operation if at all practicable; and

[A.A.C. R18-2-310.B.9]

j. The Permittee's actions in response to the excess emissions were documented by contemporaneous records.

[A.A.C. R18-2-310.B.10]

3. Affirmative Defense for Startup and Shutdown

a. Except as provided in Condition XI.D.3.b below, and unless otherwise provided for in the applicable requirement, emissions in excess of an applicable emission limitation due to startup and shutdown shall constitute a violation. When emissions in excess of an applicable emission limitation are due to startup and shutdown, the Permittee has an affirmative defense to a civil or administrative enforcement proceeding based on that violation, other than a judicial action seeking injunctive relief, if the Permittee has complied with the reporting requirements of A.A.C. R18-2-310.01 and has demonstrated all of the following:

[A.A.C. R18-2-310.C.1]

(1) The excess emissions could not have been prevented through careful and prudent planning and design;

[A.A.C. R18-2-310.C.1.a]

(2) If the excess emissions were the result of a bypass of control equipment, the bypass was unavoidable to prevent loss of life,

personal injury, or severe damage to air pollution control equipment, production equipment, or other property;

[A.A.C. R18-2-310.C.1.b]

(3) The air pollution control equipment, process equipment, or processes were at all times maintained and operated in a manner consistent with good practice for minimizing emissions;

[A.A.C. R18-2-310.C.1.c]

(4) The amount and duration of the excess emissions (including any bypass operation) were minimized to the maximum extent practicable during periods of such emissions;

[A.A.C. R18-2-310.C.1.d]

(5) All reasonable steps were taken to minimize the impact of the excess emissions on ambient air quality;

[A.A.C. R18-2-310.C.1.e]

(6) During the period of excess emissions there were no exceedances of the relevant ambient air quality standards established in Title 18, Chapter 2, Article 2 of the Arizona Administrative Code that could be attributed to the emitting source;

[A.A.C. R18-2-310.C.1.f]

(7) All emissions monitoring systems were kept in operation if at all practicable; and

[A.A.C. R18-2-310.C.1.g]

(8) Contemporaneous records documented the Permittee's actions in response to the excess emissions.

[A.A.C. R18-2-310.C.1.h]

b. If excess emissions occur due to a malfunction during routine startup and shutdown, then those instances shall be treated as other malfunctions subject to Condition XI.D.2 above.

[A.A.C. R18-2-310.C.2]

4. Affirmative Defense for Malfunctions during Scheduled Maintenance

If excess emissions occur due to a malfunction during scheduled maintenance, then those instances will be treated as other malfunctions subject to Condition XI.D.2 above.

[A.A.C. R18-2-310.D]

5. Demonstration of Reasonable and Practicable Measures

For an affirmative defense under Condition XI.D.2 or XI.D.3, the Permittee shall demonstrate, through submission of the data and information required by this Condition XI.D and Condition XI.A.1 above, that all reasonable and practicable measures within the Permittee's control were implemented to prevent the occurrence of the excess emissions.

[A.A.C. R18-2-310.E]

XII. RECORDKEEPING REQUIREMENTS

A. The Permittee shall keep records of all required monitoring information including, but not limited to, the following:

[A.A.C. R18-2-306.A.4.a]

1. The date, place as defined in the permit, and time of sampling or measurements;
[A.A.C. R18-2-306.A.4.a.i]

2. The date(s) any analyses were performed;
[A.A.C. R18-2-306.A.4.a.ii]

3. The name of the company or entity that performed the analyses;
[A.A.C. R18-2-306.A.4.a.iii]

4. A description of the analytical techniques or methods used;
[A.A.C. R18-2-306.A.4.a.iv]

5. The results of analyses; and
[A.A.C. R18-2-306.A.4.a.v]

6. The operating conditions as existing at the time of sampling or measurement.
[A.A.C. R18-2-306.A.4.a.vi]

B. The Permittee shall retain records of all required monitoring data and support information for a period of at least five (5) years from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records and all original strip-chart recordings or other data recordings for continuous monitoring instrumentation, and copies of all reports required by the permit.

[A.A.C. R18-2-306.A.4.b]

XIII. REPORTING REQUIREMENTS

A. The Permittee shall submit the following reports:

B. Compliance certifications in accordance with Section VII above.

[A.A.C. R18-2-306.A.5.a]

C. Excess emission; permit deviation, and emergency reports in accordance with Section XI above.

[A.A.C. R18-2-306.A.5.b]

D. Other reports required by any condition of Attachment “B”.

[A.A.C. R18-2-306.A.5.a]

XIV. DUTY TO PROVIDE INFORMATION

A. The Permittee shall furnish to the Director, within a reasonable time, any information that the Director may request in writing to determine whether cause exists for revising, revoking and reissuing, or terminating the permit, or to determine compliance with the permit. Upon

request, the Permittee shall also furnish to the Director copies of records required to be kept by the permit. For information claimed to be confidential, the Permittee shall furnish an additional copy of such records directly to the EPA Administrator along with a claim of confidentiality.

[A.A.C. R18-2-304.G and -306.A.8.e]

B. If the Permittee has failed to submit any relevant facts or has submitted incorrect information in the permit application, the Permittee shall, upon becoming aware of such failure or incorrect submittal, promptly submit such supplementary facts or corrected information.

[A.A.C. R18-2-304.H]

XV. PERMIT AMENDMENT OR REVISION

The Permittee shall apply for a permit amendment or revision for changes to the facility which do not qualify for a facility change without revision under Section XVII below, as follows:

A. Administrative Permit Amendment;

[A.A.C. R18-2-318]

B. Minor Permit Revision; and

[A.A.C. R18-2-319]

C. Significant Permit Revision.

[A.A.C. R18-2-320]

D. The applicability and requirements for such action are defined in the above referenced regulations.

XVI. FACILITY CHANGES ALLOWED WITHOUT A PERMIT REVISION

A. The Permittee may make changes that contravene an express permit term without a permit revision if all of the following apply:

1. The changes are not modifications under any provision of Title I of the Act or under ARS § 49-401.01(24);

[A.A.C. R18-2-317.A.1]

2. The changes do not exceed the emissions allowable under the permit whether expressed therein as a rate of emissions or in terms of total emissions;

[A.A.C. R18-2-317.A.2]

3. The changes do not violate any applicable requirements or trigger any additional applicable requirements;

[A.A.C. R18-2-317.A.3]

4. The changes satisfy all requirements for a minor permit revision under A.A.C. R18-2-319.A;

[A.A.C. R18-2-317.A.4]

5. The changes do not contravene federally enforceable permit terms and conditions that are monitoring (including test methods), record keeping, reporting, or compliance certification requirements; and

[A.A.C. R18-2-317.A.5]

6. The changes do not constitute a minor NSR modification.

[A.A.C. R18-2-317.A.6]

B. The substitution of an item of process or pollution control equipment for an identical or substantially similar item of process or pollution control equipment shall qualify as a change that does not require a permit revision, if it meets all of the requirements of Conditions XVI.A above and XVI.C and D below.

[A.A.C. R18-2-317.B]

C. For each change under Conditions XVI.A and XVI.B above, a written notice by certified mail or hand delivery shall be received by the Director and the EPA Administrator a minimum of 7 working days in advance of the change. Notifications of changes associated with emergency conditions, such as malfunctions necessitating the replacement of equipment, may be provided less than 7 working days in advance of the change, but must be provided as far in advance of the change as possible or, if advance notification is not practicable, as soon after the change as possible.

[A.A.C. R18-2-317.D]

D. Each notification shall include:

1. When the proposed change will occur;

[A.A.C. R18-2-317.E.1]

2. A description of the change;

[A.A.C. R18-2-317.E.2]

3. Any change in emissions of regulated air pollutants; and

[A.A.C. R18-2-317.E.3]

4. Any permit term or condition that is no longer applicable as a result of the change.

[A.A.C. R18-2-317.E.7]

E. The permit shield described in A.A.C. R18-2-325 shall not apply to any change made under this Section XVI.

[A.A.C. R18-2-317.F]

F. Except as otherwise provided for in the permit, making a change from one alternative operating scenario to another as provided under A.A.C. R18-2-306.A.11 shall not require any prior notice under this Section XVI.

[A.A.C. R18-2-317.G]

G. Notwithstanding any other part of Section 0, the Director may require a permit to be revised for any change that, when considered together with any other changes submitted by the same source under Section 0 over the term of the permit, do not satisfy Condition XVI.A above.

[A.A.C. R18-2-317.H]

XVII. TESTING REQUIREMENTS

A. Except as provided in Condition XVII.F below, the Permittee shall conduct performance tests as specified in the permit and at such other times as may be required by the Director.

[A.A.C. R18-2-312.A]

B. Operational Conditions during Performance Testing

Performance tests shall be conducted under such conditions as the Director shall specify to the plant operator based on representative performance of the source. The Permittee shall make available to the Director such records as may be necessary to determine the conditions of the performance tests. Operations during periods of start-up, shutdown, and malfunction (as defined in A.A.C. R18-2-101) shall not constitute representative conditions of performance tests unless otherwise specified in the applicable standard.

[A.A.C. R18-2-312.C]

C. Performance Tests shall be conducted and data reduced in accordance with the test methods and procedures contained in the Arizona Testing Manual unless modified by the Director pursuant to A.A.C. R18-2-312.B.

[A.A.C. R18-2-312.B]

D. Test Plan

At least 14 working days prior to performing a test, the Permittee shall submit a test plan to the Director, which must include the following, in addition to all other applicable requirements, as identified in the Arizona Testing Manual:

[A.A.C. R18-2-312.B]

1. Test duration;
2. Test location(s);
3. Test method(s); and
4. Source operation and other parameters that may affect test results.

E. Stack Sampling Facilities

The Permittee shall provide, or cause to be provided, performance testing facilities as follows:

[A.A.C. R18-2-312.E]

1. Sampling ports adequate for test methods applicable to the facility;
2. Safe sampling platform(s);
3. Safe access to sampling platform(s); and
4. Utilities for sampling and testing equipment.

F. Interpretation of Final Results

Each performance test shall consist of three separate runs using the applicable test method. Each run shall be conducted for the time and under the conditions specified in the applicable standard. For the purpose of determining compliance with an applicable standard, the arithmetic mean of the results of the three runs shall apply. In the event that a sample is accidentally lost or conditions occur in which one of the three runs is required to be discontinued because of forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions, or other circumstances beyond the Permittee's control, compliance may, upon the Director's approval, be determined using the arithmetic mean of the results of the other two runs. If the Director or the Director's designee is present, tests may only be stopped with the Director's or such designee's approval. If the Director or the Director's designee is not present, tests may only be stopped for good cause. Good cause includes: forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions, or other circumstances beyond the Permittee's control. Termination of any test without good cause after the first run is commenced shall constitute a failure of the test. Supporting documentation, which demonstrates good cause, must be submitted.

[A.A.C. R18-2-306.A.3.c and A.A.C. R18-2-312.F]

G. Report of Final Test Results

A written report of the results of performance tests conducted pursuant to 40 CFR 63, shall be submitted to the Director within 60 days after the test is performed. A written report of the results of all other performance tests shall be submitted within 4 weeks after the completion of the testing as specified in the Arizona Testing Manual. All performance testing reports shall be submitted in accordance with the Arizona Testing Manual and A.A.C. R18-2-312.A.

[A.A.C. R18-2-312.A and B]

H. Extension of Performance Test Deadline

For performance testing required under Condition XVII.A above, the Permittee may request an extension to a performance test deadline due to a force majeure event as follows:

[A.A.C. R18-2-312.J]

1. If a force majeure event is about to occur, occurs, or has occurred for which the Permittee intends to assert a claim of force majeure, the Permittee shall notify the Director in writing as soon as practicable following the date the Permittee first knew, or through due diligence should have known that the event may cause or caused a delay in testing beyond the regulatory deadline. The notification must occur before the performance test deadline unless the initial force majeure or a subsequent force majeure event delays the notice, and in such cases, the notification shall be given as soon as practicable.

   [A.A.C. R18-2-312.J.1]

2. The Permittee shall provide to the Director a written description of the force majeure event and a rationale for attributing the delay in testing beyond the regulatory deadline to the force majeure; describe the measures taken or to be taken to minimize the delay; and identify a date by which the Permittee proposes to conduct the performance test. The performance test shall be conducted as soon as practicable after the force majeure event occurs.

[A.A.C. R18-2-312.J.2]

3. The decision as to whether or not to grant an extension to the performance test deadline is solely within the discretion of the Director. The Director shall notify the Permittee in writing of approval or disapproval of the request for an extension as soon as practicable.

[A.A.C. R18-2-312.J.3]

4. Until an extension of the performance test deadline has been approved by the Director under Conditions XVII.H.1, 2, and 3 above, the Permittee remains subject to the requirements of Section XVII.

[A.A.C. R18-2-312.J.4]

5. For purposes of this Section XVII, a "force majeure event" means an event that will be or has been caused by circumstances beyond the control of the Permittee, its contractors, or any entity controlled by the Permittee that prevents it from complying with the regulatory requirement to conduct performance tests within the specified timeframe despite the Permittee's best efforts to fulfill the obligation. Examples of such events are acts of nature, acts of war or terrorism, or equipment failure or safety hazard beyond the control of the Permittee.

[A.A.C. R18-2-312.J.5]

XVIII. PROPERTY RIGHTS

This permit does not convey any property rights of any sort, or any exclusive privilege.

[A.A.C. R18-2-306.A.8.d]

XIX. SEVERABILITY CLAUSE

The provisions of this permit are severable. In the event of a challenge to any portion of this permit, or if any portion of this permit is held invalid, the remaining permit conditions remain valid and in force.

[A.A.C. R18-2-306.A.7]

XX. PERMIT SHIELD

Compliance with the conditions of this permit shall be deemed compliance with all applicable requirements identified in the portions of this permit subtitled "Permit Shield". The permit shield shall not apply to minor revisions pursuant to Condition XV.B of this Attachment and any facility changes without a permit revision pursuant to Condition XVI of this Attachment.

[A.A.C. R18-2-317.F, - 320, and -325]

XXI. PROTECTION OF STRATOSPHERIC OZONE

If this source becomes subject to the provisions of 40 CFR Part 82, then the Permittee shall comply with applicable provisions accordingly.

[40 CFR Part 82]

XXII. APPLICABILITY OF NSPS/NESHAP GENERAL PROVISIONS

For all equipment subject to a New Source Performance Standard or a National Emission Standard for Hazardous Air Pollutants, the Permittee shall comply with all applicable requirements contained in Subpart A of Title 40, Chapter 60 and Chapter 63 of the Code of Federal Regulations.

[40 CFR Part 60 Subpart A and Part 63 Subpart A]

ATTACHMENT "B": SPECIFIC CONDITIONS

I. GENERAL CONDITIONS

A. Relationship Between Exploration and Permitted Operations

1. The Hermosa Project consists of two separate projects that will be brought together in this permit: The Hermosa Exploration and Voluntary Remediation Project (E&VRP) and the Hermosa Mine.

[A.A.C. R18-2-302 and -306.01. A]

a. The Hermosa E&VRP consists of the following facilities and activities operating under an ADEQ "no permit or registration required" determination dated January 26, 2018: management of legacy tailings/soils and exploration materials in the existing tailings storage facility (TSF1), water treatment plants 1 and 2, exploration concrete batch plant, exploration shaft and decline construction and associated ventilation and safety activities, fuel tanks and ancillary chemical handling, drilling (both exploratory and water management), emergency generators , non-emergency engines, access and haul road construction and use, and ancillary exploration and administrative buildings.

b. The Hermosa Mine consists of the permitted equipment and activities set forth in Attachment "C" of this permit.

2. Until this permit becomes final as described in Condition I.A.4, the Hermosa E&VRP may continue to operate pursuant to the "no permit or registration required" determination dated January 26, 2018 and shall limit total emissions from the Hermosa E&VRP to less than the permitting exemption threshold.

[A.A.C. R18-2-302 and 306.01.A]

3. *The Permittee shall maintain records demonstrating that the Hermosa E&VRP remains below permitting exemption thresholds. These records shall be made available to the Department upon request.*

[A.A.C. R18-2-306.A.3.c, -331.A.3.a]
[Material Permit Conditions are indicated with underline and italic]

4. The Permittee shall provide notification when any of the activities/facilities listed in Condition I.A.1 have completed their exploration use and the date that they will be retired or transferred to the Hermosa Mine and covered under the relevant provisions of this permit.

[A.A.C. R18-2-306.01.A.]

B. Initial Startup

1. Hermosa Mine Equipment

a. Initial startup of the Taylor underground crusher system shall occur when rock or ore is first processed through the crusher and hoisted to the surface in the skip.

b. Initial startup of the Taylor above ground mill shall occur when ore is first processed through the mill circuit to produce concentrate other than for pre-production commissioning.

c. Initial startup of the Clark above ground crusher system shall occur when ore is first processed through the crusher system, other than for pre-production commissioning, and placed into a transport container or storage silo.

d. Initial startup of internal combustion engines for testing purposes shall occur upon first start-up of each engine on-site.

e. Initial startup of the Hermosa Mine for ambient monitoring purposes shall occur upon the earlier of concentrate production from Taylor or crushed ore placement in a transport container or silo at Clark.

2. Recordkeeping and reporting.

[A.A.C. R18-2-306.A.3.c]

a. The Permittee shall keep records of temporary activities authorized under Condition I.A.4, the reasonable precautions implemented, and the date any roads were converted to permanent and added to the Dust Control Plan.

b. The Permittee shall keep records of the startup date of each group of equipment in Condition I.B.1.a through c, each engine in Condition I.B.1.d, and the start date for the ambient monitoring in Condition I.B.1.e.

c. All records shall be made available to the Department upon request.

II. FACILITY-WIDE REQUIREMENTS

A. Applicability

This Section is applicable to facility-wide operations.

B. Opacity

1. Instantaneous Surveys and Six-Minute Observations

a. Any instantaneous survey or six-minute observation required by this permit shall be conducted by an EPA Reference Method 9 certified observer.

[A.A.C. R18-2-306.A.3.c]

2. The Permittee shall have on site or on call a person certified in EPA Reference Method 9.

[A.A.C. R18-2-306.A.3.c]

3. Monitoring, Recordkeeping, and Reporting Requirements

[A.A.C. R18-2-306.A.3.c]

a. At the frequency specified in the following sections of this permit, the Permittee shall conduct an instantaneous survey of visible emissions from both process stack sources, when in operation, and fugitive dust sources.

b. If the visible emissions on an instantaneous basis appears less than or equal to the applicable opacity standard, then the Permittee shall keep a record of the name of the observer, the date on which the instantaneous survey was made, and the results of the instantaneous survey.

c. If the visible emissions on an instantaneous basis appears greater than the applicable opacity standard, then the Permittee shall immediately conduct a six-minute observation of the visible emissions.

(1) If the six-minute observation of the visible emissions is less than or equal to the applicable opacity standard, then the Permittee shall record the name of the observer, the date on which the six-minute observation was made, and the results of the six-minute observation.

(2) If the six-minute observation of the visible emissions is greater than the applicable opacity standard, then the Permittee shall do the following:

(a) Adjust or repair the controls or equipment to reduce opacity to less than or equal to the opacity standard;

(b) Record the name of the observer, the date on which the six-minute observation was made, the results of the six-minute observation, and all corrective action taken; and

(c) Report the event as an excess emission for opacity in accordance with Condition XI.A of Attachment "A".

(d) Conduct another six-minute observation to document the effectiveness of the adjustments or repairs completed.

C. Reporting Requirements

1. At the time the compliance certifications required by Section VII of Attachment "A" are submitted, the Permittee shall submit summary reports of all monitoring activities required by this Attachment performed in the same six-month period as applied to the compliance certification period. All instances of deviations from permit requirements shall be clearly identified in the reports.

[A.A.C. R18-2-306.A.5]

2. Deviations from the following Attachment "B" permit conditions shall be promptly reported in accordance with Condition XI.B.2 of Attachment "A":

[A.A.C. R18-2-306.A.5.b]

a. Condition I;

b. Condition III.A.3, III.A.6, III.B.4, III.B.5.a, III.B.5.b, , and III.B.7;

c. Condition IV.A.2, IV.A.6, IV.A.7, IV.B.2, and IV.C.6;

d. Condition V.B.2.a;

e. Condition VI.C, and VI.E;

f. Condition VII.C.1, VII.C.2, VII.D, and VII.E.2;

g. Condition VIII, and VIII.B.3.b;

h. Condition IX.A.2.a, IX.B.2.b.

D. Operational Limitations

1. At the Taylor site:

a. *The Permittee shall limit the blasting activity to no more than one blast per hour.*

[A.A.C. R18-2-306.01 and -331.A.3.a]
[Material Permit Conditions are indicated with underline and italic]

b. *The Permittee shall limit the blasting activity to no more than two blasts per day.*

[A.A.C. R18-2-306.01 and -331.A.3.a]
[Material Permit Conditions are indicated with underline and italic]

c. *The Permittee shall limit the maximum emulsion agent usage during blasting to no more than 17.42 tons per hour.*

[A.A.C. R18-2-306.01 and -331.A.3.a]
[Material Permit Conditions are indicated with underline and italic]

d. *The Permittee shall limit the maximum emulsion agent usage during blasting to no more than 4,500 tons per year based on 12-month rolling total.*

[A.A.C. R18-2-306.01 and -331.A.3.a]
[Material Permit Conditions are indicated with underline and italic]

e. *The Permittee shall limit the amount of total Development Ore mined to no more than 413,389 tons per year based on 12-month rolling total.*

[A.A.C. R18-2-306.01 and -331.A.3.a]
[Material Permit Conditions are indicated with underline and italic]

f. *The Permittee shall limit the amount of total Stope Ore mined to no more than 4,618,867 tons per year based on 12-month rolling total.*

[A.A.C. R18-2-306.01 and -331.A.3.a]
[Material Permit Conditions are indicated with underline and italic]

g. *The Permittee shall limit the amount of total rock processed by the Primary Crusher to no more than 37,032 tons per day.*

[A.A.C. R18-2-306.01 and -331.A.3.a]

[Material Permit Conditions are indicated with underline and italic]

h. *The Permittee shall limit the amount of total rock processed by the Primary Crusher to no more than 4,665,131 tons per year based on 12-month rolling total.*

[A.A.C. R18-2-306.01 and -331.A.3.a]
[Material Permit Conditions are indicated with underline and italic]

i. *The Permittee shall limit the amount of total rock processed by the Pebble Crusher to no more than 5,280 tons per day.*

[A.A.C. R18-2-306.01 and -331.A.3.a]
[Material Permit Conditions are indicated with underline and italic]

2. At the Clark site:

a. *The Permittee shall limit the blasting activity to no more than one blast per hour.*

[A.A.C. R18-2-306.01 and -331.A.3.a]
[Material Permit Conditions are indicated with underline and italic]

b. *The Permittee shall limit the blasting activity to no more than two blasts per day.*

[A.A.C. R18-2-306.01 and -331.A.3.a]
[Material Permit Conditions are indicated with underline and italic]

c. *The Permittee shall limit the maximum emulsion agent usage during blasting to no more than 4.60 tons per hour.*

[A.A.C. R18-2-306.01 and -331.A.3.a]
[Material Permit Conditions are indicated with underline and italic]

d. *The Permittee shall limit the maximum emulsion agent usage during blasting to no more than 562 tons per year based on 12-month rolling total.*

[A.A.C. R18-2-306.01 and -331.A.3.a]
[Material Permit Conditions are indicated with underline and italic]

e. *The Permittee shall limit the amount of total rock processed by the Rock Breaker to no more than 47,131 tons per year based on 12-month rolling total.*

[A.A.C. R18-2-306.01 and -331.A.3.a]
[Material Permit Conditions are indicated with underline and italic]

f. *The Permittee shall limit the amount of total ore mined to no more than 733,798 tons per year based on 12-month rolling total.*

[A.A.C. R18-2-306.01 and -331.A.3.a]
[Material Permit Conditions are indicated with underline and italic]

g. *The Permittee shall limit the amount of total rock processed by the Primary Crusher to no more than 2,904 tons per day.*

[A.A.C. R18-2-306.01 and -331.A.3.a]
[Material Permit Conditions are indicated with underline and italic]

3. Nothing in this Attachment (Attachment "B") shall be so construed as to prevent the utilization of measurements from emissions monitoring devices or techniques not designated as performance tests as evidence of compliance with applicable good maintenance and operating requirements.

[A.A.C. R18-2-312.I]

4. Monitoring, Recordkeeping, and Reporting Requirements

a. The Permittee shall keep records of dates and times when blasting is conducted and the amount of emulsion agent in tons used during each blast. The records of each day's blasting activity shall be available in a central log no later than 5:00 pm the following business day.

[A.A.C. R18-2-306.A.3.c]

b. The Permittee shall record the total tons of daily rock mined (including ore and waste rock). The records of each day's mined rock total shall be available in a central log no later than 5:00 pm the following business day.

[A.A.C. R18-2-306.A.3.c]

c. The Permittee shall maintain, on-site, records of the manufacturer's specifications or O&M plan for all equipment listed in Attachment "C" of this permit.

[A.A.C. R18-2-306.A.4]

d. All records, analyses, and reports required by this permit shall be retained for a minimum of five years from the date of generation. The most recent two years of data shall be kept on-site. All records shall be made available for inspection by authorized Department personnel during normal working hours.

[A.A.C. R18-2-306.A.4]

e. The Permittee shall notify the Director in writing within 30 days of initial startup (as defined in Condition I.B) of the equipment listed in Attachment "C". Equipment purchases within a specified period may be grouped and reported together. This notification shall contain any available information required to complete Attachment "C".

[A.A.C.R18-2-304.H]

III. METALLIC MINERAL PROCESSING OPERATIONS

This Section applies to equipment and operations associated with metallic mineral processing operations.

A. Facilities Subject to the Standards of Performance for Existing Nonferrous Metals Industry Sources Under A.A.C. R18-2-721

1. Applicability

The facilities subject to the requirements of this Condition III.A are identified in the last column of the Equipment List in Attachment "C".

2. Emission Limitations and Standard

a. Particulate Matter

(1) The Permittee shall not cause, allow, or permit the discharge of particulate matter into the atmosphere in any one hour from any process source in total quantities in excess of the amounts calculated by one of the following equations and actual values shall be calculated from the applicable equations and rounded off to two decimal places:

[A.A.C. R18-2-721.B and C]

(a) For process sources having a process weight rate of 60,000 pounds per hour (30 tons per hour) or less, the maximum allowable emissions shall be determined by the following equation:

$$E = 4.10P^{0.67}$$

Where:

E = the maximum allowable particulate emissions rate in pounds-mass per hour; and

P = the process weight rate in tons-mass per hour.

(b) For process sources having a process weight greater than 60,000 pounds per hour (30 tons per hour), the maximum allowable emissions shall be determined by the following equation:

$$E = 55.0P^{0.11} - 40$$

Where "E" and "P" are defined as indicated in Condition III.A.2.a(1)(a) above.

(2) For purposes of Condition III.A.2.a(1) above, the total process weight from all similar units employing a similar type process shall be used in determining the maximum allowable emission of particulate matter.

[A.A.C. R18-2-721.D]

b. Opacity

(1) The opacity of any plume or effluent from any existing, stationary, point source shall not be greater than 20%.

[A.A.C. R18-2-702.B.3]

(2) If the presence of uncombined water is the only reason for an exceedance of the visible emissions requirement in Condition

III.A.2.b(1) above, the exceedance shall not constitute a violation of the applicable opacity limit.

[A.A.C. R18-2-702.C]

3. Air Pollution Control Requirements

a. *At all times, the Permittee shall, to the extent practicable, utilize wet suppression on the following emission units to minimize particulate matter emissions and comply with the applicable emission limitations and standards of Condition III.A.2 above. Wet suppression options include water sprays, surfactant use, water jets, foggers, inherent moisture content (including moisture from upstream water sprays), or other equivalent control methods.* For purposes of this condition, "to the extent practicable" for purposes of wet suppression does not require addition of water to the extent that the controlled material adheres to conveyor belts or feeders or clogs transfer points.

[A.A.C. R18-2-306.01.A and -331.A.3.a]
[Material Permit Conditions are indicated with underline and italic]

(1) *Drop from 21710-CV-00001 Primary Mill Feed Conveyor to 22100-CH-00001 Primary Mill Feed Chute (Process # DP-18);*

(2) *Transfer of Development Ore from Face to Loader (Process # DP-40);*

(3) *Transfer of Development Ore from Loader to Stockpile (Process # DP-41);*

(4) *Transfer of Development Ore from Stockpile to Loader (Process # DP-42);*

(5) *Transfer of Development Ore from Stockpile to Loader (Process # DP-43);*

(6) *Transfer of Development Ore Mined from Haul Truck to Coarse Ore Bin (Process # DP-49);*

(7) *Transfer of Development Ore Mined from Crushed Ore Bin to Shaft Loadout Conveyor (Process # DP-54);*

(8) *Transfer of Development Ore Mined from Shaft Loadout Conveyor to Measurement Flask (Process # DP-55);*

(9) *Transfer of Development Ore Mined from Measurement Flask to Skip (Process # DP-56);*

(10) *Transfer of Development Waste Mined from Face to Loader (Process # DP-57);*

(11) *Transfer of Development Waste Mined from Loader to Stockpile (Process # DP-58);*

(12) *Transfer of Development Waste Mined from Stockpile to Loader (Process # DP-59);*

(13) *Transfer of Development Waste Mined from Loader to Haul Truck (Process # DP-60);*

(14) *Transfer of Development Waste Mined from Haul Truck to Waste Pass Grizzly (Process # DP-61);*

(15) *Transfer of Development Waste Mined from Waste Pass Grizzly to Shaft Loadout Conveyor (Process # DP-62);*

(16) *Transfer of Development Waste Mined from Shaft Loadout Conveyor to Measurement Flask (Process # DP-63);*

(17) *Transfer of Development Waste Mined from Measurement Flask to Skip (Process # DP-64);*

(18) *Transfer of Stope Ore from Stope to Loader (Process # DP-65);*

(19) *Transfer of Stope Ore from Loader to Orepass 1 (Process # DP-70);*

(20) *Transfer of Stope Ore from Orepass 1 to Haul Truck (Process # DP-71);*

(21) *Transfer of Stope Ore from Haul Truck to Orepass 2 (Process # DP-72);*

(22) *Transfer of Stope Ore from Orepass 2 to Haul Truck (Process # DP-73);*

(23) *Transfer of Stope Ore from Haul Truck to Coarse Ore Bin (Process # DP-74);*

(24) *Transfer of Stope Ore from Coarse Ore Bin to Crusher Feeder Belt/Hopper (Process # DP-75);*

(25) *Transfer of Stope Ore from Crusher Feeder Belt/Hopper to Transfer Conveyor (Process # DP-76);*

(26) *Transfer of Stope Ore from Transfer Conveyor to Reversing Conveyor (Process # DP-77);*

(27) *Transfer of Stope Ore from Reversing Conveyor to Crushed Ore Bin (Process # DP-78);*

(28) *Transfer of Stope Ore from Crushed Ore Bin to Shaft Loadout Conveyor (Process # DP-79);*

(29) *Transfer of Stope Ore from Shaft Loadout Conveyor to Measurement Flask (Process # DP-80);*

(30) *Transfer of Stope Ore from Measuring Flask to Skip (Process # DP-81);*

(31) *Transfer of Development Ore from Face to Loader (Process # DP-124);*

(32) *Transfer of Development Ore from Loader to Stockpile (Process # DP-125);*

(33) *Transfer of Development Ore from Stockpile to Loader (Process # DP-126);*

(34) *Transfer of Development Ore Mined from Loader to Haul Truck (Process # DP-127);*

(35) *Transfer of Development Waste Mined from Face to Loader (Process # DP-129);*

(36) *Transfer of Development Waste Mined from Loader to Stockpile (Process # DP-130);*

(37) *Transfer of Development Waste Mined from Stockpile to Loader (Process # DP-131);*

(38) *Transfer of Development Waste Mined from Loader to Haul Truck (Process # DP-132);*

(39) *Transfer of Stope Ore from Stope to Loader (Process # DP-134);*

(40) *Transfer of Stope Ore from Loader to Stockpile (Process # DP-135);*

(41) *Transfer of Stope Ore from Stockpile to Loader (Process # DP-136); and*

(42) *Transfer of Stope Ore from Loader to Haul Truck (Process # DP-137).*

b. *At all times, the Permittee shall, to the extent practicable, utilize wet suppression on the following emission units to minimize particulate matter emissions and keep the processes completely wet and saturated to comply with the applicable emission limitations and standards of Condition III.A.2 above.* For purposes of this condition, "to the extent practicable" for purposes of wet suppression does not require addition of water to the

extent that the controlled material adheres to conveyor belts or feeders or clogs transfer points.

[A.A.C. R18-2-306.01.A and -331.A.3.a]
[Material Permit Conditions are indicated with underline and italic]

(1) *Drop from 22110-ML-00001 Primary Mill to 22110-SN-00002 Primary Mill Discharge Screen (Process # DP-19); and*

(2) *Drop from 22110-SN-00002 Primary Mill Discharge Screen to 22210-CV-00002 Primary Screen Discharge Conveyor (Process # DP-20).*

c. *At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, install,* maintain, *and operate the 21300-DCD-006 Silo Discharge Dust Collection System (DC-6), and to the extent practicable, to control the particulate matter emissions from the following processes:*

[A.A.C. R18-2-306.01.A and -331.A.3.d and e]
[Material Permit Conditions are indicated with underline and italic]

(1) *Drop from 21700-SCB-002 Discharge Feeder Belt Scale No. 1 to 21700-CVR-008 Primary Mill Feed Conveyor (Process # DP-15);*

(2) *Drop from 21700-SCB-004 Discharge Feeder Belt Scale No. 2 to 21700-CVR-008 Primary Mill Feed Conveyor (Process # DP-16); and*

(3) *Drop from 21700-SCB-006 Discharge Feeder Belt Scale No.3 to 21700-CVR-008 Primary Mill Feed Conveyor (Process # DP-17).*

d. *At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, install,* maintain, *and operate the Coarse Ore Dust Collection System, 23100-FAN-0001 (DC-7) and Coarse Ore Dust Collection System, 23100-FAN-0002 (DC-8), and to the extent practicable, to control the particulate matter emissions from the Primary Mill at the Clark site.*

[A.A.C. R18-2-306.01.A and -331.A.3.d and e]
[Material Permit Conditions are indicated with underline and italic]

e. *At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable,* maintain, *and operate 21300-DCD-006 Silo Discharge Dust Collection System (DC-6), Coarse Ore Dust Collection System, 23100-FAN-0001 (DC-7), and Coarse Ore Dust Collection System, 23100-FAN-0002 (DC-8) in a manner consistent with good air pollution control practices for minimizing particulate matter emissions.*

[A.A.C. R18-306.01.A and -331.A.3.e]
[Material Permit Conditions are indicated with underline and italic]

f. *The Permittee shall use pneumatic conveying for material transfer of cement from truck to silos at the paste plants.*

[A.A.C. R18-2-306.01.A and -331.A.3.e]

[Material permit conditions are indicated by underline and italics]

g. *At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable,* maintain, *and operate DC-PPBS1, DC-CPPBS1, DC-PPBS2, DC-CPPBS2, DC-PPBS3, DC-CPPBS3, DC-PPBS4, DC-CPPBS4, DC-PPM1M, DC-CPPM1M, DC-PPM2M, and DC-CPPM2M, in a manner consistent with good air pollution control practices for minimizing particulate matter emissions.*

[A.A.C. R18-306.01.A and -331.A.3.e]
[Material permit conditions are indicated by underline and italics]

h. *At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, install,* maintain, *and operate the Dust Collectors DC-PPBS1 and DC-CPPBS1, and to the extent practicable, to control the particulate matter emissions from the Paste Plant Binder Silo 1.*

[A.A.C. R18-2-306.01.A and -331.A.3.d and e]
[Material Permit Conditions are indicated with underline and italics]

i. *At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, install,* maintain, *and operate the Dust Collectors DC-PPBS2 and DC-CPPBS2, and to the extent practicable, to control the particulate matter emissions from the Paste Plant Binder Silo 2.*

[A.A.C. R18-2-306.01.A and -331.A.3.d and e]
[Material Permit Conditions are indicated with underline and italics]

j. *At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, install,* maintain, *and operate the Dust Collectors DC-PPBS3 and DC-CPPBS3, and to the extent practicable, to control the particulate matter emissions from the Paste Plant Binder Silo 3.*

[A.A.C. R18-2-306.01.A and -331.A.3.d and e]
[Material Permit Conditions are indicated with underline and italics]

k. *At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, install,* maintain, *and operate the Dust Collectors DC-PPBS4 and DC-CPPBS4, and to the extent practicable, to control the particulate matter emissions from the Paste Plant Binder Silo 4.*

[A.A.C. R18-2--306.01.A and -331.A.3.d and e]
[Material Permit Conditions are indicated with underline and italics]

l. *At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, install,* maintain, *and operate the Dust Collectors DC-PPM1M and DC-CPPM1M, and to the extent practicable, to control the particulate matter emissions from the Paste Plant Module 1 Mixer.*

[A.A.C. R18-2-306.01.A and -331.A.3.d and e]
[Material Permit Conditions are indicated with underline and italics]

m. *At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, install,* maintain, *and operate the Dust Collectors DC-PPM2M and DC-CPPM2M, and to the extent practicable, to control the particulate matter emissions from the Paste Plant Module 2 Mixer.*

[A.A.C. R18-2-306.01.A and -331.A.3.d and e]
[Material Permit Conditions are indicated with underline and italics]

4. Monitoring, Recordkeeping, and Reporting Requirements

a. The Permittee shall record the daily process rates and hours of operation of all material handling facilities.

[A.A.C. R18-2-721.F]

b. The Permittee shall conduct the periodic opacity monitoring method specified in Condition II.B above on a weekly basis for all emission units subject to Condition III.A. For underground units, compliance with the opacity limit shall be determined at the vent raise, shaft, or decline.

[A.A.C. R18-2-306.A.3.c]

c. The Permittee shall keep the records of the operating hours of the evaporator units.

[A.A.C. R18-2-306.A.3]

5. Dust Collectors Voluntary Emission Limitations

a. *The Permittee shall not allow the emissions of PM_{10} from the following processes to exceed 0.002 gr/dscf, as measured at the emission exhaust point to the atmosphere:*

[A.A.C. R 18-2-306.01.A and -331.A.3.a]
[Material Permit Conditions are indicated with underline and italic]

Emission Point Number	Description
DC-6	21300-DCD-006 Silo Discharge Dust Collection System

b. *The Permittee shall not allow the emissions of PM_{10} from the following processes to exceed 0.001 gr/dscf, as measured at the emission exhaust point to the atmosphere:*

[A.A.C. R 18-2-306.01.A and -331.A.3.a]
[Material Permit Conditions are indicated with underline and italic]

Emission Point Number	Description
DC-7	Coarse Ore Dust Collection System, 23100-FAN-0001
DC-8	Coarse Ore Dust Collection System, 23100-FAN-0002

6. Performance Testing Requirements

a. The Permittee shall, within 60 days of achieving the maximum production rate but no later than 180 days of the initial startup, conduct performance tests for PM_{10} on the stacks of all the pollution control devices in Condition III.A.5 above to demonstrate initial compliance with the emission limits in Condition III.A.5.

[A.A.C. R18-2-306.A.3.c and -312]

b. To demonstrate continuous compliance with the emission limits in Condition III.A.5, the Permittee shall conduct performance tests for PM_{10} on the stacks of the pollution control devices in Condition III.A.5 a minimum of once per year.

[A.A.C. R18-2-306.A.3.c and -312]

c. The Permittee shall use EPA Reference Method 201A in Appendix M to 40 CFR Part 51 to determine the PM_{10} concentration. In lieu of Method 201A and with prior approval from ADEQ, EPA Reference Method 5 in Appendix A to 40 CFR Part 60 can be used. The Permittee may elect to assume all PM emissions measured by Method 5 are PM_{10} to demonstrate compliance with the PM_{10} emission limits in Condition III.A.5.

[A.A.C. R-18-306.A.3.d and -312]

d. Each performance test shall consist of three separate runs. Each run shall be conducted for at least one hour, and the minimum sample volume shall be 30 dscf. The average of the three runs shall be used to determine compliance.

[A.A.C. R-18-306.A.3.d and -312]

e. If the pollution control devices is in both Condition III.A.5 and Condition III.B.6, it may be tested a minimum of once per year.

[A.A.C. R-18-306.A.3]

7. Permit Shield

Compliance with the requirements of Condition III.A shall be deemed compliance with A.A.C. R18-2-702.B.3, 702.C, 721.B, 721.D, and 721.F.

[A.A.C. R18-2-325]

B. Facilities Subject to the NSPS Requirements for Metallic Mineral Processing Plant Affected Facilities Under 40 CFR 60 Subpart LL

1. Applicability

The facilities subject to the requirements of this Condition III.B are identified in the last column of the Equipment List in Attachment "C".

2. Emission Limitations and Standards

a. Particulate Matter

On and after the date on which the performance test required to be conducted by 40 CFR 60.8 is completed, the Permittee shall not cause to be discharged into the atmosphere from an affected facility any stack emissions that contain particulate matter in excess of 0.05 grams per dry standard cubic meter (0.05 g/dscm).

[40 CFR 60.382(a)(1)]

b. Opacity

(1) *On and after the date on which the performance test required to be conducted by 40 CFR 60.8 is completed, the Permittee shall not cause to be discharged into the atmosphere from an affected facility any stack emissions that exhibit greater than 7% opacity,*

unless the stack emissions are discharged from an affected facility using a wet scrubbing emission control device.

[40 CFR 60.382(a)(2) A.A.C. R18-2-331.A.3.f]
[Material Permit Conditions are indicated with underline and italic]

(2) *On and after the sixtieth day after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup, the Permittee shall not cause to be discharged into the atmosphere from an affected facility any process fugitive emissions that exhibit greater than 10% opacity.*

[40 CFR 60.382(b) A.A.C. R18-2-331.A.3.f]
[Material Permit Conditions are indicated with underline and italic]

3. Operational Limitations

At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Director which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source.

[40 CFR 60.11(d)]

4. Air Pollution Control Requirements

a. *At all times, the Permittee shall, to the extent practicable, utilize wet suppression on the following emission units to minimize particulate matter emissions and comply with the applicable emission limitations and standards of Condition III.B.2 above. Wet suppression options include water sprays, surfactant use, water jets, foggers, inherent moisture content (including moisture from upstream water sprays), or other equivalent control methods.* For purposes of this condition, "to the extent practicable" for purposes of wet suppression does not require addition of water to the extent that the controlled material adheres to conveyor belts or feeders or clogs transfer points.

[A.A.C. R18-2-306.01.A and -331.A.3.e]
[Material Permit Conditions are indicated with underline and italic]

(1) *Drop from 22210-CV-00002 Primary Screen Discharge Conveyor to 22210-CV-0001 Pebble Crusher Feed Conveyor (Process # DP-21);*

(2) *Drop from 22210-CV-00001 Pebble Crusher Feed Conveyor to 22210-CH-00001 Pebble Crusher Feed/Bypass Chute (Process # DP-22);*

(3) *Drop from 22210-CH-00001 Pebble Crusher Feed/Bypass Chute to 22210-BN-00001 Pebble Crusher Feed Bin (Process # DP-23);*

(4) *Drop from 22210-BN-0001 Pebble Crusher Feed Bin to 22210-FE-00001 Pebble Crusher Feeder (Process # DP-24);*

(5) *Drop from 22210-FE-00001 Pebble Crusher Feeder to 22210-CR-00001 Pebble Crusher (Process # DP-25);*

(6) *Drop from 22210-CR-00001 Pebble Crusher to 22210-BN-00002 Pebble Crusher Product Surge Bin (Process # DP-26);*

(7) *Drop from 22210-BN-00002 Pebble Crusher Product Surge Bin to 22210-FE-00002 Pebble Crusher Product Return Feeder (Process # DP-27);*

(8) *Drop from 22210-FE-00002 Pebble Crusher Product Return Feeder to 21710-CV-00001 Primary Mill Feed Conveyor (Process # DP-28);*

(9) *Transfer of Ore from Ore Stockpile to Loader (Process # DP-105);*

(10) *Transfer of Ore Mined from Loader to Haul Truck (Process # DP-106);*

(11) *Transfer from ROM Stockpile to Loader (Process # DP-107);*

(12) *Ore Stockpile Drops (Process # DP-114); and*

(13) *Run-of-mine (ROM) Stockpile Drops (Process # DP-115).*

b. *At all times, the Permittee shall, to the extent practicable, utilize wet suppression on the following emission units and keep them partially enclosed to minimize particulate matter emissions and comply with the applicable emission limitations and standards of Condition III.B.2 above. Wet suppression options include water sprays, surfactant use, water jets, foggers, inherent moisture content (including moisture from upstream water sprays), or other equivalent control methods.* For purposes of this condition, "to the extent practicable" for purposes of wet suppression does not require addition of water to the extent that the controlled material adheres to conveyor belts or feeders or clogs transfer points.

[A.A.C. R18-2-306.01.A and -331.A.3.e]
[Material Permit Conditions are indicated with underline and italic]

(1) *Drop of the crushed ore from the mine to the 21200-BIN-001 Mine Shaft Ore Bin (Process # DP-1);*

(2) *Drop from 21200-BIN-001 Mine Shaft Ore Bin to 21200-FOR-001 Mine Shaft Ore Discharge Feeder (Process # DP-2);*

(3) *Dump into Primary Crusher Feed Hopper (Process # DP-103).*

c. *At all times, the Permittee shall, to the extent practicable, keep the following emission unit partially enclosed to minimize particulate matter emissions and comply with the applicable emission limitations and standards of Condition III.B.2 above.*

[A.A.C. R18-2-306.01.A]

(1) *Drop from Coarse Ore Feed Conveyor to the SAG Mill Feed Chute (23200-CHU-0002) (Process # DP-104).*

d. *At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, install,* maintain, *and operate the 21200-DCD-001 Coarse Ore Dust Collection System (DC-1), and to the extent practicable, to control the particulate matter emissions from 21210-CV-0003 Main Shaft Outfeed Conveyor and the following processes:*

[A.A.C. R18-2-306.01.A and -331.A.3.d and e]
[Material Permit Conditions are indicated with underline and italics]

(1) *Drop from 21200-FOR-001 Mine Shaft Ore Discharge Feeder to 21200-GAT-001 Mine Shaft Diverter Gate (Process # DP-3);*

(2) *Drop from 21200-GAT-001 Mine Shaft Discharge Gate to 21200-CVR-001 Coarse Ore Overland Conveyor (Process # DP-4); and*

(3) *Drop from 21200-CVR-001 Coarse Ore Overland Conveyor to 21300-CHU-001 3-Way Shuttle Chute (Process # DP-6).*

e. *At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, install,* maintain, *and operate the 21210-CX-00001 Coarse Ore Overland Dust Collector (DC-2), and to the extent practicable, to control the particulate matter emissions from 21210-CV-00001 Coarse Ore Overland Conveyor.*

[A.A.C. R18-2-306.01.A and -331.A.3.d and e]
[Material Permit Conditions are indicated with underline and italics]

f. *At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, install,* maintain, *and operate the 21300-DCD-003 Coarse Ore Silo Collection System (DC-3), and to the extent practicable, to control the particulate matter emissions from the following process:*

[A.A.C. R18-2-306.01.A and -331.A.3.d and e]
[Material Permit Conditions are indicated with underline and italics]

(1) *Drop from 21300-CVB-005 Coarse Ore Silo No. 1 Feed Conveyor to 21500-SLO-001 Coarse Ore Silo No. 1 (Process # DP-9).*

g. *At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, install,* maintain, *and operate the 21300-DCD-004 Coarse Ore Silo Collection System (DC-4), and to the extent practicable, to control the particulate matter emissions from the following processes:*

[A.A.C. R18-2-306.01.A and -331.A.3.d and e]
[Material Permit Conditions are indicated with underline and italics]

(1) *Drop from 21300-CHU-001 3-Way Shuttle Chute to 21300-CVB-005 Coarse Ore Silo No. 1 Feed Conveyor (Process # DP-7);*

(2) *Drop from 21300-CVB-006 Coarse Ore Silo No. 2 Feed Conveyor to 21500-SLO-002 Coarse Ore Silo No. 2 (Process # DP-10).*

h. *At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, install,* maintain, *and operate the 21300-DCD-005 Coarse Ore Silo Collection System (DC-5), and to the extent practicable, to control the particulate matter emissions from the following processes:*
[A.A.C. R18-2-306.01.A and -331.A.3.d and e]
[Material Permit Conditions are indicated with underline and italics]

(1) *Drop from 21300-CHU-001 3-Way Shuttle Chute to 21300-CVB-006 Coarse Ore Silo No. 2 Feed Conveyor (Process # DP-8); and*

(2) *Drop from 21300-CHU-001 3-Way Shuttle Chute to 21500-SLO-003 Coarse Ore Silo No. 3 (Process # DP-11).*

i. *At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, install,* maintain, *and operate the 21300-DCD-005 Coarse Ore Silo Collection System (DC-11), and to the extent practicable, to control the particulate matter emissions from the entrance to 21500-SLO-004 Coarse Ore Silo No. 4.*
[A.A.C. R18-2-306.01.A and -331.A.3.d and e]
[Material Permit Conditions are indicated with underline and italics]

j. *At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, install,* maintain, *and operate the 21300-DCD-006 Silo Discharge Dust Collection System (DC-6), and to the extent practicable, to control the particulate matter emissions from the following processes:*
[A.A.C. R18-2-306.01.A and -331.A.3.d and e]
[Material Permit Conditions are indicated with underline and italics]

(1) *Drop from 21700-FOR-002 Coarse Ore Silo Discharge Feeder No. 1 to 21700-SCB-002 Discharge Feeder Belt Scale No. 1 (Process # DP-12);*

(2) *Drop from 21700-FOR-004 Coarse Ore Silo Discharge Feeder No. 2 to 21700-SCB-004 Discharge Feeder Belt Scale No. 2 (Process # DP-13); and*

(3) *Drop from 21700-FOR-006 Coarse Ore Silo Discharge Feeder No. 3 to 21700-SCB-006 Discharge Feeder Belt Scale No. 3 (Process # DP-14).*

k. *At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, install,* maintain, *and operate the Coarse Ore Dust Collection System, 23100-FAN-0001 (DC-7) and Coarse Ore Dust Collection System, 23100-FAN-0002 (DC-8), and to the extent*

practicable, to control the particulate matter emissions from the Crusher, Screen, and Coarse Ore Silo at the Clark Site.

[A.A.C. R18-2-306.01.A and -331.A.3.d and e]
[Material Permit Conditions are indicated with underline and italics]

l. *At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, install,* maintain, *and operate the 23100-DCD-0005 Coarse Ore Dust Collection System (DC-10), and to the extent practicable, to control the particulate matter emissions from the Coarse Ore Silo at the Clark Site.*

[A.A.C. R18-2-306.01.A and -331.A.3.d and e]
[Material Permit Conditions are indicated with underline and italics]

m. *At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable,* maintain, *and operate the following pollution control devices in a manner consistent with good air pollution control practices for minimizing particulate matter emissions:*

[A.A.C. R18-2-306.01.A and -331.A.3.e]
[Material permit conditions are indicated by underline and italics]

(1) *21200-DCD-001 Coarse Ore Dust Collection System (DC-1);*

(2) *21300-DCD-002 Coarse Ore Silo Collection System (DC-2);*

(3) *21300-DCD-003 Coarse Ore Silo Collection System (DC-3);*

(4) *21300-DCD-004 Coarse Ore Silo Collection System (DC-4);*

(5) *21300-DCD-005 Coarse Ore Silo Collection System (DC-5);*

(6) *21300-DCD-006 Silo Discharge Dust Collection System (DC-6);*

(7) *Coarse Ore Dust Collection System, 23100-FAN-0001 (DC-7);*

(8) *Coarse Ore Dust Collection System, 23100-FAN-0002 (DC-8);*

(9) *23100-DCD-0005 Coarse Ore Dust Collection System (DC-10); and*

(10) *21300-DCD-005 Coarse Ore Silo Collection System (DC-11).*

5. Monitoring, Recordkeeping, and Reporting Requirements

a. *The Permittee shall install, calibrate, maintain, and operate a monitoring device for the continuous measurement of the change in pressure of the gas stream through the scrubber for any affected facility using a wet scrubbing emission control device. The monitoring device shall be certified by the manufacturer to be accurate within ±250 pascals (±1 inch water) gauge pressure and shall be calibrated on an annual basis in accordance with manufacturer's instructions.*

[A.A.C. R18-2-306.A.3.d and -331.A.3.c]

[Material permit conditions are indicated by underline and italics]

b. *The Permittee shall install, calibrate, maintain, and operate a monitoring device for the continuous measurement of the scrubbing liquid flow rate to a wet scrubber for any affected facility using any type of wet scrubbing emission control device. The monitoring device shall be certified by the manufacturer to be accurate within ±5% of design scrubbing liquid flow rate and shall be calibrated on at least an annual basis in accordance with manufacturer's instructions.*

[A.A.C. R18-2-306.A.3.d and 331.A.3.c]
[Material permit conditions are indicated by underline and italics]

c. During the initial performance test of a wet scrubber, and at least weekly thereafter, the Permittee shall record the measurements of both the change in pressure of the gas stream across the scrubber and the scrubbing liquid flow rate.

[40 CFR 60.385(b)]

d. After the initial performance test of a wet scrubber, the Permittee shall submit semiannual reports to the Director of occurrences when the measurements of the scrubber pressure loss (or gain) or liquid flow rate differ by more than ±30 percent from the average obtained during the most recent performance test.

[40 CFR 60.385(c)]

e. The reports required under Condition III.B.5.d shall be postmarked within 30 days following the end of the second and fourth calendar quarters.

[40 CFR 60.385(d)]

f. The Permittee shall conduct the periodic opacity monitoring method specified in Condition II.B above on a weekly basis for all emission units subject to an opacity standard in Condition III.B.

[A.A.C. R18-2-306.A.3.c]

6. Dust Collectors Voluntary Emission Limitations

a. *The Permittee shall not allow the emissions of PM_{10} from the following processes to exceed 0.002 gr/dscf, as measured at the emission exhaust point to the atmosphere:*

[A.A.C. R 18-2-306.01.A and -331.A.3.a]
[Material permit conditions are indicated by underline and italics]

Emission Point Number	Description
DC-1	21210-CX-00002 Main Shaft Ore Discharge Dust Collector
DC-2	21210-CX-00001 Coarse Ore Overland Dust Collector
DC-3	21210-CX-00004 Silo No. 1 Feed Conveyor Dust Collector
DC-4	21300-DCD-004 Coarse Ore Silo Collection System collecting dust from entrance to 21500-SLO-002 Coarse Ore Silo No. 2
DC-5	21300-DCD-005 Coarse Ore Silo Collection System
DC-6	21300-DCD-006 Silo Discharge Dust Collection System

DC-11	21300-DCD-005 Coarse Ore Silo Collection System

b. *The Permittee shall not allow the emissions of PM_{10} from the following processes to exceed 0.001 gr/dscf, as measured at the emission exhaust point to the atmosphere:*

[A.A.C. R 18-2-306.01.A and -331.A.3.a]
[Material permit conditions are indicated by underline and italics]

Emission Point Number	Description
DC-7	Coarse Ore Dust Collection System, 23100-FAN-0001
DC-8	Coarse Ore Dust Collection System, 23100-FAN-0002
DC-10	Coarse Ore Dust Collection System, 23100-DCD-0005

7. Performance Testing Requirements

a. To demonstrate compliance with Condition III.B.2.a:

(1) Within 60 days after achieving the maximum production rate but not later than 180 days after initial startup, the Permittee shall conduct initial performance tests for all new affected facilities as specified in Condition III.B.7.a(2) through Condition III.B.7.a(6) below.

[40 CFR 60.8, 60.11]

(2) For the purpose of demonstrating initial compliance with Condition III.B.2.a, the Permittee shall conduct a performance test and submit to the Director a written report of the results of the test as specified in 40 CFR 60.8(a).

[40 CFR 60.8, 60.385(a)]

(3) For the purpose of demonstrating initial compliance with Condition III.B.2.b(1), opacity observations shall be conducted concurrently with the performance tests required in Condition III.B.7.a(2) except as allowed in 40 CFR 60.11(e)(1). The minimum total time of observations shall be 3 hours (30 6-minute averages). The Permittee shall report to the Director the opacity results along with the results of the initial performance test required by Condition III.B.7.a(2).

[40 CFR 60.11]

(4) For the purpose of demonstrating initial compliance with Condition III.B.2.b(2), opacity observations shall be conducted within 60 days after achieving the maximum production rate at which the affected facility will be operated but no later than 180 days after initial startup of the facility. The minimum total time of observations shall be 3 hours (30 6-minute averages). The Permittee shall report to the Director the opacity results as specified in 40 CFR 60.8(a).

[40 CFR 60.8, 60.11]

(5) In conducting the performance tests required in 40 CFR 60.8, the Permittee shall use as reference methods and procedures the test methods in Appendix A of 40 CFR 60 or other methods and procedures as specified in 40 CFR 60 Subpart LL, except as provided in 40 CFR 60.8(b).

[40 CFR 60.386(a)]

(6) The Permittee shall determine compliance with the particulate matter standards in Condition III.B.2 as follows:

[40 CFR 60.386(b)]

(a) Method 5 or 17 shall be used to determine the particulate matter concentration. The sample volume for each run shall be at least 1.70 dscm (60 dscf). The sampling probe and filter holder of Method 5 may be operated without heaters if the gas stream being sampled is at ambient temperature. For gas streams above ambient temperature, the Method 5 sampling train shall be operated with a probe and filter temperature slightly above the effluent temperature (up to a maximum filter temperature of 121 °C (250 °F)) in order to prevent water condensation on the filter.

(b) Method 9 and the procedures in 40 CFR 60.11 shall be used to determine opacity from stack emissions and process fugitive emissions. The observer shall read opacity only when emissions are clearly identified as emanating solely from the affected facility being observed. A single visible emission observer may conduct visible emission observations for up to three fugitive, stack, or vent emission points within a 15-second interval. This option is subject to the following limitations:

(i) No more than three emission points are read concurrently;

(ii) All three emission points must be within a 70° viewing sector or angle in front of the observer such that the proper sun position can be maintained for all three points; and

(iii) If an opacity reading for any one of the three emission points is within 5 percent opacity of the application standard, then the observer must stop taking readings for the other two points and continue reading just that single point.

(7) To demonstrate continued compliance with the emission limitation in Condition III.B.2.a, the Permittee shall conduct

annual performance tests according to III.B.7.a(6) a minimum of once per year.

[A.A.C. R18-2-306.A.3.c and -312]

(8) To comply with Condition III.B.5.d, the Permittee shall use the monitoring devices in Condition III.B.5.a and Condition III.B.5.b to determine the pressure loss of the gas stream through the scrubber and scrubbing liquid flow rate at any time during each particulate matter performance test run, and the average of the three determinations shall be computed.

[40 CFR 60.386(c)]

b. To demonstrate compliance with Condition III.B.6:

(1) The Permittee shall, within 60 days of achieving the maximum production rate but no later than 180 days of initial startup, conduct performance tests for PM_{10} on the stacks of all the pollution control devices in Condition III.B.6 above to demonstrate initial compliance with the emission limits in Condition III.B.6.

[A.A.C. R18-2-306.A.3.c and -312]

(2) To demonstrate continuous compliance with the emission limits in Condition III.B.6, the Permittee shall conduct performance tests for PM_{10} on the stacks of the pollution control devices in Condition III.B.6 a minimum of once per year.

[A.A.C. R18-2-306.A.3.c and -312]

(3) The Permittee shall use EPA Reference Method 201A in Appendix M to 40 CFR Part 51 to determine the PM_{10} concentration. In lieu of Method 201A and with prior approval from ADEQ, EPA Reference Method 5 in Appendix A to 40 CFR Part 60 can be used. The Permittee may elect to assume all PM emissions measured by Method 5 are PM_{10} to demonstrate compliance with the PM_{10} emission limits in Condition III.A.5.

[A.A.C. R-18-306.A.3.c]

(4) Each performance test shall consist of three separate runs. Each run shall be conducted for at least one hour, and the minimum sample volume shall be 30 dscf. The average of the three runs shall be used to determine compliance.

[A.A.C. R-18-306.A.3.c]

(5) If the pollution control devices is in both Condition III.A.5 and Condition III.B.6, it may be tested a minimum of once per year.

[A.A.C. R-18-306.A.3.c]

8. Permit Shield

Compliance with the requirements of Condition III.B shall be deemed compliance with A.A.C. R18-2-312, 40 CFR 60.8, 60.11, 60.382(a)(1), 60.382(a)(2),

60.382(b), 60.384(a), 60.384(b), 60.385(a), 60.385(b), 60.385(c), 60.385(d), 60.386(a), 60.386(b), and 60.386(c).

[A.A.C. R18-2-325]

IV. INTERNAL COMBUSTION ENGINES (ICES)

A. New Non-Emergency Diesel Engines Subject to New Source Performance Standards (NSPS) Subpart IIII Requirements

1. Applicability

This Section applies to the new non-emergency compression ignition (CI) internal combustion engines (ICEs) as identified in the last column of the Equipment List in Attachment "C".

2. General Requirement

[A.A.C. R18-2-306.01.A]

a. The Permittee shall, for engines indicated in Attachment "C", only use Tier 4 diesel ICEs.

b. The following engines shall only operate 500 hours per year, and operate intermittently the same as traditional emergency engines and only for backup or emergency:

(1) Each CAT C175 engine rated 3,000 ekW.

3. Fuel Requirements

The Permittee shall use diesel fuel that meets the following requirements of 40 CFR 1090.305 for nonroad diesel fuel:

[40 CFR 60.4207(b) and 40 CFR 1090.305]

a. Maximum sulfur content of 15 ppm; and

b. A minimum cetane index of 40 or a maximum aromatic content of 35 volume percent.

4. Emission Limitations and Standards

a. For non-emergency stationary CI ICE with a maximum engine power less than or equal to 2,237 kilowatt (KW) (3,000 horsepower (HP)) and a displacement of less than 10 liters per cylinder, the Permittee shall comply with the certification emission standards for new nonroad CI engines in 40 CFR 1039.101, 1039.102, 1039.104, 1039.105, 1039.107, and 1039.115 and 40 CFR part 1039, appendix I, as applicable, for all pollutants, for the same model year and maximum engine power.

[40 CFR 60.4201(a) and 60.4204(b)]

b. For non-emergency stationary CI ICEs with a displacement of less than 30 liters per cylinder, when conducting performance tests in-use the Permittee

shall meet the not-to-exceed (NTE) standards as indicated in Condition IV.A.7.a of this section.

[40 CFR 60.4204(d)]

5. Operating Requirements

a. The Permittee shall operate and maintain the stationary CI ICEs that achieve the emission standards as required in this Section over the entire life of the engine.

[40 CFR 60.4206]

b. For a stationary CI ICE equipped with a diesel particulate filter to comply with the emission standards in Condition IV.A.4, the diesel particulate filter shall be installed with a backpressure monitor that notifies the Permittee when the high backpressure limit of the engine is approached.

[40 CFR 60.4209(b)]

c. Except as permitted under Condition IV.A.6.b, the Permittee shall:

[40 CFR 60.4211(a)]

(1) Operate and maintain the stationary CI ICEs and control device according to the manufacturer's emission-related written instructions;

(2) Change only those emission-related settings that are permitted by the manufacturer; and

(3) Meet the requirements of 40 CFR Part 1068, as they apply.

6. Compliance Requirements

a. For non-emergency stationary CI ICEs with a displacement of less than 30 liters per cylinder, the Permittee shall comply with the emissions standards in Condition IV.A.4.a by purchasing an engine certified to the emission standards in Condition IV.A.4.a. Except as permitted under Condition IV.A.6.b, the stationary CI ICEs shall be installed and configured according to the manufacturer's emission-related specifications.

[40 CFR 60.4211(c)]

b. If the Permittee does not install, configure, operate, and maintain the stationary CI ICEs and control device according to the manufacturer's emission-related written instructions, or if the Permittee changes emission-related settings in a way that is not permitted by the manufacturer, the Permittee shall demonstrate compliance as follows:

[40 CFR 60.4211(g)]

(1) For the stationary CI ICEs with maximum engine power less than 100 HP, the Permittee shall keep a maintenance plan and records of conducted maintenance to demonstrate compliance and shall, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for

minimizing emissions. In addition, if the Permittee does not install and configure the engine and control device according to the manufacturer's emission-related written instructions, or if the Permittee changes the emission-related settings in a way that is not permitted by the manufacturer, the Permittee shall conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of such action.

[40 CFR 60.4211(g)(1)]

(2) For the stationary CI ICEs greater than or equal to 100 HP and less than or equal to 500 HP, the Permittee shall keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, the Permittee shall conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of startup, or within 1 year after an engine and control device is no longer installed, configured, operated, and maintained in accordance with the manufacturer's emission-related written instructions, or within 1 year after the Permittee changes emission-related settings in a way that is not permitted by the manufacturer.

[40 CFR 60.4211(g)(2)]

(3) For the stationary CI ICEs greater than 500 HP, the Permittee shall keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, the Permittee shall conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of startup, or within 1 year after an engine and control device is no longer installed, configured, operated, and maintained in accordance with the manufacturer's emission-related written instructions, or within 1 year after you change emission-related settings in a way that is not permitted by the manufacturer. The Permittee shall conduct subsequent performance testing every 8,760 hours of engine operation or 3 years, whichever comes first, thereafter to demonstrate compliance with the applicable emission standards.

[40 CFR 60.4211(g)(3)]

7. Testing Requirements

a. Unless the Permittee demonstrates compliance via Condition IV.A.6.a, the Permittee shall demonstrate compliance for stationary CI ICEs with a displacement of less than 30 liters per cylinder by conducting performance testing as follows:

[40 CFR 60.4212]

(1) The performance test shall be conducted according to the in-use testing procedures in 40 CFR part 1039, subpart F, for stationary CI ICEs with a displacement of less than 10 liters per cylinder, and according to 40 CFR part 1042, subpart F, for stationary CI ICEs with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder. Alternatively, stationary CI ICEs that are complying with Tier 2 or Tier 3 emission standards as described in 40 CFR part 1039, appendix I, or with Tier 2 emission standards as described in 40 CFR part 1042, appendix I, may follow the testing procedures specified in 40 CFR 60.4213, as appropriate.

[40 CFR 60.4212(a)]

(2) Exhaust emissions from stationary CI ICEs that are complying with the emission standards for new CI engines in 40 CFR part 1039 shall not exceed the NTE standards for the same model year and maximum engine power as required in 40 CFR 1039.101(e) and 40 CFR 1039.102(g)(1), except as specified in 40 CFR 1039.104(d). This requirement starts when NTE requirements take effect for nonroad diesel engines under 40 CFR part 1039.

[40 CFR 60.4212(b)]

(3) Exhaust emissions from stationary CI ICEs subject to Tier 2 or Tier 3 emission standards as described in 40 CFR part 1039, appendix I, or Tier 2 emission standards as described in 40 CFR part 1042, appendix I, shall not exceed the NTE numerical requirements, rounded to the same number of decimal places as the applicable standard, determined from the following equation:

$$NTE\ requirement\ for\ each\ pollutant = (1.25) \times (STD)$$

Where:

STD = The standard specified for that pollutant in 40 CFR part 1039 or 1042, as applicable.

[40 CFR 60.4212(c)]

(4) Exhaust emissions from stationary CI ICEs that are complying with the emission standards for new CI ICEs in 40 CFR part 1042 shall not exceed the NTE standards for the same model year and maximum engine power as required in 40 CFR 1042.101(c).

[40 CFR 60.4212(e)]

8. Notification, Reporting, and Recordkeeping Requirements

a. For the non-emergency stationary CI ICEs that are greater than 2,237 KW (3,000 HP), or with a displacement of greater than or equal to 10 liters per cylinder, the Permittee shall:

[40 CFR 60.4214(a)]

(1) Submit an initial notification as required in 40 CFR 60.7(a)(1). The notification must include the following information:

[40 CFR 60.4214(a)(1)]

(a) Name and address of the owner or operator;

(b) The address of the affected source;

(c) Engine information including make, model, engine family, serial number, model year, maximum engine power, and engine displacement;

(d) Emission control equipment; and

(e) Fuel used.

(2) Keep records of the following information:

[40 CFR 60.4214(a)(2)]

(a) All notifications submitted to comply with this subpart and all documentation supporting any notification.

(b) Maintenance conducted on the engine.

(c) If the stationary CI ICE is a certified engine, documentation from the manufacturer that the engine is certified to meet the emission standards.

(d) If the stationary CI ICE is not a certified engine, documentation that the engine meets the emission standards.

b. If the stationary CI ICE is equipped with a diesel particulate filter, the Permittee shall keep records of any corrective action taken after the backpressure monitor has notified the Permittee that the high backpressure limit of the engine is approached.

[40 CFR 60.4214(c)]

9. Permit Shield

Compliance with the requirements of Condition IV.A shall be deemed compliance with 40 CFR 60.4207(b), 40 CFR 60.4201(a), 40 CFR 60.4204(b), 40 CFR 60.4204(c)(3, 4), 40 CFR 60.4204(d), 40 CFR 60.4206, 40 CFR 60.4209(b), 40 CFR 60.4211(a, c, d), 40 CFR 60.4211(g), 40 CFR 60.4212, 40 CFR 60.4213, and 40 CFR 60.4214(a, c).

[A.A.C. R18-2-325]

B. New Non-Emergency Natural Gas Engines Subject to New Source Performance Standards (NSPS) Subpart JJJJ Requirements

1. Applicability

This Section applies to the natural gas spark ignition (SI) internal combustion engines (ICEs) as identified in the last column of the Equipment List in Attachment "C".

2. General Requirements

a. *The Permittee shall install selective catalytic reduction (SCR) and oxidation catalysts (OxCat) on the natural gas engines and interlock all engines to ensure that the associated SCR and OxCat will operate at all times the engines are above the operating temperature specified for each control device by the engine vendor, including periods of startup, shutdown and malfunction.*

[A.A.C. R18-2-306.01 and -331.A.3.a]
[Material Permit Conditions are indicated with underline and italics]

b. *Except during startup and shutdown, the Permittee shall operate the natural gas engines only from 75% and up to 100% load, including 100% load.*

[A.A.C. R18-2-306.01 and -331.A.3.a]
[Material Permit Conditions are indicated with underline and italics]

3. Emission Standards

The Permittee shall comply with the following emission standards over the entire life of the engine:

[40 CFR 60.4233(e), 40 CFR 60.4234 and Table 1 to 40 CFR Part 60 Subpart JJJJ]

Pollutants	Emission Standards (g/HP-hr)
NO_X	1.0
CO	2.0
VOC	0.7

For purposes of this standard, when calculating emissions of volatile organic compounds, emissions of formaldehyde should not be included.

[Table 1 to 40 CFR Part 60 Subpart JJJJ]

4. Compliance Requirements

a. The Permittee shall demonstrate compliance according to one of the methods specified below:

[40 CFR 60.4243(b)]

(1) Purchasing an engine certified according to procedures specified in 40 CFR Part 60 Subpart JJJJ, for the same model year and demonstrating compliance according to one of the methods specified in 40 CFR 60.4243(a).

(2) Purchasing a non-certified engine and demonstrating compliance with the emission standards specified in Condition IV.B.3 and according to the requirements specified in Condition IV.B.5.c, as applicable, and according to the following requirements:

(a) The Permittee shall keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, the Permittee shall conduct an initial performance test and conduct subsequent performance testing every 8,760 hours or 3 years, whichever comes first, thereafter to demonstrate compliance.

b. The Permittee may operate their engines using propane for a maximum of 100 hours per year as an alternative fuel solely during emergency operations, but must keep records of such use. If propane is used for more than 100 hours per year in an engine that is not certified to the emission standards when using propane, the Permittee shall conduct a performance test to demonstrate compliance with the emission standards of 40 CFR 60.4233.

[40 CFR 60.4243(e)]

c. It is expected that air-to-fuel ratio controllers will be used with the operation of three-way catalysts/non-selective catalytic reduction. The AFR controller shall be maintained and operated appropriately in order to ensure proper operation of the engine and control device to minimize emissions at all times.

[40 CFR 60.4243(g)]

d. The Permittee shall program interlocks on the natural gas engines to ensure they operate at 75% to 100% load except during startup and shutdown.

[A.A.C. R18-2-306.01 and -331.A.3.a]

5. Testing Requirements

a. If the Permittee elects to demonstrate initial compliance with the emission limits in Condition IV.B.3 via Condition IV.B.4.a(2) above, within 60 days of achieving the maximum production rate but no later than 180 days of initial startup, the Permittee shall conduct performance tests on the ICEs.

[A.A.C. R18-2-306.A.3.c and -312]

b. If the Permittee elects to demonstrate continuous compliance with the emission limits in Condition IV.B.3 via Condition IV.B.4.a(2) above, the Permittee shall conduct performance tests consistent with Condition IV.B.4.a(2)(a) on the ICEs.

[A.A.C. R18-2-306.A.3.c and -312]

c. The Permittee shall follow the following procedures when conducting a performance test:

[40 CFR 60.4244]

(1) Each performance test shall be conducted within 10 percent of 100 percent peak (or the highest achievable) load and according to the

requirements in 40 CFR 60.8 and under the specific conditions that are specified by Table 2 to 40 CFR Part 60 Subpart JJJJ.
[40 CFR 60.4244(a)]

(2) The Permittee shall conduct three separate test runs for each performance test required in this section, as specified in 40 CFR 60.8(f). Each test run shall be conducted within 10 percent of 100 percent peak (or the highest achievable) load and last at least 1 hour.
[40 CFR 60.4244(c)]

(3) To determine compliance with the NO_X mass per unit output emission limitation, the Permittee shall convert the concentration of NO_X in the engine exhaust using the following equation:

$$ER = \frac{C_d \times 1.912 \times 10^{-3} \times Q \times T}{HP - hr}$$

Where:

ER = Emission rate of NO_X in g/HP-hr.

C_d = Measured NO_X concentration in parts per million by volume (ppmv).

1.912×10^{-3} = Conversion constant for ppm NO_X to grams per standard cubic meter at 20 degrees Celsius.

Q = Stack gas volumetric flow rate, in standard cubic meter per hour, dry basis.

T = Time of test run, in hours.

$HP - hr$ = Brake work of the engine, horsepower-hour (HP-hr).
[40 CFR 60.4244(d)]

(4) To determine compliance with the CO mass per unit output emission limitation, the Permittee shall convert the concentration of CO in the engine exhaust using the following equation:

$$ER = \frac{C_d \times 1.164 \times 10^{-3} \times Q \times T}{HP - hr}$$

Where:

ER = Emission rate of CO in g/HP-hr.

C_d = Measured CO concentration in ppmv.

1.164×10^{-3} = Conversion constant for ppm CO to grams per standard cubic meter at 20 degrees Celsius.

Q = Stack gas volumetric flow rate, in standard cubic meters per hour, dry basis.

T = Time of test run, in hours.

$HP - hr$ = Brake work of the engine, in HP-hr.

[40 CFR 60.4244(e)]

(5) For purposes of this section, when calculating emissions of VOC, emissions of formaldehyde shall not be included. To determine compliance with the VOC mass per unit output emission limitation, the Permittee shall convert the concentration of VOC in the engine exhaust using the following equation:

$$ER = \frac{C_d \times 1.833 \times 10^{-3} \times Q \times T}{HP - hr}$$

Where:

ER = Emission rate of VOC in g/HP-hr.

C_d = VOC concentration measured as propane in ppmv.

1.833×10^{-3} = Conversion constant for ppm VOC measured as propane, to grams per standard cubic meter at 20 degrees Celsius.

Q = Stack gas volumetric flow rate, in standard cubic meters per hour, dry basis.

T = Time of test run, in hours.

$HP - hr$ = Brake work of the engine, in HP-hr.

[40 CFR 60.4244(f)]

(6) If the Permittee chooses to measure VOC emissions using either Method 18 of 40 CFR Part 60, appendix A, or Method 320 of 40 CFR Part 63, appendix A, then it has the option of correcting the measured VOC emissions to account for the potential differences in measured values between these methods and Method 25A. The results from Method 18 and Method 320 can be corrected for response factor differences using the following two equations:

$$RF_i = \frac{C_{Mi}}{C_{Ai}}$$

Where:

RF_i = Response factor of compound i when measured with EPA Method 25A.

C_{Mi} = Measured concentration of compound i in ppmv as carbon.

C_{Ai} = True concentration of compound i in ppmv as carbon.

$$C_{icorr} = RF_i \times C_{imeas}$$

Where:

C_{icorr} = Concentration of compound i corrected to the value that would have been measured by EPA Method 25A, ppmv as carbon.

C_{imeas} = Concentration of compound i measured by EPA Method 320, ppmv as carbon.

(7) The corrected VOC concentration can then be placed on a propane basis using the following equation:

$$C_{Peq} = 0.6098 \times C_{icorr}$$

Where:

C_{Peq} = Concentration of compound i in mg of propane equivalent per DSCM.

[40 CFR 60.4244(g)]

6. Notification, reporting, and recordkeeping requirements

a. The Permittee shall keep records of the following information:

[40 CFR 60.4245(a)]

(1) All notifications submitted to comply with this section and all documentation supporting any notification.

(2) Maintenance conducted on the engine.

(3) If the stationary SI internal combustion engine is a certified engine, documentation from the manufacturer that the engine is certified to meet the emission standards and information as required in 40 CFR Parts 1048, 1054, and 1060, as applicable.

(4) If the stationary SI internal combustion engine is not a certified engine or is a certified engine operating in a non-certified manner and subject to 40 CFR 60.4243(a)(2), documentation that the engine meets the emission standards.

b. If the engines have not been certified by an engine manufacturer to meet the emission standards in 40 CFR 60.4231, the Permittee shall submit an

initial notification as required in 40 CFR 60.7(a)(1). The notification shall include the following information:

[40 CFR 60.4245(c)]

(1) Name and address of the owner or operator;

(2) The address of the affected source;

(3) Engine information including make, model, engine family, serial number, model year, maximum engine power, and engine displacement;

(4) Emission control equipment; and

(5) Fuel used.

c. The Permittee shall submit a copy of each performance test as conducted in Condition IV.B.5 within 60 days after the test has been completed. Performance test reports using EPA Method 18, EPA Method 320, or ASTM D6348-03 (incorporated by reference - see 40 CFR 60.17) to measure VOC require reporting of all QA/QC data. For Method 18, report results from sections 8.4 and 11.1.1.4; for Method 320, report results from sections 8.6.2, 9.0, and 13.0; and for ASTM D6348-03 report results of all QA/QC procedures in Annexes 1-7.

[40 CFR 60.4245(d)]

7. Permit Shield

Compliance with the requirements of Condition IV.B shall be deemed compliance with 40 CFR 60.4233(e) and 40 CFR 60.4234, 40 CFR 60.4243(b, e, g), 40 CFR 60.4244(a, c-g), 40 CFR 60.4245(a, c, d).

[A.A.C. R18-2-325]

C. New non-Emergency Diesel Engines, and New Non-Emergency Natural Gas Engines Subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) Subpart ZZZZ Requirements

1. Applicability

For the new non-emergency diesel engines with site rating of more than 500 brake HP, and new non-emergency natural gas engines, if operating under Primary Operating Scenario (POS) or Alternate Operating Scenario No. 2 (AOS 2) – Tailing Storage Facility 2 (TSF2) Alternative, the Permittee shall comply with the requirements in Condition IV.C; if operating under Alternate Operating Scenario No. 1 (AOS 1) – Line Power Alternative, the Permittee may comply with Condition IV.C by meeting the requirements in Condition IV.A, or Condition IV.B. For the new non-emergency diesel engines with a site rating of equal to or less than 500 brake HP, the Permittee may comply with Condition IV.C by meeting the requirements in Condition IV.A under all the operating scenarios.

[40 CFR 63.6590(c)]

2. Emission Limitations for New Non-Emergency Diesel Engines with Site Rating of more than 500 Brake HP

The Permittee shall comply with the following emission limitations for the engines at 100 percent load plus or minus 10 percent:
[40 CFR 63.6600(b), Table 2a to 40 CFR Part 63 Subpart ZZZZ]

a. Reduce CO emissions by 70 percent or more; or

b. Limit concentration of formaldehyde in the engine exhaust to 580 ppbvd or less at 15 percent O_2.

3. Emission Limitations for New Non-Emergency Natural Gas Engines

The Permittee shall comply with the following emission limitations for the engines at 100 percent load plus or minus 10 percent:
[40 CFR 63.6600(b), Table 2a to 40 CFR Part 63 Subpart ZZZZ]

a. Reduce CO emissions by 93 percent or more; or

b. Limit concentration of formaldehyde in the engine exhaust to 14 ppmvd or less at 15 percent O_2.

4. Operating Limitations for New Non-Emergency Natural Gas Engines and New Non-Emergency Diesel Engines with Site Rating of more than 500 Brake HP

The Permittee shall comply with the following operating limitations:
[40 CFR 63.6600(b), Table 2b to 40 CFR Part 63 Subpart ZZZZ]

a. Maintain the catalyst so that the pressure drop across the catalyst does not change by more than 2 inches of water at 100 percent load plus or minus 10 percent from the pressure drop across the catalyst that was measured during the initial performance test; and

b. Maintain the temperature of the engine exhaust so that the catalyst inlet temperature is greater than or equal to 450 °F and less than or equal to 1350 °F. The Permittee can petition the EPA Administrator pursuant to the requirements of 40 CFR 63.8(f) for a different temperature range.

5. Compliance Requirements for New Non-Emergency Natural Gas Engines and New Non-Emergency Diesel Engines with Site Rating of more than 500 Brake HP

a. The Permittee shall comply with the emission limitations and operating limitations in this section upon startup of the engines.
[40 CFR 63.6595(a)(3)]

b. The Permittee shall be in compliance with the emission limitations, operating limitations, and other requirements in this section at all times.
[40 CFR 63.6605(a)]

c. At all times, the Permittee shall operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require the Permittee to make any further efforts to reduce emissions if levels required by this standard have been achieved. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Director which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.

[40 CFR 63.6605(b)]

6. Testing Requirements for New Non-Emergency Natural Gas Engines and New Non-Emergency Diesel Engines with Site Rating of more than 500 Brake HP

a. Initial Performance Test

(1) The Permittee shall conduct the initial performance test within 180 days upon startup of the engines and according to the provisions in 40 CFR 63.7(a)(2).

[40 CFR 63.6610(a)]

(2) To demonstrate initial compliance with Condition IV.C.2.a and IV.C.3.a, the Permittee shall:

[40 CFR 63.6610(a), Table 4 to 40 CFR Part 63 Subpart ZZZZ]

(a) Select the sampling port location and the number/location of traverse points at the inlet and outlet of the control device. For CO and O_2 measurement, ducts $\leq$ 6 inches in diameter may be sampled at a single point located at the duct centroid and ducts > 6 and $\leq$ 12 inches in diameter may be sampled at 3 traverse points located at 16.7, 50.0, and 83.3% of the measurement line (`3-point long line'). If the duct is >12 inches in diameter and the sampling port location meets the two and half-diameter criterion of Section 11.1.1 of Method 1 of 40 CFR Part 60, appendix A-1, the duct may be sampled at `3-point long line'; otherwise, conduct the stratification testing and select sampling points according to Section 8.1.2 of Method 7E of 40 CFR Part 60, Appendix A-4.

(b) Measure the O_2 at the inlet and outlet of the control device using Method 3 or 3A or 3B of 40 CFR Part 60, appendix A-2, or ASTM Method D6522-00 (Reapproved 2005) (heated probe not necessary). Measurements to determine O_2 must be made at the same time as the measurements for CO concentration.

(c) Measure the CO at the inlet and the outlet of the control device using ASTM D6522-00 (Reapproved 2005) (heated probe not necessary) or Method 10 of 40 CFR Part 60, Appendix A-4. The CO concentration shall be at 15 percent O_2, dry basis.

(3) To demonstrate initial compliance with Condition IV.C.2.b and IV.C.3.b, the Permittee shall:
[40 CFR 63.6610(a), Table 4 to 40 CFR Part 63 Subpart ZZZZ]

(a) Select the sampling port location and the number/location of traverse points at the exhaust of the engine. For formaldehyde, CO, O_2, and moisture measurement, ducts $\leq$ 6 inches in diameter may be sampled at a single point located at the duct centroid and ducts > 6 and $\leq$ 12 inches in diameter may be sampled at 3 traverse points located at 16.7, 50.0, and 83.3% of the measurement line (`3-point long line'). If the duct is > 12 inches in diameter and the sampling port location meets the two and half-diameter criterion of Section 11.1.1 of Method 1 of 40 CFR Part 60, Appendix A, the duct may be sampled at `3-point long line'; otherwise, conduct the stratification testing and select sampling points according to Section 8.1.2 of Method 7E of 40 CFR Part 60, Appendix A. If using a control device, the sampling site shall be located at the outlet of the control device.

(b) Determine the O_2 concentration of the engine exhaust at the sampling port location using Method 3 or 3A or 3B of 40 CFR Part 60, Appendix A-2, or ASTM Method D6522-00 (Reapproved 2005) (heated probe not necessary). Measurements to determine O_2 concentration shall be made at the same time and location as the measurements for formaldehyde or CO concentration.

(c) Measure moisture content of the engine exhaust at the sampling port location using Method 4 of 40 CFR Part 60, Appendix A-3, or Method 320 of 40 CFR Part 63, Appendix A, or ASTM D 6348-03. Measurements to determine moisture content shall be made at the same time and location as the measurements for formaldehyde or CO concentration.

(d) Measure formaldehyde at the exhaust of the engine using Method 320 or 323 of 40 CFR Part 63, Appendix A; or ASTM D6348-03, provided in ASTM D6348-03 Annex A5 (Analyte Spiking Technique), the percent R shall be greater than or equal to 70 and less than or equal to 130. Formaldehyde concentration shall be at 15 percent O_2, dry

basis. Results of this test consist of the average of the three 1-hour or longer runs.

b. Subsequent Performance Test

(1) To demonstrate continuous compliance with Condition IV.C.2 and IV.C.3, the Permittee shall conduct subsequent performance tests semiannually if not using a CEMS.
[40 CFR 63.6615, Table 3 to 40 CFR Part 63 Subpart ZZZZ]

(2) After the Permittee has demonstrated compliance for two consecutive tests, the Permittee may reduce the frequency of subsequent performance tests to annually. If the results of any subsequent annual performance test indicate the engine is not in compliance with the CO or formaldehyde emission limitation, or the Permittee deviates from any of the operating limitations, the Permittee shall resume semiannual performance tests.
[40 CFR 63.6615, Table 3 to 40 CFR Part 63 Subpart ZZZZ]

c. The Permittee does not need to start up the engine solely to conduct the performance test, and can conduct the performance test when the engine is started up again. The test shall be conducted at any load condition within plus or minus 10 percent of 100 percent load for the engine.
[40 CFR 63.6620(b)]

d. The Permittee shall conduct three separate test runs for each performance test, as specified in 40 CFR 63.7(e)(3). Each test run shall last at least 1 hour, unless otherwise specified in this section.
[40 CFR 63.6620(d)]

e. The Permittee shall use the following equation to determine compliance with the percent reduction requirement:

$$\frac{C_i - C_0}{C_i} \times 100 = R$$

Where:

C_i = concentration of carbon monoxide (CO), total hydrocarbons (THC), or formaldehyde at the control device inlet,

C_0 = concentration of CO, THC, or formaldehyde at the control device outlet, and

R = percent reduction of CO, THC, or formaldehyde emissions.
[40 CFR 63.6620(e)]

f. The Permittee shall normalize the CO, THC, or formaldehyde concentrations at the inlet and outlet of the control device to a dry basis and to 15 percent oxygen, or an equivalent percent carbon dioxide (CO_2).

If pollutant concentrations are to be corrected to 15 percent oxygen and CO_2 concentration is measured in lieu of oxygen concentration measurement, a CO_2 correction factor is needed. The Permittee shall calculate the CO_2 correction factor as described in Condition IV.C.6.f(1) to (3).

[40 CFR 63.6620(e)(2)]

(1) Calculate the fuel-specific F_0 value for the fuel burned during the test using values obtained from Method 19, Section 5.2, and the following equation:

$$F_0 = \frac{0.209 F_d}{F_c}$$

Where:

$F_0 =$ Fuel factor based on the ratio of oxygen volume to the ultimate CO_2 volume produced by the fuel at zero percent excess air.

$0.209 =$ Fraction of air that is oxygen, percent/100.

$F_d =$ Ratio of the volume of dry effluent gas to the gross calorific value of the fuel from Method 19, dsm^3/J ($dscf/10^6$ Btu).

$F_c =$ Ratio of the volume of CO_2 produced to the gross calorific value of the fuel from Method 19, dsm^3/J ($dscf/10^6$ Btu).

[40 CFR 63.6620(e)(2)(i)]

(2) Calculate the CO_2 correction factor for correcting measurement data to 15 percent O_2, as follows:

$$X_{CO_2} = \frac{5.9}{F_0}$$

Where:

$X_{CO_2} =$ CO_2 correction factor, percent.

$5.9 =$ 20.9 percent O_2 – 15 percent O_2, the defined O_2 correction value, percent.

[40 CFR 63.6620(e)(2)(ii)]

(3) Calculate the CO, THC, and formaldehyde gas concentrations adjusted to 15 percent O_2 using CO_2 as follows:

$$C_{adj} = C_d \frac{X_{CO_2}}{\%CO_2}$$

Where:

C_{adj} = Calculated concentration of CO, THC, or formaldehyde adjusted to 15 percent O_2.

C_d = Measured concentration of CO, THC, or formaldehyde, uncorrected.

X_{CO_2} = CO_2 correction factor, percent.

$\%CO_2$ = Measured CO_2 concentration measured, dry basis, percent.

[40 CFR 63.6620(e)(2)(iii)]

g. The engine percent load during a performance test shall be determined by documenting the calculations, assumptions, and measurement devices used to measure or estimate the percent load in a specific application. A written report of the average percent load determination shall be included in the notification of compliance status. The following information shall be included in the written report: the engine model number, the engine manufacturer, the year of purchase, the manufacturer's site-rated brake horsepower, the ambient temperature, pressure, and humidity during the performance test, and all assumptions that were made to estimate or calculate percent load during the performance test shall be clearly explained. If measurement devices such as flow meters, kilowatt meters, beta analyzers, stain gauges, etc. are used, the model number of the measurement device, and an estimate of its accurate in percentage of true value shall be provided.

[40 CFR 63.6620(i)]

7. Monitoring, Installation, Collection, Operation, and Maintenance Requirements for New Non-Emergency Natural Gas Engines and New Non-Emergency Diesel Engines with Site Rating of more than 500 Brake HP

a. Continuous parameter monitoring system (CPMS)

The Permittee shall install a CPMS as specified in Condition IV.C.7.a, and install, operate, and maintain the CPMS according to the requirements in Condition IV.C.7.a(1) to (6).

[40 CFR 63.6625(b)]

(1) The Permittee shall prepare a site-specific monitoring plan that addresses the monitoring system design, data collection, and the quality assurance and quality control elements outlined in Condition IV.C.7.a(1)(a) to (d) and in 40 CFR 63.8(d). As specified in 40 CFR 63.8(f)(4), the Permittee may request approval of monitoring system quality assurance and quality control procedures alternative to those specified in Condition IV.C.7.a(1)(a) to (d) in the site-specific monitoring plan.

[40 CFR 63.6625(b)(1)]

(a) The performance criteria and design specifications for the monitoring system equipment, including the sample interface, detector signal analyzer, and data acquisition and calculations;

(b) Sampling interface (e.g., thermocouple) location such that the monitoring system will provide representative measurements;

(c) Equipment performance evaluations, system accuracy audits, or other audit procedures;

(d) Ongoing operation and maintenance procedures in accordance with provisions in 40 CFR 63.8(c)(1)(ii) and (c)(3); and

(e) Ongoing reporting and recordkeeping procedures in accordance with provisions in 40 CFR 63.10(c), (e)(1), and (e)(2)(i).

(2) The Permittee shall install, operate, and maintain each CPMS in continuous operation according to the procedures in the site-specific monitoring plan.

[40 CFR 63.6625(b)(2)]

(3) The CPMS shall collect data at least once every 15 minutes.

[40 CFR 63.6625(b)(3)]

(4) For a CPMS for measuring temperature range, the temperature sensor shall have a minimum tolerance of 2.8 degrees Celsius (5 degrees Fahrenheit) or 1 percent of the measurement range, whichever is larger.

[40 CFR 63.6625(b)(4)]

(5) The Permittee shall conduct the CPMS equipment performance evaluation, system accuracy audits, or other audit procedures specified in the site-specific monitoring plan at least annually.

[40 CFR 63.6625(b)(5)]

(6) The Permittee shall conduct a performance evaluation of each CPMS in accordance with your site-specific monitoring plan.

[40 CFR 63.6625(b)(6)]

b. Continuous emission monitoring system (CEMS)

If the Permittee elects to install a CEMS as specified in Condition IV.C.7.b, the Permittee shall install, operate, and maintain a CEMS to monitor CO and either O_2 or CO_2 according to the requirements in Condition IV.C.7.b(1) to (4). The CEMS shall be installed at both the inlet and outlet of the control device.

[40 CFR 63.6625(a)]

(1) Each CEMS shall be installed, operated, and maintained according to the applicable performance specifications of 40 CFR Part 60, Appendix B.

[40 CFR 63.6625(a)(1)]

(2) The Permittee shall conduct an initial performance evaluation and an annual relative accuracy test audit (RATA) of each CEMS according to the requirements in 40 CFR 63.8 and according to the applicable performance specifications of 40 CFR Part 60, Appendix B as well as daily and periodic data quality checks in accordance with 40 CFR Part 60, Appendix F, procedure 1.

[40 CFR 63.6625(a)(2)]

(3) As specified in 40 CFR 63.8(c)(4)(ii), each CEMS shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period. The Permittee shall have at least two data points, with each representing a different 15-minute period, to have a valid hour of data.

[40 CFR 63.6625(a)(3)]

(4) The CEMS data shall be reduced as specified in 40 CFR 63.8(g)(2) and recorded in parts per million or parts per billion (as appropriate for the applicable limitation) at 15 percent oxygen or the equivalent CO_2 concentration.

[40 CFR 63.6625(a)(4)]

c. The Permittee shall minimize the engine's time spent at idle during startup and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the emission standards in Condition IV.C.2 and IV.C.3 apply.

[40 CFR 63.6625(h)]

8. Compliance Demonstration for New Non-Emergency Natural Gas Engines and New Non-Emergency Diesel Engines with Site Rating of more than 500 Brake HP

a. The Permittee shall demonstrate initial compliance with the with the following requirements:

[40 CFR 63.6630(a)]

(1) If the Permittee installs, operate, and maintain a CPMS according to the requirements in Condition IV.C.7.a, the Permittee has demonstrated initial compliance if:

[Table 5 to 40 CFR Part 63 Subpart ZZZZ]

(a) The average reduction of emissions of CO determined from the initial performance test achieves the required CO percent reduction; and

(b) The Permittee has installed a CPMS to continuously monitor catalyst inlet temperature according to the requirements in Condition IV.C.7.a; and

(c) The Permittee has recorded the catalyst pressure drop and catalyst inlet temperature during the initial performance test.

(2) If the Permittee elects to install, operate, and maintain a CEMS according to the requirements in Condition IV.C.7.b, the Permittee has demonstrated initial compliance if:
[Table 5 to 40 CFR Part 63 Subpart ZZZZ]

(a) The Permittee has installed a CEMS to continuously monitor CO and either O_2 or CO_2 at both the inlet and outlet of the oxidation catalyst according to Condition IV.C.7.b; and

(b) The Permittee has conducted a performance evaluation of the CEMS using PS 3 and 4A of 40 CFR Part 60, Appendix B; and

(c) The average reduction of CO calculated according to Condition IV.C.6.e equals or exceeds the required percent reduction. The initial test comprises the first 4-hour period after successful validation of the CEMS. Compliance is based on the average percent reduction achieved during the 4-hour period.

(3) During the initial performance test, the Permittee shall establish each the operating limitations in Condition IV.C.4.
[40 CFR 63.6630(b)]

(4) The Permittee shall submit the Notification of Compliance Status containing the results of the initial compliance demonstration according to the requirements in Condition IV.C.9.e.
[40 CFR 63.6630(c)]

b. Continuous Compliance Requirements

(1) The Permittee shall monitor and collect data according to this section to demonstrate compliance with the emission and operating limitations in Condition IV.C.2, IV.C.3, and IV.C.4.
[40 CFR 63.6635(a)]

(2) Except for monitor malfunctions, associated repairs, required performance evaluations, and required quality assurance or control activities, the Permittee shall monitor continuously at all times that the engine is operating. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the

monitoring to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions.

[40 CFR 63.6635(b)]

(3) The Permittee may not use data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities in data averages and calculations used to report emission or operating levels. The Permittee shall, however, use all the valid data collected during all other periods.

[40 CFR 63.6635(c)]

(4) If the Permittee installs, operates, and maintains a CPMS according to the requirements in Condition IV.C.7.a, the Permittee shall demonstrate continuous compliance by:

[40 CFR 63.6640(a), Table 6 to 40 CFR Part 63 Subpart ZZZZ]

(a) Conducting semiannual performance tests for CO to demonstrate that the required CO percent reduction is achieved; and

(b) Collecting the catalyst inlet temperature data according to Condition IV.C.7.a; and

(c) Reducing these data to 4-hour rolling averages; and

(d) Maintaining the 4-hour rolling averages within the operating limitations for the catalyst inlet temperature; and

(e) Measuring the pressure drop across the catalyst once per month and demonstrating that the pressure drop across the catalyst is within the operating limitation established during the performance test.

(5) If the Permittee elects to install, operate, and maintain a CEMS according to the requirements in Condition IV.C.7.b, the Permittee shall demonstrate continuous compliance by:

[40 CFR 63.6640(a), Table 6 to 40 CFR Part 63 Subpart ZZZZ]

(a) Collecting the monitoring data according to Condition IV.C.7.b, reducing the measurements to 1-hour averages, calculating the percent reduction or concentration of CO emissions according to Condition IV.C.6.e; and

(b) Demonstrating that the catalyst achieves the required percent reduction of CO emissions over the 4-hour averaging period, or that the emission remains at or below the CO concentration limit; and

(c) Conducting an annual RATA of the CEMS using PS 3 and 4A of 40 CFR Part 60, Appendix B, as well as daily and periodic data quality checks in accordance with 40 CFR part 60, Appendix F, Procedure 1.

(6) The Permittee shall report each instance in which you did not meet each emission limitation or operating limitation in Condition IV.C.2, IV.C.3, and IV.C.4. These instances are deviations from the emission and operating limitations. These deviations shall be reported according to the requirements in Condition IV.C.9.i. If the Permittee changes the catalyst, the Permittee shall reestablish the values of the operating parameters measured during the initial performance test. When the Permittee reestablishes the values of the operating parameters, the Permittee shall also conduct a performance test to demonstrate that the Permittee is meeting the required emission limitations.

[40 CFR 63.6640(b)]

(7) The Permittee shall report each instance in which the Permittee did not meet the requirements in Table 8 to 40 CFR Part 63 Subpart ZZZZ that are applicable.

[40 CFR 63.6640(e)]

9. Notifications, Reports, and Recordkeeping Requirements

a. For the new emergency engines, the new non-emergency natural gas engines, and the new non-emergency diesel engines with site rating of more than 500 brake HP, the Permittee shall submit all of the following notifications in 40 CFR 63.7(b) and (c), 63.8(e), (f)(4) and (f)(6), 63.9(b) through (e), and (g) and (h)) by the dates specified.

[40 CFR 63.6645(a)]

b. For the new emergency engines, the new non-emergency natural gas engines, and the new non-emergency diesel engines with site rating of more than 500 brake HP, the Permittee shall submit an Initial Notification not later than 120 days upon issuance of this permit.

[40 CFR 63.6645(c)]

c. For the new emergency engines, the notification should include the information in 40 CFR 63.9(b)(2)(i) through (v), and a statement that the stationary RICE has no additional requirements and explain the basis of the exclusion.

[40 CFR 63.6645(f)]

d. For the new non-emergency natural gas engines and the new non-emergency diesel engines with site rating of more than 500 brake HP, the Permittee shall submit a Notification of Intent to conduct a performance test at least 60 days before the performance test is scheduled to begin as required in 40 CFR 63.7(b)(1).

[40 CFR 63.6645(g)]

e. For the new non-emergency natural gas engines and the new non-emergency diesel engines with site rating of more than 500 brake HP, the Permittee shall submit a Notification of Compliance Status according to 40 CFR 63.9(h)(2)(ii).

[40 CFR 63.6645(h)]

(1) For each initial compliance demonstration required in Condition IV.C.8.a, the Permittee shall submit the Notification of Compliance Status, including the performance test results, before the close of business on the 60th day following the completion of the performance test according to 40 CFR 63.10(d)(2).

[40 CFR 63.6645(h)(2)]

f. For the new non-emergency natural gas engines and the new non-emergency diesel engines with site rating of more than 500 brake HP, the Permittee shall submit a compliance report semiannually containing:

[40 CFR 63.6650(a), Table 7 to 40 CFR Part 63 Subpart ZZZZ]

(1) If there are no deviations from any emission limitations or operating limitations, a statement that there were no deviations from the emission limitations or operating limitations during the reporting period. If there were no periods during which the CMS, including CEMS and CPMS, was out-of-control, as specified in 40 CFR 63.8(c)(7), a statement that there were not periods during which the CMS was out-of-control during the reporting period; or

(2) If there were periods during which the CMS, including CEMS and CPMS, was out-of-control, as specified in 40 CFR 63.8(c)(7), the information in Condition IV.C.9.i; or

(3) If the Permittee had a malfunction during the reporting period, the information in Condition IV.C.9.h(4).

g. For the new non-emergency natural gas engines and the new non-emergency diesel engines with site rating of more than 500 brake HP, unless the EPA Administrator has approved a different schedule for submission of reports under 40 CFR 63.10(a), the Permittee shall submit each report by the date in Condition IV.C.9.f and according to the requirements in Condition IV.C.9.g(1) through (4) of this Attachment:

[40 CFR 63.6650(b)]

(1) For semiannual Compliance reports, the first Compliance report shall cover the period beginning upon startup of the engines and ending on June 30 or December 31, whichever date is the first date following the end of the first calendar half after startup of the engines.

[40 CFR 63.6650(b)(1)]

(2) For semiannual Compliance reports, the first Compliance report shall be postmarked or delivered no later than July 31 or January

31, whichever date follows the end of the first calendar half after startup of the engines.

[40 CFR 63.6650(b)(2)]

(3) For semiannual Compliance reports, each subsequent Compliance report shall cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31.

[40 CFR 63.6650(b)(3)]

(4) For semiannual Compliance reports, each subsequent Compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date is the first date following the end of the semiannual reporting period.

[40 CFR 63.6650(b)(4)]

h. For the new non-emergency natural gas engines and the new non-emergency diesel engines with site rating of more than 500 brake HP, the Compliance report shall contain the information in Condition IV.C.9.h(1) through (6) of this Attachment:

[40 CFR 63.6650(c)]

(1) Company name and address.

(2) Statement by a responsible official, with that official's name, title, and signature, certifying the accuracy of the content of the report.

(3) Date of report and beginning and ending dates of the reporting period.

(4) If you had a malfunction during the reporting period, the compliance report must include the number, duration, and a brief description for each type of malfunction which occurred during the reporting period and which caused or may have caused any applicable emission limitation to be exceeded. The report must also include a description of actions taken by an owner or operator during a malfunction of an affected source to minimize emissions in accordance with Condition IV.C.5.c, including actions taken to correct a malfunction.

(5) If there are no deviations from any emission or operating limitations that apply to you, a statement that there were no deviations from the emission or operating limitations during the reporting period.

(6) If there were no periods during which the continuous monitoring system (CMS), including CEMS and CPMS, was out-of-control, as specified in 40 CFR 63.8(c)(7), a statement that there were no periods during which the CMS was out-of-control during the reporting period.

i. For the new non-emergency natural gas engines and the new non-emergency diesel engines with site rating of more than 500 brake HP, for each deviation from an emission or operating limitation, the Permittee shall include information in Condition IV.C.9.h(1) through (4) and Condition IV.C.9.i(1) through (12) of this Attachment.

[40 CFR 63.6650(e)]

(1) The date and time that each malfunction started and stopped.

(2) The date, time, and duration that each CMS was inoperative, except for zero (low-level) and high-level checks.

(3) The date, time, and duration that each CMS was out-of-control, including the information in 40 CFR 63.8(c)(8).

(4) The date and time that each deviation started and stopped, and whether each deviation occurred during a period of malfunction or during another period.

(5) A summary of the total duration of the deviation during the reporting period, and the total duration as a percent of the total source operating time during that reporting period.

(6) A breakdown of the total duration of the deviations during the reporting period into those that are due to control equipment problems, process problems, other known causes, and other unknown causes.

(7) A summary of the total duration of CMS downtime during the reporting period, and the total duration of CMS downtime as a percent of the total operating time of the stationary RICE at which the CMS downtime occurred during that reporting period.

(8) An identification of each parameter and pollutant (CO or formaldehyde) that was monitored at the stationary RICE.

(9) A brief description of the stationary RICE.

(10) A brief description of the CMS.

(11) The date of the latest CMS certification or audit.

(12) A description of any changes in CMS, processes, or controls since the last reporting period.

j. For the new non-emergency natural gas engines and the new non-emergency diesel engines with site rating of more than 500 brake HP, the Permittee shall report all deviations as defined in this Section in the semiannual monitoring report required by 40 CFR 70.6 (a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A). If the Permittee submits a Compliance report in

accordance with Condition IV.C.9.f along with, or as part of, the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A), and the Compliance report includes all required information concerning deviations from any emission or operating limitation in this subpart, submission of the Compliance report shall be deemed to satisfy any obligation to report the same deviations in the semiannual monitoring report. However, submission of a Compliance report shall not otherwise affect any obligation the Permittee may have to report deviations from permit requirements to the permit authority.

[40 CFR 63.6650(f)]

k. For the new non-emergency natural gas engines and the new non-emergency diesel engines with site rating of more than 500 brake HP, the Permittee shall keep the records described in Condition IV.C.9.k(1) through (5) in this Attachment:

[40 CFR 63.6655(a)]

(1) A copy of each notification and report that you submitted to comply with this subpart, including all documentation supporting any Initial Notification or Notification of Compliance Status that you submitted, according to the requirement in 40 CFR 63.10(b)(2)(xiv).

(2) Records of the occurrence and duration of each malfunction of operation (i.e., process equipment) or the air pollution control and monitoring equipment.

(3) Records of performance tests and performance evaluations as required in 40 CFR 63.10(b)(2)(viii).

(4) Records of all required maintenance performed on the air pollution control and monitoring equipment.

(5) Records of actions taken during periods of malfunction to minimize emissions in accordance with 40 CFR 63.6605(b), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation.

l. For the new non-emergency natural gas engines and the new non-emergency diesel engines with site rating of more than 500 brake HP, for each CEMS or CPMS, the Permittee shall keep the records below:

[40 CFR 63.6655(b)]

(1) Records described in 40 CFR 63.10(b)(2)(vi) through (xi).

(2) Previous (i.e., superseded) versions of the performance evaluation plan as required in 40 CFR 63.8(d)(3).

(3) Requests for alternatives to the relative accuracy test for CEMS or CPMS as required in 40 CFR 63.8(f)(6)(i), if applicable.

m. For the new non-emergency natural gas engines and the new non-emergency diesel engines with site rating of more than 500 brake HP, the Permittee shall keep the records required in Condition IV.C.8.b(4) or IV.C.8.b(5) to show continuous compliance with each emission and operating limitation.

[40 CFR 63.6655(d)]

n. The records shall be in a form suitable and readily available for expeditious review according to 40 CFR 63.10(b)(1).

[40 CFR 63.6660(a)]

o. As specified in 40 CFR 63.10(b)(1), the Permittee shall keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.

[40 CFR 63.6660(b)]

p. The Permittee shall keep each record readily accessible in hard copy or electronic form for at least 5 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to 40 CFR 63.10(b)(1).

[40 CFR 63.6660(c)]

10. Permit Shield

Compliance with the requirements of Condition IV.C shall be deemed compliance with 40 CFR 63.6600(b), 40 CFR 63.6595(a)(3), 40 CFR 63.6605(a, b), 40 CFR 63.6610(a), 40 CFR 63.6615, 40 CFR 63.6620(d, e(2), i), 63.6625(a, b, d, h), 40 CFR 63.6630(a, b, c), 40 CFR 63.6635(a, b, c), 40 CFR 63.6640(a, b, e), 40 CFR 63.6645(a, c, f, g, h(2)), 40 CFR 63.6650(a, b, c, e, f), 40 CFR 63.6655(a, b, d), 40 CFR 63.6660(a, b, c), and Table 2a, 2b, 3, 4, 5, 6, and 7 to 40 CFR Part 63 Subpart ZZZZ.

[A.A.C. R18-2-325]

V. STORAGE TANKS AND DISPENSING

This Section applies to the gasoline and diesel storage tanks as identified in the last column of the Equipment List in Attachment "C". When operating under Primary Operating Scenario (POS) or Alternate Operating Scenario No. 2 (AOS 2) – Tailing Storage Facility 2 (TSF2) Alternative, the Permittee shall comply with the requirements in Condition V.A of this Attachment for the gasoline storage tanks. When operating under Alternate Operating Scenario No. 1 (AOS 1) – Line Power Alternative, the Permittee shall comply with the requirements in Condition V.A and V.B of this Attachment for the gasoline storage tanks. For diesel storage tanks, the Permittee shall comply with the requirements in Condition V.A of this Attachment at all times.

A. A.A.C. R18-2-710 Requirements

1. Applicability

For the gasoline storage tanks and diesel storage tanks, the Permittee shall comply with the requirements in Condition V.A at all times.

2. Operating Requirements

a. Any other gasoline or diesel storage tank shall be equipped with a submerged filling device, or acceptable equivalent, for the control of hydrocarbon emissions.

[A.A.C. R18-2-710.B]

b. All facilities for dock loading of petroleum products, having a vapor pressure of 1.5 pounds per square inch absolute or greater at loading pressure, shall provide for submerged filling or acceptable equivalent for control of hydrocarbon emissions.

[A.A.C. R18-2-710.C]

c. All pumps and compressors which handle volatile organic compounds shall be equipped with mechanical seals or other equipment of equal efficiency to prevent the release of organic contaminants into the atmosphere.

[A.A.C. R18-2-710.D]

3. Monitoring and Recordkeeping Requirements

a. The Permittee shall for each such storage vessel maintain a file of each type of petroleum liquid stored, of the typical Reid vapor pressure of each type of petroleum liquid stored and of dates of storage. Dates on which the storage vessel is empty shall be shown.

[A.A.C. R18-2-710.E.1]

b. The Permittee shall for such storage vessel determine and record the average monthly storage temperature and true vapor pressure of the petroleum liquid stored at such temperature if either:

[A.A.C. R18-2-710.E.2]

(1) The petroleum liquid has a true vapor pressure, as stored, greater than 26 mm Hg (0.5 psia) but less than 78 mm Hg (1.5 psia) and is stored in a storage vessel other than one equipped with a floating roof, a vapor recovery system or their equivalents; or

[A.A.C. R18-2-710.E.2.a]

(2) The petroleum liquid has a true vapor pressure, as stored, greater than 470 mm Hg (9.1 psia) and is stored in a storage vessel other than one equipped with a vapor recovery system or its equivalent.

[A.A.C. R18-2-710.E.2.b]

c. The average monthly storage temperature shall be an arithmetic average calculated for each calendar month, or portion thereof, if storage is for less than a month, from bulk liquid storage temperatures determined at least once every seven days.

[A.A.C. R18-2-710.E.3]

d. The true vapor pressure shall be determined by the procedures in American Petroleum Institute Bulletin 2517, amended as of February 1980 (and no future editions), which is incorporated herein by reference and on file with the Office of the Secretary of State. This procedure is dependent upon determination of the storage temperature and the Reid vapor pressure, which requires sampling of the petroleum liquids in the storage vessels. Unless the Director requires in specific cases that the stored petroleum liquid be sampled, the true vapor pressure may be determined by using the average monthly storage temperature and the typical Reid vapor pressure. For those liquids for which certified specifications limiting the Reid vapor pressure exist, the Reid vapor pressure may be used. For other liquids, supporting analytical data shall be made available upon request to the Director when typical Reid vapor pressure is used.

[A.A.C. R18-2-710.E.4]

4. Permit Shield

Compliance with the requirements of Condition V.A shall be deemed compliance with A.A.C. R18-2-710.

[A.A.C. R18-2-325]

B. 40 CFR Part 63 Subpart CCCCCC Requirements

1. Applicability

a. This Section applies to the following:

(1) When the Permittee operates under Alternate Operating Scenario No. 1 (AOS 1) – Line Power Alternative.

[40 CFR 63.11111(a)]

(2) Gasoline Dispensing Facilities (GDFs), Storage tanks at the GDFs listed in Equipment List, Attachment "C", associated equipment components in vapor or liquid gasoline service, pressure/vacuum vents on gasoline storage tanks, and equipment necessary to unload product from cargo tanks into storage tanks at GDFs. The equipment used for the refueling of motor vehicles is not covered.

[40 CFR 63.11111 (a), (b), & (c), and 63. 11112(a)]

(3) Each gasoline cargo tank during the delivery of product to a GDF.

[40 CFR 63.11111(a)]

b. Definition of Monthly Throughput

(1) Monthly throughput means the total volume of gasoline that is loaded into, or dispensed from, all gasoline storage tanks at each GDF during a month. Monthly throughput is calculated by summing the volume of gasoline loaded into, or dispensed from, all gasoline storage tanks at each GDF during the current day, plus the total volume of gasoline loaded into, or dispensed from, all

gasoline storage tanks at each GDF during the previous 364 days, and then dividing that sum by 12.

[40 CFR 63.11132]

c. If any GDF referenced above increases the monthly throughput over 100,000 gallons per month, the Permittee shall comply with new applicable standards of 40 CFR Part 63 Subpart CCCCCC within 3 years of the GDF unit becoming subject to the new control requirements.

[40 CFR 63.11113(c)]

d. The Permittee shall comply with the requirements of this section upon the initial startup.

[40 CFR 63.11116(c), 40 CFR 63.11117(f)]

2. Emission Limitations and Management Practices

a. The Permittee shall, at all times, operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Director or the EPA Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.

[40 CFR 63.11115(a)]

b. The Permittee shall keep applicable records and submit reports as specified in Condition V.B.3.b and V.B.3.c of this Attachment.

[40 CFR 63.11115(b)]

c. For the facilities with monthly throughput of less than 10,000 gallons of gasoline:

(1) The Permittee shall not allow gasoline to be handled in a manner that would result in vapor releases to the atmosphere for extended periods of time. Measures to be taken include, but are not limited to, the following:

[40 CFR 63.11116(a)]

(a) Minimize gasoline spills;

(b) Clean up spills as expeditiously as practicable;

(c) Cover all open gasoline containers and all gasoline storage tank fill-pipes with a gasketed seal when not in use;

(d) Minimize gasoline sent to open waste collection systems that collect and transport gasoline to reclamation and recycling devices, such as oil/water separators.

(2) The Permittee shall have records available within 24 hours of a request by the Director to document your gasoline throughput.
[40 CFR 63.11116(b)]

d. For the facilities with monthly throughput of 10,000 gallons of gasoline or more:

(1) The Permittee shall comply with the requirements in Condition V.B.2.c(1).
[40 CFR 63.11117(a)]

(2) The Permittee shall only load gasoline into storage tanks by utilizing submerged filling, as specified in Condition V.B.2.d(2)(a) or (b) of this Attachment. The applicable distances in Condition V.B.2.d(2)(a) shall be measured from the point in the opening of the submerged fill pipe that is the greatest distance from the bottom of the storage tank.
[40 CFR 63.11117(b)]

(a) Shall be no more than 6 inches from the bottom of the tank.
[40 CFR 63.11117(b)(2)]

(b) If the submerged fill pipes do not meet the specifications specified above, the Permittee shall demonstrate that the liquid level in the tank is always above the entire opening of the fill pipe. Documentation providing such demonstration shall be made available for inspection by the EPA Administrator's delegated representative during the course of a site visit.
[40 CFR 63.11117(b)(3)]

3. Notifications, Records, and Reports Requirements

a. For the facilities with monthly throughput of 10,000 gallons of gasoline or more:
[40 CFR 63.11124(a)]

(1) The Permittee shall submit an Initial Notification that the Permittee is subject to 40 CFR Part 63 Subpart CCCCCC no later than 120 days after the initial startup. The Initial Notification shall contain the information specified in Condition V.B.3.a(1)(a) through (c) below. The notification shall be submitted to EPA Region IX and the Director.
[40 CFR 63.11117(e), 40 CFR 63.11124(a)(1)]

(a) The name and address of the owner and the operator.

(b) The address (i.e., physical location) of the GDF.

(c) A statement that the notification is being submitted in response to this section and identifying the requirements in paragraphs (a) through (c) of 40 CFR 63.11117 that apply to you.

(2) The Permittee shall submit a Notification of Compliance Status to EPA Region IX, within 60 days upon the initial startup. The Notification of Compliance Status shall be signed by a responsible official who shall certify its accuracy, shall indicate whether the source has complied with the requirements of this section, and shall indicate whether the facilities' monthly throughput is calculated based on the volume of gasoline loaded into all storage tanks or on the volume of gasoline dispensed from all storage tanks. If the Permittee is in compliance with the requirements of this section at the time the Initial Notification required under Condition V.B.3.a(1) of this Attachment is due, the Notification of Compliance Status may be submitted in lieu of the Initial Notification provided it contains the information required under Condition V.B.3.a(1) of this Attachment.

[40 CFR 63.11124(a)(2)]

b. The Permittee shall keep records as specified in Condition V.B.3.b(1) and (2) below:

[40 CFR 63.11125(d)]

(1) Records of the occurrence and duration of each malfunction of operation (i.e., process equipment) or the air pollution control and monitoring equipment.

(2) Records of actions taken during periods of malfunction to minimize emissions in accordance with Condition V.B.2.a of this Attachment, including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation.

c. The Permittee shall report, by March 15 of each year, the number, duration, and a brief description of each type of malfunction which occurred during the previous calendar year and which caused or may have caused any applicable emission limitation to be exceeded. The report shall also include a description of actions taken by an owner or operator during a malfunction of an affected source to minimize emissions in accordance with Condition V.B.2.a of this Attachment, including actions taken to correct a malfunction. No report is necessary for a calendar year in which no malfunctions occurred.

[40 CFR 63.11126(b)]

d. The Permittee shall maintain monthly record of the gasoline throughput of each GDF as detailed in Condition V.B.1.b.

[A.A.C. R18-2-306.A.3.c]

e. For the facilities with monthly throughput of 10,000 gallons of gasoline or more, the Permittee shall have records available within 24 hours of request by the Director or EPA Administrator documenting the gasoline throughput.

[40 CFR 63.11117(d)]

4. Permit Shield

Compliance with the requirements of Condition V.B shall be deemed compliance with 40 CFR 63.11111 (a, b, c), 63.11112(a), 40 CFR 63.11113(c), 40 CFR 63.11115, 40 CFR 63.11116(a, b, c), 40 CFR 63.11117(a, b, d, e, f), 40 CFR 63.11124(a)(1) and (a)(2), 40 CFR 63.11125(d), and 40 CFR 63.11126(b).

[A.A.C. R18-2-325]

VI. CONCRETE BATCH PLANT

A. Applicability

This Section applies to operations associated with the Concrete Batch Plant as identified in the last column of the Equipment List in Attachment "C".

B. Emission Limitations and Standards

1. The opacity of any plume or effluent from any existing, stationary, point source shall not be greater than 20%.

[A.A.C. R18-2-702.B.3]

2. If the presence of uncombined water is the only reason for an exceedance of the visible emissions requirement in Condition VI.B.1 above, the exceedance shall not constitute a violation of the applicable opacity limit.

[A.A.C. R18-2-702.C]

C. Operational Limitations

1. *At the Taylor site, the Permittee shall limit the maximum concrete processed by the Concrete Batch Plant to no more than 110.34 tons per day.*

[A.A.C. R18-2-306.01 and -331.A.3.a]
[Material Permit Conditions are indicated with underline and italics]

2. *At the Clark site, the Permittee shall limit the maximum concrete processed by the Concrete Batch Plant to no more than 5.44 tons per day.*

[A.A.C. R18-2-306.01 and -331.A.3.a]
[Material Permit Conditions are indicated with underline and italics]

D. Monitoring, Recordkeeping, and Reporting Requirements

The Permittee shall conduct the periodic opacity monitoring method specified in Condition II.B of Attachment "B" once every two weeks for all emission units subject to Section VI.

[A.A.C. R18-2-306.A.3.c]

E. Air Pollution Prevention and Control Requirements

1. The Permittee shall control fugitive dust emissions from concrete batch plants in accordance with A.A.C. R18-2-604 through A.A.C. R18-2-607 (see Section VIII of Attachment "B").

[A.A.C. R18-2-723]

2. At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, install, operate and maintain air pollution controls on all emission units subject to Section VI in a manner consistent with good air pollution control practice for minimizing emissions and comply with the applicable emission limitations and standards in Condition VI.B.1 above. Air pollution controls include wet suppression, baghouse, rubber sleeve, or other equivalent control methods.

[A.A.C. R18-2-702.B.3]

F. Permit Shield

Compliance with the requirements of Section VI shall be deemed compliance with A.A.C. R18-2-702.B.3, -702.C, and -723.

[A.A.C. R18-2-325]

VII. UNCLASSIFIED SOURCES

A. Applicability

The facilities subject to this section are identified in the last column of the Equipment List in Attachment "C".

B. Emission Limitations and Standards

1. Particulate Matter and Opacity

a. Particulate Matter

The Permittee shall not cause, allow, or permit the discharge of particulate matter into the atmosphere in any one hour from the affected sources subject to this section in total quantities in excess of the amount calculated by one of the following equations:

[A.A.C. R18-2-730.A.1]

(1) For process sources having a process weight rate of 60,000 pounds per hour (30 tons per hour) or less, the maximum allowable emissions shall be determined by the following equation:

$$E = 4.10e^{0.67}$$

where:

E = the maximum allowable particulate emissions rate in pounds-mass per hour.

P = the process weight rate in tons-mass per hour.

For process weight rate greater than 60,000 pounds per hour (30 tons per hour), the maximum allowable emissions shall be determined by the following equation:

$$E = 55.0P^{0.11} - 40$$

where "*E*" and "*P*" are defined as indicated in Condition VII.B.1.a(1).

b. Opacity

c. The Permittee shall not cause, allow, or permit to be emitted into the atmosphere from the stack of any affected sources, opacity which exceeds 20% as measured by EPA Reference Method 9.

[A.A.C. R18-2-702.B.3]

d. If the presence of uncombined water is the only reason for an exceedance of any visible emissions requirement in this Section, the exceedance shall not constitute a violation of the applicable opacity limit.

[A.A.C. R18-2-702.C]

2. Sulfur Dioxide

The Permittee shall not allow to emit from any affected sources more than 600 parts per million of sulfur dioxide.

[A.A.C. R18-2-730.A.2]

3. Nitrogen Oxides

The Permittee shall not allow to emit from any affected sources more than 500 parts per million of NO_2.

[A.A.C. R18-2-730.A.3]

C. Operating Requirements

1. *The Permittee shall operate no more than three of the four evaporator units at any given time.*

[A.A.C. R18-2-306.01 and -331.A.3.a]
[Material Permit Conditions are indicated with underline and italics]

2. *The Permittee shall operate each evaporator unit no more than 876 hours in one year based on 12-month rolling total.*

[A.A.C. R18-2-306.01 and -331.A.3.a]
[Material Permit Conditions are indicated with underline and italics]

3. The Permittee shall not emit gaseous or odorous materials from equipment, operations or premises under the person's control in such quantities or concentrations as to cause air pollution.

[A.A.C. R18-2-730.D]

4. Materials including solvents or other volatile compounds, paints, acids, and alkalies shall be processed, stored, used and transported in such a manner and by such means that they will not evaporate, leak, escape or be otherwise discharged into the ambient air so as to cause or contribute to air pollution. Where means are available to reduce effectively the contribution to air pollution from evaporation, leakage or discharge, the installation and use of such control methods, devices, or equipment shall be mandatory.

[A.A.C. R18-2-730.F]

5. Where a stack, vent or other outlet is at such a level that fumes, gas mist, odor, smoke, vapor or any combination thereof constituting air pollution is discharged to adjoining property, the Director may require the installation of abatement equipment or the alteration of such stack, vent, or other outlet by the owner or operator thereof to a degree that will adequately dilute, reduce or eliminate the discharge of air pollution to adjoining property.

[A.A.C. R18-2-730.G]

6. The Permittee shall not allow hydrogen cyanide to be emitted from any location in such manner and amount that the concentration of such emissions into the ambient air at any occupied place beyond the premises on which the source is located exceeds 0.3 parts per million by volume for any averaging period of eight hours.

[A.A.C. R18-2-730.J]

7. The Permittee shall not allow sodium cyanide dust or dust from any other solid cyanide to be emitted from any location in such manner and amount that the concentration of such emissions into the ambient air at any occupied place beyond the premises on which the source is located exceeds 140 micrograms per cubic meter for any averaging period of eight hours.

[A.A.C. R18-2-730.K]

D. Air Pollution Prevention and Control Requirements

1. *At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable,* maintain, *and operate WTP1LS according to the manufacturer's specifications and in a manner consistent with good air pollution control practices for minimizing particulate matter emissions.*

[A.A.C. R18-306.01.A and -331.A.3.e]
[Material permit conditions are indicated by underline and italics]

2. *At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, install,* maintain, *and operate the Dust Collector WTP1LS, and to the extent practicable, to control the particulate matter emissions from the Waste Water Treatment Plant #1 Lime Silo.*

[A.A.C. R18-2-306.01.A and -331.A.3.d and e]
[Material Permit Conditions are indicated with underline and italics]

E. Monitoring, Recordkeeping, and Reporting Requirements

1. The Permittee shall record the daily process rates and hours of operation of all material handling facilities.

[A.A.C. R18-2-306.A.3.c]

2. The Permittee shall conduct a monthly EPA Reference Method 9 observation in accordance with Condition II.B of emissions emanating from the affected sources subject to this section. The Permittee shall keep a record of the name of the observer, date and time of observation, and the results of the observation. If the observation results in an exceedance of the opacity limit contained in Condition VII.B.1.b, the Permittee shall take corrective action and log all such actions. Such exceedances shall be reported as excess emissions specified in Condition XI.A.

[A.A.C. R18-2-306.A.3.c]

F. Permit Shield

Compliance with the requirements of Section VII shall be deemed compliance with A.A.C. R18-2-702.B.3, -702.C, -730.A, -D, -F, -G, -J, and -K.

[A.A.C. R18-2-325]

VIII. FUGITIVE DUST REQUIREMENTS

A. Applicability

Section VIII applies to any non-point source of fugitive dust in the facility.

B. Particulate Matter and Opacity

Open Areas, Roadways & Streets, Storage Piles, and Material Handling

1. Emission Limitations and Standards

a. Opacity of emissions from any fugitive dust non-point source shall not be greater than 40%.

[A.A.C. R18-2-614]

b. The Permittee shall employ the following reasonable precautions to prevent excessive amounts of particulate matter from becoming airborne:

(1) For a building or its appurtenances, or a building or subdivision site, or a driveway, or a parking area, or a vacant lot or sales lot, or an urban or suburban open area to be constructed, used, altered, repaired, demolished, cleared, or leveled, or the earth to be moved or excavated, keep dust and other types of air contaminants to a minimum by good modern practices such as using an approved dust suppressant or adhesive soil stabilizer, paving, covering, landscaping, continuous wetting, detouring, barring access, or other acceptable means;

[A.A.C. R18-2-604.A]

(2) Keep dust to a minimum from vacant lots or an urban or suburban open area where motor vehicular activity occurs by using an approved dust suppressant, or adhesive soil stabilizer, or by paving, or by barring access to the property, or by other acceptable means;

[A.A.C. R18-2-604.B]

(3) Keep dust and other particulates to a minimum by employing dust suppressants, temporary paving, detouring, wetting down or by other reasonable means when a roadway or alley is used, repaired, constructed, or reconstructed;

[A.A.C. R18-2-605.A]

(4) Take reasonable precautions, such as wetting, applying dust suppressants, or covering the load when transporting material likely to give rise to airborne dust. Earth or other material that is deposited by trucking or earth moving equipment shall be removed from paved streets by the person responsible for such deposits;

[A.A.C. R18-2-605.B]

(5) Take reasonable precautions, such as the use of spray bars, wetting agents, dust suppressants, covering the load, and hoods when crushing, screening, handling, transporting or conveying of materials or other operations likely to result in significant amounts of airborne dust;

[A.A.C. R18-2-606]

(6) Take reasonable precautions such as chemical stabilization, wetting, or covering when organic or inorganic dust producing material is being stacked, piled, or otherwise stored;

[A.A.C. R18-2-607.A]

(7) Operate stacking and reclaiming machinery utilized at storage piles at all times with a minimum fall of material, or with the use of spray bars and wetting agents;

[A.A.C. R18-2-607.B]

(8) Operate mineral tailings piles by taking reasonable precautions to prevent excessive amounts of particulate matter from becoming airborne. Reasonable precautions shall mean wetting, chemical stabilization, revegetation or such other measures as are approved by the Director;

[A.A.C R18-2-608]

(9) Any other method as proposed by the Permittee and approved by the Director.

[A.A.C. R18-2-306.A.3.c]

2. Air Pollution Control Requirements

a. The Permittee shall not construct new unpaved service roads or unpaved haul roads such that the total lengths of non-temporary operational unpaved roads do not exceed those used in the permit application.

[A.A.C R18-2-306.01.A]

b. *Water, or an equivalent control, shall be used to control visible emissions from haul roads.*

[A.A.C. R18-2-306.01.A and -331.A.3.d]
[Material Permit Condition is indicated by underline and italics]

c. *Water, or an equivalent control, shall be used to control visible emissions from storage piles.*

[A.A.C. R18-2-306.01.A and -331.A.3.d]
[Material Permit Condition is indicated by underline and italics]

d. *The Permittee shall comply with the dust control measures identified in the Dust Control Plan specified in Attachment "D" of this permit. The Permittee may implement proposed changes to the dust control plan upon submission to the Director if necessary to further minimize fugitive dust.*

[A.A.C. R18-2-604, -605, -606, -607, -614, -306.A.3.c, -306.01.A, and -331.A.3.e]
[Material Permit Conditions are indicated by underline and italics]

e. The Permittee shall limit the operating hours of dozers at each of the tailings storage facilities and rock storage facilities to 12 hours per location per day.

[A.A.C. R18-2-306.01.A]

f. Mineral Tailings

The Permittee shall comply with the approved Tailings Management Plan (TMP) included in Attachment "E" of this permit to control particulate matter emissions from activities identified in the TMP. The Permittee may implement proposed changes to the tailings management plan upon submission to the Director to further minimize fugitive dust. Nothing in this permit prohibits the Permittee from implementing additional dust control measures not set forth in the dust control plan.

[A.A.C. R18-2-608, -306.A.3.c, and -306.01.A]

3. Monitoring and Recordkeeping Requirements

a. The Permittee shall maintain records of the dates on which any of the activities listed in Condition VIII.B.1.b above were performed and the control measures that were adopted.

[A.A.C. R18-2-306.A.3.c]

b. Opacity Monitoring Requirements

(1) Each week, the Permittee shall monitor visible emissions from fugitive sources excluding mineral tailings in accordance with Condition II.B.

[A.A.C. R18-2-306.A.3.c]

(2) At least twice daily, the Permittee shall monitor visible emissions from mineral tailings in accordance with Condition II.B, starting from the day the permit becomes applicable pursuant to Condition I.A.4 or from the day the perimeter buttress construction begins, whichever comes later.

[A.A.C. R18-2-306.A.3.c]

c. Mineral Tailings

(1) The Permittee shall follow all the monitoring provisions identified in the approved TMP.

[A.A.C. R18-2-306.A.3.c]

(2) The Permittee shall review the TMP annually for its effectiveness in controlling fugitive emissions. The review shall be submitted to the Director by February 15th of each year (covering the period January 1st through December 31st of the previous year). If the review of the plan shows ineffectiveness in controlling emissions, the Permittee shall submit a revised plan for approval by April 1st following the annual review. The revised TMP shall show improved methods/techniques for reducing emissions in order to minimize or prevent further violations. The annual review shall take into account past compliance issues, resolved/unresolved including validated complaints reported to the Department and propose how those issues can be avoided in the future. Recommendations or stricter requirements will be prescribed by the Department should the Permittee's annual review show that changes are required but not proposed by the Permittee.

[A.A.C. R18-2-306.A.3.c]

d. Recordkeeping Requirements

[A.A.C. R18-2-306.A.3.c]

(1) The Permittee shall record the results of the required monitoring as detailed in the approved TMP. The Permittee shall maintain a copy of watering schedules per shift basis.

(2) The Permittee shall log the daily operation hours of the dozers.

C. Permit Shield

Compliance with Section VIII shall be deemed compliance with A.A.C. R18-2-604. -605, -606, -607, -608, and -614.

[A.A.C. R18-2-325]

IX. OTHER PERIODIC ACTIVITIES

A. Abrasive Blasting

1. Particulate Matter and Opacity

a. Emission Limitations/Standards

The Permittee shall not cause or allow sandblasting or other abrasive blasting without minimizing dust emissions to the atmosphere through the use of good modern practices. Good modern practices include:

[A.A.C. R18-2-726]

(1) Wet blasting;

(2) Effective enclosures with necessary dust collecting equipment; or

(3) Any other method approved by the Director.

b. Opacity

The Permittee shall not cause, allow or permit visible emissions from sandblasting or other abrasive blasting operations in excess of 20% opacity.

[A.A.C. R18-2-702.B.3]

2. Monitoring and Recordkeeping Requirement

a. Each time an abrasive blasting project is conducted, the Permittee shall monitor visible emissions from abrasive blasting in accordance with Condition II.B to demonstrate compliance with IX.A.1.b.

[A.A.C. R18-2-306.A.3.c]

b. Each time an abrasive blasting project is conducted, the Permittee shall make a record of the following:

[A.A.C. R18-2-306.A.3.c]

(1) The date the project was conducted;

(2) The duration of the project; and

(3) Type of control measures employed.

3. Permit Shield

Compliance with Condition IX.A.1 shall be deemed compliance with A.A.C. R18-2-702.B.3 and -726.

[A.A.C.R18-2-325]

B. Use of Paints

1. Volatile Organic Compounds

a. Emission Limitations/Standards

While performing spray painting operations, the Permittee shall comply with the following requirements:

(1) The Permittee shall not conduct or cause to be conducted any spray painting operation without minimizing organic solvent emissions. Such operations, other than architectural coating and spot painting, shall be conducted in an enclosed area equipped with controls containing no less than 96 percent of the overspray.

[A.A.C.R18-2-727.A]

(2) The Permittee or their designated contractor shall not either:
[A.A.C.R18-2-727.B]

(a) Employ, apply, evaporate, or dry any architectural coating containing photochemically reactive solvents for industrial or commercial purposes; or

(b) Thin or dilute any architectural coating with a photochemically reactive solvent.

(3) For the purposes of Condition IX.B.1.a(2), a photochemically reactive solvent shall be any solvent with an aggregate of more than 20 percent of its total volume composed of the chemical compounds classified in Conditions (a) through (c) below, or which exceeds any of the following percentage composition limitations, referred to the total volume of solvent:
[A.A.C.R18-2-727.C]

(a) A combination of the following types of compounds having an olefinic or cyclo-olefinic type of unsaturation-hydrocarbons, alcohols, aldehydes, esters, ethers, or ketones: 5 percent.

(b) A combination of aromatic compounds with eight or more carbon atoms to the molecule except ethylbenzene: 8 percent.

(c) A combination of ethylbenzene, ketones having branched hydrocarbon structures, trichloroethylene or toluene: 20 percent.

(4) Whenever any organic solvent or any constituent of an organic solvent may be classified from its chemical structure into more than one of the groups of organic compounds described in Condition IX.B.1.a(3), it shall be considered to be a member of the group having the least allowable percent of the total volume of solvents.
[A.A.C.R18-2-727.D]

b. Monitoring and Recordkeeping Requirements
[A.A.C. R18-2-306.A.3.c]

(1) Each time a spray painting project is conducted, the Permittee shall make a record of the following:

(a) The date the project was conducted;

(b) The duration of the project;

(c) Type of control measures employed;

(d) Safety Data Sheets (SDS) for all paints and solvents used in the project; and

(e) The amount of paint consumed during the project.

(2) Architectural coating and spot painting projects shall be exempt from the recordkeeping requirements of Condition IX.B.1.b(1).

c. Permit Shield

Compliance with Condition IX.B.1.a shall be deemed compliance with A.A.C.R18-2-727.

[A.A.C.R18-2-325]

2. Opacity

a. Emission Limitation/Standard

The Permittee shall not cause, allow or permit visible emissions from painting operations in excess of 20% opacity.

[A.A.C. R18-2-702.B.3]

b. Monitoring Requirement

Each time a spray painting project is conducted, the Permittee shall monitor visible emissions from spray painting in accordance with Condition II.B to demonstrate compliance with IX.B.2.a.

[A.A.C. R18-2-306.A.3.c]

c. Permit Shield

Compliance with Condition IX.B.2.a shall be deemed compliance with A.A.C.R18-2-702.B.3.

[A.A.C. R18-2-325]

C. Demolition/Renovation - Hazardous Air Pollutants

1. Emission Limitation/Standard

The Permittee shall comply with all applicable requirements of 40 CFR 61 Subpart M (National Emissions Standards for Hazardous Air Pollutants - Asbestos).

[A.A.C. R18-2-1101.A.12]

2. Monitoring and Recordkeeping Requirements

The Permittee shall keep all required records in a file. The required records shall include the "NESHAP Notification for Renovation and Demolition Activities" form and all supporting documents.

[A.A.C. R18-2-306.A.3.c]

3. Permit Shield

Compliance with Condition IX.C.1 shall be deemed compliance with A.A.C. R18-2-1101.A.12.

[A.A.C. R18-2-325]

X. PUBLIC ACCESS RESTRICTIONS PLAN

At least 90 days prior to beginning initial startup of the Hermosa project as defined in Condition I.B.1, the Permittee shall submit to the Director for approval a Public Access Restriction Plan (Plan) to effectively preclude general public access at the ambient air boundary used in the ambient air impact analysis. The Plan includes measures such as fencing, natural topographic barriers, signage, security patrols, and access restrictions to adjacent private property to restrict public access to the South32 Hermosa project site. The Plan shall be implemented within 30 days after approval by the Director.

[A.A.C. R18-2-306.01]

XI. AMBIENT MONITORING REQUIREMENTS

A. General Requirements

[A.A.C.R18-2-306.A.3.d]

1. Within 6 months of the issuance of this permit, the Permittee shall submit to the Director for approval a written quality assurance project plan (QAPP) for PM_{10} and $PM_{2.5}$.

[A.A.C. R18-2-306.A.3.c]

2. All ambient air quality monitoring required under this Section shall be conducted in accordance with the following:

a. Only those methods which have been either designated by the EPA as reference or equivalent methods or approved by the Director shall be used to monitor ambient air.

[A.A.C. R18-2-215.A]

b. The permittee shall have a written and ADEQ approved quality assurance project/program plan (QAPP) prior to the start of ambient air monitoring.

[A.A.C. R18-2-215.B]

c. The Director may approve other procedures upon a finding that the proposed procedures are substantially equivalent or superior to procedures in the Appendices to 40 CFR 58.

[A.A.C. R18-2-215.C]

d. Unless otherwise specified, interpretation of all ambient air quality standards contained in this Section shall be in accordance with 40 CFR 50.

[A.A.C. R18-2-216]

B. General Reporting and Recordkeeping Requirements

[A.A.C. R18-2-306.A.3.c]

1. The Permittee shall retain records of all monitoring data in accordance with Section XII of Attachment "A". The data shall be available to ADEQ upon request.

2. Quarterly reports, annual reports and the associated quality assurance information shall be submitted to the Facilities Emissions and Control Section of the Air Quality Division of ADEQ. The fourth quarterly report for the year should include an annual summary of measurements and QA/QC data, as applicable for each monitor.

3. Updated site and monitor metadata information shall be included in the annual reports as applicable.

4. Reports shall be submitted within 90 days after the end of each calendar-year quarter unless otherwise stated by the applicable requirement.

5. Summary data reports shall be consistent with the EPA data handling requirements.

6. The Permittee may submit reports electronically to the Department.

7. All data submitted to the Director shall be reviewed, quality assured, and certified by the Permittee. All of the field documents, QC check documents, etc., need to be submitted with the applicable reports.

8. The Permittee shall provide electronic files of the validated hourly data at the request of the Department. All data and quarterly reports shall be submitted electronically as follows:

   a. Data recovery reports;

   b. Any field service activities;

   c. Any other information required in the monitoring protocol;

   d. Description of any instrument problems affecting the data, any data validation concerns, and any comments on meteorological conditions occurring during the quarter; and

   e. Performance results of calibration and audits.

9. Notwithstanding the reporting and data submittal requirements of this section, units shall be consistent with EPA standards (NAAQS) and reporting requirements. If EPA standards or reporting requirements change, the data reporting format and units shall be changed accordingly.

C. PM_{10} and $PM_{2.5}$ Monitoring

[A.A.C. R18-2-306.A.3.c]

1. At least 90 days prior to the startup of mine operations, the Permittee shall install, operate, and maintain a continuous PM_{10} monitor and a continuous $PM_{2.5}$ monitor at a location approved by the Director at the Brush Hill property. The stations will be installed, maintained, and operated in accordance with the written and approved QAPP, which is consistent with the monitoring protocol approved by the Director,

addressing all general requirements, particulate matter station operations, and quality assurance initiatives.

2. The Permittee shall calculate the monitored daily average PM_{10} value and $PM_{2.5}$ value in accordance with 40 CFR Parts 50 and 58 and their appendices.

3. Sampling Frequency

   a. The Permittee shall operate the monitor continuously, collecting consecutive hourly readings except during periods of routine maintenance, instrument calibration or malfunction. For the purposes of this section, "continuous" means that 24-hour filters are placed and collected, at a minimum (but it may be more frequent consistent with the requirements of 40 C.F.R. §58.12), every 6 days for the PM_{10} monitors and every 3 days for the $PM_{2.5}$ monitors.

   b. In the event of system malfunction, the unit shall be repaired or replaced as soon as possible. Monitoring shall resume as soon as practicable after the correction of the malfunction problem. The Permittee shall report the malfunction to the Director within 24 hours of discovery. A malfunction shall mean equipment or operation issues other than routine maintenance or instrument calibration that result in invalidating a 24-hour sampling day. The report shall contain the probable reason for malfunction and a plan for repairing or replacing the affected equipment. The Permittee shall notify ADEQ if any malfunctions are not corrected within 5 business days.

4. PM_{10} and $PM_{2.5}$ Monitoring Quality Assurance/Quality Control

   a. The Permittee shall have a written and approved QAPP prior to the start of PM_{10} and $PM_{2.5}$ monitoring.

   b. The permittee shall conduct quality assurance activities as stated in the written and approved QAPP in accordance with Section XI.A.2.b of Attachment "B".

   c. The Permittee shall conduct monthly flow checks on the monitoring equipment during the 1st half of every calendar month.

   d. The Permittee shall conduct semi-annual (every six months) performance audits of the monitoring equipment in accordance with the requirements pertaining to sampler accuracy as specified in Appendix A of 40 CFR Part 58. The performance audits shall be conducted by a qualified auditor that is independent of the Permittee.

   e. The Permittee shall conduct technical systems audits of the PM_{10} and $PM_{2.5}$ ambient air monitoring program consistent with the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume II, U.S. Environmental Protection Agency. The technical systems audits shall be conducted by a qualified auditor that is independent of the Permittee at least once in every three (3) years.

f. The Permittee and/or its monitoring contractor shall participate in technical systems audits or performance audits periodically conducted by the Department. The Department shall provide a minimum of 30 days' notice of a technical system audit and a minimum of 48 hours' notice of a performance audit.

5. PM_{10} and $PM_{2.5}$ Monitoring Reporting Requirements

a. The Permittee shall calculate the quarterly and annual summary statistics in accordance with the procedures of 40 CFR Part 50 and Appendices.

b. The Permittee shall calculate the precision and accuracy statistics in accordance with the procedures of 40 CFR Part 58 Appendix A.

c. Valid data recovery shall meet the EPA minimum data completeness requirement of 75 percent per quarter or the percentage specified in 40 CFR Part 50. Valid data shall refer to all observations collected for the specific monitoring purpose. Data collected during precision, audit, flow checks and during servicing shall not be considered valid for data completeness purposes.

d. The Permittee shall submit to the Director, an electronic report summarizing the PM_{10} and $PM_{2.5}$ data measurements collected pursuant to this section shall be submitted in accordance with Condition XI.B of Attachment "B".

e. The Permittee shall submit daily 24-hour average concentrations in the quarterly report based on the EPA data rules in 40 CFR Part 50 Appendix K.

f. The Permittee shall provide electronic files of the validated hourly data at the request of the Department.

ATTACHMENT "C": EQUIPMENT LIST

EQUIPMENT TYPE	MAX. CAPACITY	MAKE*	MODEL*	SERIAL NUMBER*	INSTALLATION/ MFG. DATE*	EQUIPMENT ID NUMBER	A.A.C. / NSPS / NESHAP
Taylor Site							
Crushers							
Primary Crusher (Underground)	1,543 ton/hr	TBD	TBD	TBD	TBD	CRUSH-1	A.A.C. R18-2-721
Pebble Crusher	220 ton/hr	TBD	TBD	TBD	TBD	22210-CR-00001	NSPS 40 CFR Part 60 Subpart LL
Mills							
Primary Mill	854 ton/hr	TBD	TBD	TBD	TBD	22110-ML-00001	A.A.C. R18-2-721
Secondary Mill	2,364 ton/hr	TBD	TBD	TBD	TBD	22120-ML-00001	A.A.C. R18-2-721
Lead Regrind Mill	101 ton/hr	TBD	TBD	TBD	TBD	22320-ML-00001	A.A.C. R18-2-721
Zinc Regrind Mill	120 ton/hr	TBD	TBD	TBD	TBD	22320-ML-00002	A.A.C. R18-2-721
Screens							
Primary Mill Discharge Screen	854 ton/hr	TBD	TBD	TBD	TBD	22110-SN-00002	NSPS 40 CFR Part 60 Subpart LL
Flotation Trash Screen	712 ton/hr	TBD	TBD	TBD	TBD	22310-SN-00001	NSPS 40 CFR Part 60 Subpart LL
Bins/Silos							
Pebble Crusher Feed Bin	220 ton/hr	TBD	TBD	TBD	TBD	22210-BN-00001	NSPS 40 CFR Part 60 Subpart LL
Mine Shaft Ore Surge Bin	675 ton/hr	TBD	TBD	TBD	TBD	21210-BN-00001	NSPS 40 CFR Part 60 Subpart LL

EQUIPMENT TYPE	MAX. CAPACITY	MAKE*	MODEL*	SERIAL NUMBER*	INSTALLATION/ MFG. DATE*	EQUIPMENT ID NUMBER	A.A.C. / NSPS / NESHAP
Pebble Crusher Product Surge Bin	220 ton/hr	TBD	TBD	TBD	TBD	22210-BN-00002	NSPS 40 CFR Part 60 Subpart LL
Tailings Weigh Bin	615 ton/hr	TBD	TBD	TBD	TBD	22540-BN-00001	A.A.C. R18-2-730
Coarse Ore Silo No. 1	675 ton/hr	TBD	TBD	TBD	TBD	21510-SI-00001	NSPS 40 CFR Part 60 Subpart LL
Coarse Ore Silo No. 2	675 ton/hr	TBD	TBD	TBD	TBD	21510-SI-00002	NSPS 40 CFR Part 60 Subpart LL
Coarse Ore Silo No. 3	675 ton/hr	TBD	TBD	TBD	TBD	21510-SI-00003	NSPS 40 CFR Part 60 Subpart LL
Conveyors							
Coarse Ore Overland Conveyor (2 Transfer Points)	675 ton/hr	TBD	TBD	TBD	TBD	21210-CV-00001	NSPS 40 CFR Part 60 Subpart LL
Coarse Ore Silo No. 1 Feed Conveyor (2 Transfer Points)	675 ton/hr	TBD	TBD	TBD	TBD	21320-CV-00002	NSPS 40 CFR Part 60 Subpart LL
Coarse Ore Silo No. 2 Feed Conveyor (2 Transfer Points)	675 ton/hr	TBD	TBD	TBD	TBD	21320-CV-00003	NSPS 40 CFR Part 60 Subpart LL
Primary Mill Feed Conveyor (5 Transfer Points)	815 ton/hr	TBD	TBD	TBD	TBD	21710-CV-00001	NSPS 40 CFR Part 60 Subpart LL
Primary Screen Discharge Conveyor (2 Transfer Points)	220 ton/hr	TBD	TBD	TBD	TBD	22210-CV-00002	NSPS 40 CFR Part 60 Subpart LL
Pebble Conveyor (2 Transfer Points)	220 ton/hr	TBD	TBD	TBD	TBD	22210-CV-00001	NSPS 40 CFR Part 60 Subpart LL
Tailings Transfer Conveyor No. 1	615 ton/hr	TBD	TBD	TBD	TBD	22540-CV-00001	A.A.C. R18-2-730
Tailings Transfer Conveyor No. 2	615 ton/hr	TBD	TBD	TBD	TBD	22540-CV-00002	A.A.C. R18-2-730

EQUIPMENT TYPE	MAX. CAPACITY	MAKE*	MODEL*	SERIAL NUMBER*	INSTALLATION/ MFG. DATE*	EQUIPMENT ID NUMBER	A.A.C. / NSPS / NESHAP
Tailings Silo Feed Conveyor	615 ton/hr	TBD	TBD	TBD	TBD	22540-CV-00010	A.A.C. R18-2-730
Tailings Paste Plant Feed Conveyor	615 ton/hr	TBD	TBD	TBD	TBD	22540-CV-00003	A.A.C. R18-2-730
Tailings Truck Loading Conveyor	615 ton/hr	TBD	TBD	TBD	TBD	22540-CV-00005	A.A.C. R18-2-730
Feeders/Chutes							
Pebble Crusher Feeder	220 ton/hr	TBD	TBD	TBD	TBD	22210-FE-00001	NSPS 40 CFR Part 60 Subpart LL
Primary Mill Feed Chute	815 ton/hr	TBD	TBD	TBD	TBD	22110-CH-00001	A.A.C. R18-2-721
Pebble Crusher Product Feeder	220 ton/hr	TBD	TBD	TBD	TBD	22210-FE-00002	NSPS 40 CFR Part 60 Subpart LL
Mine Shaft Ore Discharge Feeder	815 ton/hr	TBD	TBD	TBD	TBD	21210-FE-00001	NSPS 40 CFR Part 60 Subpart LL
Coarse Ore Silo Discharge Feeder No. 1	675 ton/hr	TBD	TBD	TBD	TBD	21710-FE-00001	NSPS 40 CFR Part 60 Subpart LL
Coarse Ore Silo Discharge Feeder No. 2	675 ton/hr	TBD	TBD	TBD	TBD	21700-FE-00002	NSPS 40 CFR Part 60 Subpart LL
Coarse Ore Silo Discharge Feeder No. 3	675 ton/hr	TBD	TBD	TBD	TBD	21700-FE-00003	NSPS 40 CFR Part 60 Subpart LL
Concentrate Feeder	70 ton/hr	TBD	TBD	TBD	TBD	22440-FE-00001	NSPS 40 CFR Part 60 Subpart LL
Tailings Silo Reclaim Feeder	615 ton/hr	TBD	TBD	TBD	TBD	22540-FE-00001	A.A.C. R18-2-730
Tailings Filter Discharge Feeder No. 1	155 ton/hr	TBD	TBD	TBD	TBD	22530-CH-00020	A.A.C. R18-2-730
Tailings Filter Discharge Feeder No. 2	155 ton/hr	TBD	TBD	TBD	TBD	22530-CH-00021	A.A.C. R18-2-730
Tailings Filter Discharge Feeder No. 3	155 ton/hr	TBD	TBD	TBD	TBD	22530-CH-00022	A.A.C. R18-2-730

EQUIPMENT TYPE	MAX. CAPACITY	MAKE*	MODEL*	SERIAL NUMBER*	INSTALLATION/ MFG. DATE*	EQUIPMENT ID NUMBER	A.A.C. / NSPS / NESHAP
Tailings Filter Discharge Feeder No. 4	155 ton/hr	TBD	TBD	TBD	TBD	22530-CH-00023	A.A.C. R18-2-730
Product Packaging Station							
Container Transport Cart Loading	70 ton/hr	TBD	TBD	TBD	TBD	22440-CB-00001	NSPS 40 CFR Part 60 Subpart LL
Dust Collectors							
Dust Collector No. 1	3,200 cfm	TBD	TBD	TBD	TBD	DC-1	NSPS 40 CFR Part 60 Subpart LL, A.A.C. R18-2-306.01
Dust Collector No. 2	4,750 cfm	TBD	TBD	TBD	TBD	DC-2	NSPS 40 CFR Part 60 Subpart LL, A.A.C. R18-2-306.01
Dust Collector No. 3	3,300 cfm	TBD	TBD	TBD	TBD	DC-3	NSPS 40 CFR Part 60 Subpart LL, A.A.C. R18-2-306.01
Dust Collector No. 4	3,300 cfm	TBD	TBD	TBD	TBD	DC-4	NSPS 40 CFR Part 60 Subpart LL, A.A.C. R18-2-306.01
Dust Collector No. 5	3,300 cfm	TBD	TBD	TBD	TBD	DC-5	NSPS 40 CFR Part 60 Subpart LL, A.A.C. R18-2-306.01
Dust Collector No. 6	7,500 cfm	TBD	TBD	TBD	TBD	DC-6	NSPS 40 CFR Part 60 Subpart LL, A.A.C. R18-2-306.01

EQUIPMENT TYPE	MAX. CAPACITY	MAKE*	MODEL*	SERIAL NUMBER*	INSTALLATION/ MFG. DATE*	EQUIPMENT ID NUMBER	A.A.C. / NSPS / NESHAP
Dust Collector No. 11	3,300 cfm	TBD	TBD	TBD	TBD	DC-11	NSPS 40 CFR Part 60 Subpart LL, A.A.C. R18-2-306.01
Paste Plant Dust Collectors							
Paste Plant Binder Silo 1	750 cfm	TBD	TBD	TBD	TBD	DC-PPBS1	A.A.C. R18-2-721
Paste Plant Binder Silo 2	750 cfm	TBD	TBD	TBD	TBD	DC-PPBS2	A.A.C. R18-2-721
Paste Plant Binder Silo 3	1,500 cfm	TBD	TBD	TBD	TBD	DC-PPBS3	A.A.C. R18-2-721
Paste Plant Binder Silo 4	1,500 cfm	TBD	TBD	TBD	TBD	DC-PPBS4	A.A.C. R18-2-721
Paste Plant Module 1 Mixer	3,000 cfm	TBD	TBD	TBD	TBD	DC-PPM1M	A.A.C. R18-2-721
Paste Plant Module 2 Mixer	3,000 cfm	TBD	TBD	TBD	TBD	DC-PPM2M	A.A.C. R18-2-721
Storage Tanks							
MIBC/F-549 Storage Tank	7,925 gal	TBD	TBD	TBD	TBD	22620-TN-00001	A.A.C. R18-2-730
Test Reagent Storage Tank	6,604 gal	TBD	TBD	TBD	TBD	22620-TN-00002	A.A.C. R18-2-730
Slovay 5100 Storage Tank	6,604 gal	TBD	TBD	TBD	TBD	22620-TN-00003	A.A.C. R18-2-730
Copper Sulphate Mix Tank	2,642 gal	TBD	TBD	TBD	TBD	22620-TN-00005	A.A.C. R18-2-730
Copper Sulphate Holding Tank	5,283 gal	TBD	TBD	TBD	TBD	22620-TN-00006	A.A.C. R18-2-730
Zinc Sulphate Mix Tank	2,642 gal	TBD	TBD	TBD	TBD	22620-TN-00007	A.A.C. R18-2-730
Zinc Sulphate Holding Tank	5,283 gal	TBD	TBD	TBD	TBD	22620-TN-00008	A.A.C. R18-2-730
Zinc Cyanide Mix Tank	2,642 gal	TBD	TBD	TBD	TBD	22620-TN-00009	A.A.C. R18-2-730

EQUIPMENT TYPE	MAX. CAPACITY	MAKE*	MODEL*	SERIAL NUMBER*	INSTALLATION/ MFG. DATE*	EQUIPMENT ID NUMBER	A.A.C. / NSPS / NESHAP
Zinc Cyanide Holding Tank	3,963 gal	TBD	TBD	TBD	TBD	22620-TN-00010	A.A.C. R18-2-730
SMBS Mix Tank	2,642 gal	TBD	TBD	TBD	TBD	22620-TN-00011	A.A.C. R18-2-730
SMBS Holding Tank	5,283 gal	TBD	TBD	TBD	TBD	22620-TN-00012	A.A.C. R18-2-730
Tailings Flocculant Holding Tank	17,171 gal	TBD	TBD	TBD	TBD	22620-TN-00013	A.A.C. R18-2-730
Lead Flocculant Holding Tank	1,320 gal	TBD	TBD	TBD	TBD	22620-TN-00014	A.A.C. R18-2-730
Zinc Flocculant Holding Tank	1,320 gal	TBD	TBD	TBD	TBD	22620-TN-00015	A.A.C. R18-2-730
3418-A Storage Tank	6,604 gal	TBD	TBD	TBD	TBD	22620-TN-00004	A.A.C. R18-2-730
Shaft ANE Storage Tank	10,293 gal	TBD	TBD	TBD	TBD	TNK-061	A.A.C. R18-2-730
Fuel Tanks							
Unleaded Gasoline (S32) T-01	1,000 gal	TBD	TBD	TBD	TBD	T-01	A.A.C. R18-2-710 (POS, AOS1, and AOS 2) or NESHAP 40 CFR Part 63 Subpart CCCCCC (AOS 1)
Diesel (Red Dyed S32) T-02	5,000 gal	TBD	TBD	TBD	TBD	T-02	A.A.C. R18-2-710
Diesel (Red Dyed S32) T-03	5,000 gal	TBD	TBD	TBD	TBD	T-03	A.A.C. R18-2-710
Diesel (Red Dyed Rummel) T-04	12,000 gal	TBD	TBD	TBD	TBD	T-04	A.A.C. R18-2-710

EQUIPMENT TYPE	MAX. CAPACITY	MAKE*	MODEL*	SERIAL NUMBER*	INSTALLATION/ MFG. DATE*	EQUIPMENT ID NUMBER	A.A.C. / NSPS / NESHAP
Unleaded Gasoline (Rummel) T-05	1,000 gal	TBD	TBD	TBD	TBD	T-05	A.A.C. R18-2-710 (POS, AOS1, and AOS 2) or NESHAP 40 CFR Part 63 Subpart CCCCCC (AOS 1)
Diesel (Rummel) T-06	1,000 gal	TBD	TBD	TBD	TBD	T-06	A.A.C. R18-2-710
Unleaded Gasoline T-07	10,000 gal	TBD	TBD	TBD	TBD	T-07	A.A.C. R18-2-710 (POS, AOS1, and AOS 2) or NESHAP 40 CFR Part 63 Subpart CCCCCC (AOS 1)
Unleaded Gasoline T-08	10,000 gal	TBD	TBD	TBD	TBD	T-08	A.A.C. R18-2-710 (POS, AOS1, and AOS 2) or NESHAP 40 CFR Part 63 Subpart CCCCCC (AOS 1)
Unleaded Gasoline T-09	10,000 gal	TBD	TBD	TBD	TBD	T-09	A.A.C. R18-2-710 (POS, AOS1, and AOS 2) or NESHAP 40 CFR Part 63 Subpart CCCCCC (AOS 1)
Diesel T-10	50,000 gal	TBD	TBD	TBD	TBD	T-10	A.A.C. R18-2-710
Diesel T-11	50,000 gal	TBD	TBD	TBD	TBD	T-11	A.A.C. R18-2-710
Concrete Batch Plant							
Concrete Batch Plant	40,274 tpy	TBD	TBD	TBD	TBD	CBP	A.A.C. R18-2-723
Generators							

EQUIPMENT TYPE	MAX. CAPACITY	MAKE*	MODEL*	SERIAL NUMBER*	INSTALLATION/ MFG. DATE*	EQUIPMENT ID NUMBER	A.A.C. / NSPS / NESHAP
Natural Gas Engine CAT 3520 DSL 2600 kW (58)	2600 KW	Caterpillar	3520 DSL	TBD	TBD	T_ENG	NSPS 40 CFR Part 60 Subpart JJJJ and NESHAP 40 CFR Part 63 Subpart ZZZZ
Natural Gas Engine JGC 624 4481 kW (27)	4481 KW	INNIO Jenbacher	J624	TBD	TBD	T_ENG_ALT	NSPS 40 CFR Part 60 Subpart JJJJ and NESHAP 40 CFR Part 63 Subpart ZZZZ
Diesel CAT XQ1140 (6)	910 KW	Caterpillar	XQ1140	TBD	TBD	HS_1 - HS_6	NSPS 40 CFR Part 60 Subpart IIII and NESHAP 40 CFR Part 63 Subpart ZZZZ
Diesel C200D2RE	198 KW	Cummins	QSB7-G9	TBD	TBD	ENG5	NSPS 40 CFR Part 60 Subpart IIII
Emergency Diesel CAT C175 3000 kW (5)	3000 KW	Caterpillar	C175-16	TBD	TBD	ENG9 - ENG13	NSPS 40 CFR Part 60 Subpart JJJJ and NESHAP 40 CFR Part 63 Subpart ZZZZ
WTP2 Cooling Towers							
WTP2 CT Cell 1	563 gal/min	TBD	TBD	TBD	TBD	WTP2CT1	A.A.C. R18-2-730
WTP2 CT Cell 2	563 gal/min	TBD	TBD	TBD	TBD	WTP2CT2	A.A.C. R18-2-730
WTP2 CT Cell 3	563 gal/min	TBD	TBD	TBD	TBD	WTP2CT3	A.A.C. R18-2-730
WTP2 CT Cell 4	563 gal/min	TBD	TBD	TBD	TBD	WTP2CT4	A.A.C. R18-2-730
WTP2 CT Cell 5	563 gal/min	TBD	TBD	TBD	TBD	WTP2CT5	A.A.C. R18-2-730
WTP2 CT Cell 6	563 gal/min	TBD	TBD	TBD	TBD	WTP2CT6	A.A.C. R18-2-730

EQUIPMENT TYPE	MAX. CAPACITY	MAKE*	MODEL*	SERIAL NUMBER*	INSTALLATION/ MFG. DATE*	EQUIPMENT ID NUMBER	A.A.C. / NSPS / NESHAP
WTP2 CT Cell 7	563 gal/min	TBD	TBD	TBD	TBD	WTP2CT7	A.A.C. R18-2-730
WTP2 CT Cell 8	563 gal/min	TBD	TBD	TBD	TBD	WTP2CT8	A.A.C. R18-2-730
Surface Refrigeration Plant							
Cooling Tower Cell 1	1,882 gal/min	TBD	TBD	TBD	TBD	Cooling Tower Cell 1	A.A.C. R18-2-730
Cooling Tower Cell 2	1,882 gal/min	TBD	TBD	TBD	TBD	Cooling Tower Cell 2	A.A.C. R18-2-730
Cooling Tower Cell 3	1,882 gal/min	TBD	TBD	TBD	TBD	Cooling Tower Cell 3	A.A.C. R18-2-730
Cooling Tower Cell 4	1,882 gal/min	TBD	TBD	TBD	TBD	Cooling Tower Cell 4	A.A.C. R18-2-730
UG Refrigeration CT Cell 1	2,774 gal/min	TBD	TBD	TBD	TBD	UG Refrigeration CT Cell 1	A.A.C. R18-2-730
UG Refrigeration CT Cell 2	2,774 gal/min	TBD	TBD	TBD	TBD	UG Refrigeration CT Cell 2	A.A.C. R18-2-730
UG Refrigeration CT Cell 3	2,774 gal/min	TBD	TBD	TBD	TBD	UG Refrigeration CT Cell 3	A.A.C. R18-2-730
UG Refrigeration CT Cell 4	2,774 gal/min	TBD	TBD	TBD	TBD	UG Refrigeration CT Cell 4	A.A.C. R18-2-730
Gasoline Dispensing Facilities							
Aboveground Gasoline Dispensing Facility	150,000 gal/yr	TBD	TBD	TBD	TBD	AGGDF	A.A.C. R18-2-710 (POS, AOS 1, and AOS 2) or NESHAP 40 CFR Part 63 Subpart CCCCCC (AOS 1)

EQUIPMENT TYPE	MAX. CAPACITY	MAKE*	MODEL*	SERIAL NUMBER*	INSTALLATION/ MFG. DATE*	EQUIPMENT ID NUMBER	A.A.C. / NSPS / NESHAP
Evaporators							
Mechanical Evaporator 1	66 gal/min	TBD	TBD	TBD	TBD	MEVAP1	A.A.C. R18-2-730
Mechanical Evaporator 2	66 gal/min	TBD	TBD	TBD	TBD	MEVAP2	A.A.C. R18-2-730
Mechanical Evaporator 3	66 gal/min	TBD	TBD	TBD	TBD	MEVAP3	A.A.C. R18-2-730
Process Tanks							
Lead Rougher	3300 ton/hr	TBD	TBD	TBD	TBD	22310-FC-00001	A.A.C. R18-2-721
Lead Rougher Scavenger	3300 ton/hr	TBD	TBD	TBD	TBD	22310-FC-00004	A.A.C. R18-2-721
Lead Cleaner Scalper	305 ton/hr	TBD	TBD	TBD	TBD	22310-FC-00008	A.A.C. R18-2-721
Lead Cleaner	285 ton/hr	TBD	TBD	TBD	TBD	22310-FC-00007	A.A.C. R18-2-721
Lead Cleaner Scavenger	270 ton/hr	TBD	TBD	TBD	TBD	22310-FC-00009	A.A.C. R18-2-721
Zinc Rougher	3300 ton/hr	TBD	TBD	TBD	TBD	22310-FC-00005	A.A.C. R18-2-721
Zinc Rougher Scavenger	3300 ton/hr	TBD	TBD	TBD	TBD	22310-FC-00006	A.A.C. R18-2-721
Zinc Cleaner Scalper	1600 ton/hr	TBD	TBD	TBD	TBD	22310-FC-00011	A.A.C. R18-2-721
Zinc Cleaner	1650 ton/hr	TBD	TBD	TBD	TBD	22310-FC-00010	A.A.C. R18-2-721
Zinc Cleaner Scavenger	1700 ton/hr	TBD	TBD	TBD	TBD	22310-FC-00012	A.A.C. R18-2-721
Zinc Conditioning Tank No. 1	3300 ton/hr	TBD	TBD	TBD	TBD	22300-TNK-002	A.A.C. R18-2-721
Zinc Conditioning Tank No. 2	3300 ton/hr	TBD	TBD	TBD	TBD	22300-TNK-003	A.A.C. R18-2-721

EQUIPMENT TYPE	MAX. CAPACITY	MAKE*	MODEL*	SERIAL NUMBER*	INSTALLATION/ MFG. DATE*	EQUIPMENT ID NUMBER	A.A.C. / NSPS / NESHAP
Feed Stabilization Tank	3300 ton/hr	TBD	TBD	TBD	TBD	22300-TNK-008	A.A.C. R18-2-721
Lead Concentrate De-Aeration Tank	200 ton/hr	TBD	TBD	TBD	TBD	22420-TNK-004	A.A.C. R18-2-721
Lead Concentrate Thickener Overflow Tank	150 ton/hr	TBD	TBD	TBD	TBD	22420-TNK-005	A.A.C. R18-2-721
Lead Concentrate Tank	75 ton/hr	TBD	TBD	TBD	TBD	22430-TNK-011	A.A.C. R18-2-721
Zinc Concentrate De-Aeration Tank	225 ton/hr	TBD	TBD	TBD	TBD	22420-TNK-006	A.A.C. R18-2-721
Zinc Concentrate Thickener Overflow Tank	150 ton/hr	TBD	TBD	TBD	TBD	22420-TNK-007	A.A.C. R18-2-721
Zinc Concentrate Tank	100 ton/hr	TBD	TBD	TBD	TBD	22430-TNK-014	A.A.C. R18-2-721
Cyanide Destruction Tank No. 1	2300 ton/hr	TBD	TBD	TBD	TBD	22510-TNK-021	A.A.C. R18-2-721
Cyanide Destruction Tank No. 2	2300 ton/hr	TBD	TBD	TBD	TBD	22510-TNK-022	A.A.C. R18-2-721
Tailings Stock Tank	1000 ton/hr	TBD	TBD	TBD	TBD	22530-TNK-024	A.A.C. R18-2-721
Tailings Filtrate Collection Tank	150 ton/hr	TBD	TBD	TBD	TBD	22530-TNK-025	A.A.C. R18-2-721
Scrubber							
Caustic Scrubber	N/A	TBD	TBD	TBD	TBD	22600-FAN-051	A.A.C. R18-2-730
Clark Site							
Crushers							
Primary Crusher	121 ton/hr	Sandvik	QJ241	TBD	TBD	22310-CRU-0001	NSPS 40 CFR Part 60 Subpart LL
Feeders/Chutes							

EQUIPMENT TYPE	MAX. CAPACITY	MAKE*	MODEL*	SERIAL NUMBER*	INSTALLATION/ MFG. DATE*	EQUIPMENT ID NUMBER	A.A.C. / NSPS / NESHAP
Primary Crusher Discharge Feed Chute	121 ton/hr	TBD	TBD	TBD	TBD	23100-CHU-0001	NSPS 40 CFR Part 60 Subpart LL
Primary Crusher Discharge Head Chute	121 ton/hr	TBD	TBD	TBD	TBD	23100-CHU-0002	NSPS 40 CFR Part 60 Subpart LL
Primary Crusher Chute	121 ton/hr	TBD	TBD	TBD	TBD	23100-CHU-0003	NSPS 40 CFR Part 60 Subpart LL
Coarse Ore Conveyor Head Chute	121 ton/hr	TBD	TBD	TBD	TBD	23100-CHU-0004	NSPS 40 CFR Part 60 Subpart LL
Coarse Ore Discharge Feeder	121 ton/hr	TBD	TBD	TBD	TBD	23100-FDR-0003	NSPS 40 CFR Part 60 Subpart LL
Discharge Feeder Chute	121 ton/hr	TBD	TBD	TBD	TBD	23100-CHU-0005	NSPS 40 CFR Part 60 Subpart LL
Dust Collectors							
Dust Collector No. 7	3,200 cfm	TBD	TBD	TBD	TBD	DC-7	NSPS 40 CFR Part 60 Subpart LL, A.A.C. R18-2-306.01
Dust Collector No. 8	3,200 cfm	TBD	TBD	TBD	TBD	DC-8	NSPS 40 CFR Part 60 Subpart LL, A.A.C. R18-2-306.01
Dust Collector No. 10	3,200 cfm	TBD	TBD	TBD	TBD	DC-10	NSPS 40 CFR Part 60 Subpart LL, A.A.C. R18-2-306.01
Bins/Silos							
Coarse Ore Silo	121 ton/hr	TBD	TBD	TBD	TBD	23100-SLO-0003	NSPS 40 CFR Part 60 Subpart LL
Screens							
Primary Crusher Grizzly Screen	121 ton/hr	TBD	TBD	TBD	TBD	23100-SCN-0001	NSPS 40 CFR Part 60 Subpart LL

EQUIPMENT TYPE	MAX. CAPACITY	MAKE*	MODEL*	SERIAL NUMBER*	INSTALLATION/ MFG. DATE*	EQUIPMENT ID NUMBER	A.A.C. / NSPS / NESHAP
Conveyors							
Primary Crusher Discharge Conveyor (1 Transfer Point)	121 ton/hr	TBD	TBD	TBD	TBD	23100-CVR-0001	NSPS 40 CFR Part 60 Subpart LL
Coarse Ore Conveyor (1 Transfer Point)	121 ton/hr	TBD	TBD	TBD	TBD	23100-CVR-0002	NSPS 40 CFR Part 60 Subpart LL
Truck Unloading Station							
ROM Truck Unloading	121 ton/hr	TBD	TBD	TBD	TBD	TUD-1	NSPS 40 CFR Part 60 Subpart LL
Paste Plant							
Paste Plant Binder Silo 1	750 cfm	TBD	TBD	TBD	TBD	DC-CPPBS1	A.A.C. R18-2-721
Paste Plant Binder Silo 2	750 cfm	TBD	TBD	TBD	TBD	DC-CPPBS2	A.A.C. R18-2-721
Paste Plant Binder Silo 3	1,500 cfm	TBD	TBD	TBD	TBD	DC-CPPBS3	A.A.C. R18-2-721
Paste Plant Binder Silo 4	1,500 cfm	TBD	TBD	TBD	TBD	DC-CPPBS4	A.A.C. R18-2-721
Paste Plant Module 1 Mixer	3,000 cfm	TBD	TBD	TBD	TBD	DC-CPPM1M	A.A.C. R18-2-721
Paste Plant Module 2 Mixer	3,000 cfm	TBD	TBD	TBD	TBD	DC-CPPM2M	A.A.C. R18-2-721
Concrete Batch Plant							
Concrete Batch Plant	1,984 tpy	TBD	TBD	TBD	TBD	CBP - C	A.A.C. R18-2-723
Gasoline Dispensing Facilities							
Aboveground Gasoline Dispensing Facility	73,500 gal/yr	TBD	TBD	TBD	TBD	AGGDF-C	A.A.C. R18-2-710 (POS, AOS1, and AOS 2) or NESHAP NSPS 40 CFR Part 63 Subpart CCCCCC (AOS 1)
Dust Collectors - Miscellaneous							

EQUIPMENT TYPE	MAX. CAPACITY	MAKE*	MODEL*	SERIAL NUMBER*	INSTALLATION/ MFG. DATE*	EQUIPMENT ID NUMBER	A.A.C. / NSPS / NESHAP
Waste Water Treatment Plant #1 Lime Silo	1,001 cfm	TBD	TBD	TBD	TBD	WTP1LS	A.A.C. R18-2-730

*TBD – To Be Determined.

ATTACHMENT "D": DUST CONTROL PLAN

DUST CONTROL PLAN
Hermosa Project

TRINITY CONSULTANTS
702 East Osborn Rd., Suite 160
Phoenix, AZ 85014
(602) 274-2900

SOUTH32 Hermosa, Inc.
1860 E. River Road
Suite 200
Tucson, AZ 85718
Phone: (520) 485-1300

December 2023

Project 230301.0033

Trinity Consultants

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1. INTRODUCTION

South32 is a mineral exploration and development company focused on the exploration and potential development of the Hermosa Project near Patagonia, Arizona. The Hermosa Project is located in Santa Cruz County. This Dust Control Plan (DCP) identifies the control measures and operational practices employed by South32 to minimize and control fugitive dust emissions created by haul road travel and mining operations consistent with the Hermosa Project's air permit application.

2. FUGITIVE DUST EMISSIONS SOURCES

The following section provides a brief description of the fugitive dust generating activities at the Hermosa Project. Control methods to mitigate dust emissions are discussed in Section 3.

2.1 Underground Mining, Drilling, Blasting, Loading, and Unloading

Mining operations begin with drilling and blasting of ore underground. Blast holes are drilled to an appropriate depth using mobile drills. The blast holes are filled with an emulsion blasting agent and the blast area is evacuated. Following a blast, the area is sprayed with water to suppress dust. The ore is then transferred to the underground crusher for Taylor and aboveground crusher for Clark. The ore is sprayed with water as it enters the crusher bin, the crusher, the conveyor belt to the underground bins and at the top of each bin. Emissions from these activities include PM, PM_{10}, and $PM_{2.5}$. Particulate emissions are produced during the loading and unloading activities.

2.2 Primary Crushing System

Extracted material from both deposits may undergo primary crushing, though the crushing process differs for the two portions of the deposit. The distinct processes for Taylor and Clark are described below.

2.2.1 Taylor

If crushing is necessary, ore is fed directly into the crusher through an underground ore pass. A dust suppression system mitigates the dust from the crushing of the run-of-mine (ROM) ore and the conveying of the run. Primary emissions from the circuit include PM, PM_{10}, and $PM_{2.5}$.

2.2.2 Clark

The ROM ore is processed through the primary crushing system which includes a rock breaker, a feeder, and the primary crusher. Emissions from the primary crusher dump pocket will be controlled by water spray. Emissions from each of the two drop points along the conveyor will be controlled by a collection fan and a baghouse. Primary emissions from crushing and conveying include PM, PM_{10}, and $PM_{2.5}$.

2.3 Milling and Screening

The crushed ore in the coarse ore silos is conveyed to the milling and screening circuit. Only the Taylor deposit has onsite milling and screening activities; Clark material is hauled offsite.

2.3.1 Taylor

Crushed ore will be transported from the coarse ore silos to the milling circuit using a series of feed conveyors. Emissions from the conveyor drop points will be controlled by either the coarse ore dust collection system or a partial enclosure with watering. Water from the process water tank will combine with the crushed ore coming into the milling circuit resulting in a saturated grinding process which produces negligible, if any, emissions.

2.4 Tailings Filtration

There will be a tailings filtration facility for Taylor. The Taylor facility will process tailings from the zinc rougher and cleaner units. Tailings will be dewatered by a thickener first and then tailings filters. The majority of the filter cake will be temporarily stored in silos to be loaded into trucks and hauled to a lined, dry-stack tailings storage facility. Negligible emissions are anticipated as the tailings will be moist when transferred to the trucks and the tailings storage facility. The rest will be transported to the tailings paste plant. Flocculants will be mixed in the flocculant skid, outside of the filter building next to the tailings thickener.

2.5 Auxiliary Operations

2.5.1 Tailings Paste Plant

South32 is proposing to construct two separate tailings paste plants, one each for providing paste to Taylor and Clark. Through the use of recycled tailings and cement, the paste is able to serve as a fortification to stabilize mine conditions, making the underground environment safer and reducing the risk of subsidence. After the tailings have been mixed properly with binder, they will be pumped to the underground mine. South32 is proposing to include dust collectors at both plants to collect PM, PM_{10}, and $PM_{2.5}$ emissions.

2.5.2 Tailings Storage Facility (TSF)

South32 is proposing to establish two TSFs where tailings from the mining process will be permanently stored. The tailings will be filtered at the tailing filtration plant before they are sent to the tailings facility. The external faces of the TSF will be covered with rock armoring to protect against erosion and minimize dust emissions. Dozers/roto-compactors will operate to spread, and compact material. This activity will be sprayed with water to suppress dust.

2.5.3 Rock and Intermediate Piles

Rock from both deposits will be transported from the mine to piles. Additionally, for Clark, ore will also be stored in intermediate stockpiles. Dust emissions will occur due to wind erosion from these piles. Dozers/roto-compactors will operate to spread, and compact material at the Rock Piles. This will produce emissions of dust as well and will be watered as necessary if dust emissions are visible.

2.5.4 Traffic on Unpaved Roads

Truck traffic associated with the proposed operations will generate PM, PM_{10}, and $PM_{2.5}$ emissions. The unpaved road fugitive emissions will be mitigated by control measures such as watering.

2.5.5 Concrete Batch Plant

There will be two separate concrete batch plants (CBP), one for Taylor and one for Clark. The concrete batch plants will provide cement to be used as a binder, that when mixed with tailings, is used for stabilizing mine conditions to make the underground environment safer and to reduce the risk of subsidence. Particulate matter (PM, PM_{10}, $PM_{2.5}$) is emitted from various material transfer points within the process. Each CBP will have stockpiles and associated emissions from wind erosion of these piles.

2.6 Exploration Activities

The Hermosa Project is authorized to conduct temporary exploration activities, including exploration drilling, temporary road construction/abandonment/restoration, road use during drilling, and limited road use for well or bore maintenance, where (1) such activities implement reasonable precautions as listed under Section 5 of this Plan; and (2) any roads that will be converted to permanent use, do not exceed the total road length specified in the permit application and are added as an administrative amendment to this DCP.

3. CONTROL OF FUGITIVE DUST FROM HAUL ROADS

Optimal dust control measures depend upon the characteristics of the road network and its use, and upon meteorological considerations. Additionally, dust control measures are continuously evolving with new products becoming available on a regular basis. In order to provide flexibility to change dust control measures while achieving the desired control efficiency, this document proposes three programs, each designed to achieve a 90% control of PM_{10} emissions. The South32 dust control plan includes the flexibility to alternate from one dust control program to another or to use a separate dust control program for an individual roadway system. The South32 Air Management Plan ensures that at least permit required control of PM_{10} emissions is achieved on the unpaved road network.

South32 will utilize water trucks to control dust emission from the aboveground haul roads. The water trucks enable water to be delivered to remote areas of the mine efficiently. Haul roads will be watered actively throughout the shift as necessary while not overwatering the roads and creating mud or hazardous conditions. South32 will utilize a system of water sprinklers to control dust emission for the underground road network. The sprinklers may be activated by the control room operator at any time and in any location and would reduce the need for excessive water truck traffic.

3.1 Dust Control Program A

Dust Control Program A consists of the application of sufficient chemical dust suppressant to achieve a ground inventory of 0.25 gallons/yard^2 with an application frequency of once per month or equivalent based on the utilized chemical dust suppressants. Chosen chemical dust suppressants may be products such as those listed in Attachments A. The term "ground inventory" represents the residual accumulation of a dust suppressant from previous applications. Dust suppressants which could be used for this purpose include: lignosulfonates, petroleum resins, asphalt emulsions, and acrylic cement.

Chemical dust suppressants require periodic reapplication in order to replenish the suppressants that are removed from the road due to the abrasion of the vehicles on the treated road surface and gradual decomposition of the chemical dust suppressant. Chemical dust suppressant will be reapplied once per month, or more frequently if necessary to ensure roadway is free from large areas where the dust suppressant has worn away. Each successive application will correspond to:

- The amount necessary to completely replenish the initial ground inventory every six months, or
- The manufacturer recommendation if available.

3.2 Dust Control Program B

Dust Control Program B consists of periodic watering in sufficient amounts to achieve 90% control efficiency for PM_{10}. Tables 1 and 2 indicate the average hourly watering requirements for each roadway system category during daylight and nighttime hours, respectively at Taylor. Tables 3 and 4 indicate the average hourly watering requirements for each roadway system category during daylight and nighttime hours, respectively at Clark. The two different scenarios of watering requirements at Taylor and Clark are based on the different traffic volumes at each location. If the traffic volume changes substantively, the tables will be revised to reflect appropriate watering requirements.

The frequency of reapplication of water to maintain efficiency will depend upon the operational practices of South32. The frequency can be hourly, less frequent, or more frequent, depending upon the traffic density, meteorological conditions, and operational considerations. The application intensities for water should be treated as annual averages as some days will require a greater water application than others due to seasonal and climatic condition

changes. Similarly, the same control efficiency can be achieved whether the water is applied at a higher intensity during one pass per hour, or at lower intensities from multiple passes per hour. Additionally, watering will not be required on roads that are moist from the application of previous control water, natural precipitation in the preceding 24-hours, or when roads are moist due to recent rain (i.e., no visible emissions).

3.3 Dust Control Program C

Dust Control Program C consists of the application of a sufficient chemical dust suppressant as well as water application. The chemical dust suppressant is meant to achieve a ground inventory of 0.05 gallons/yd^2 with a 1-month reapplication frequency (the ground inventory of 0.05 gallons/$yard^2$ provides a base control efficiency of 62%.) plus periodic watering to increase the base control efficiency achieved by chemical dust suppressants alone to 90%. A summary of the hourly average watering requirements of Dust Control Program C is presented in Table 5, 6, 7 and 8. If any type of water adhesion enhancing material, such as a surfactant, is used with Dust Control Program C, application intensities will be re-evaluated.

4. CONTROL OF FUGITIVE DUST FROM OTHER SOURCES

4.1 Open Areas

Tailings and berm construction techniques and water level management will help minimize exposed open areas (recognizing certain criteria exists to maintain tailings stability). During construction and, to the extent possible during operations, berms will be graded to gentle slopes to reduce wind resistance. Chemical dust suppressants will be applied as necessary after slopes are graded and reapplied as needed to maintain a visible crust.

Unpaved laydown yards and parking areas are subject to generating fugitive emissions. Emissions will be controlled by the application of water and/or chemical dust suppressants. Periodic inspections of unpaved laydown yards and parking areas will be performed to evaluate the condition of the visible crust and, if necessary, additional water and/or chemical dust suppressant will be applied. In general, dust will be kept to a minimum by good modern practices such as using dust suppressants, continuous wetting, detouring, barring access, or other acceptable means.

4.2 Storage Piles

Storage piles which are subject to generating fugitive emissions include ore piles, un-reclaimed overburden and waste rock piles. Storage piles which are in active use and subject to generating fugitive emissions will be controlled by the application of water as needed. Stockpiles which are not actively used are generally characterized by a low silt content and consequently fugitive dust control measures are often unnecessary.

If visible emissions are observed, then the emissions will be controlled by the application of sufficient chemical dust suppressant and/or water. Periodic inspections of storage piles will be performed and, if fugitive dust emissions are noted, additional chemical dust suppressant and/or water will be applied. Other control measures that may be applied to inactive storage piles include landscaping, closure, and reclamation. Access to such areas can also be minimized by the construction of berms or other barriers to prevent re-disturbance of the areas.

4.3 Material Handling

Loading haul trucks, and operation of ground-engaging equipment such as motor graders, backhoes and dozers has the potential to generate fugitive emissions and shall be controlled. Operating practices that limit fugitive dust emissions from these material handling sources include selectively performing these jobs when winds are low or equipment is protected from wind, operating equipment at a rate commensurate with limiting the release of dust, etc. Control measures for fugitive dust emissions include pre-watering and spraying water on materials while being handled.

The primary fugitive dust control measure for material handling is the natural moisture content of materials which will be supplemented with water spray bars where practicable. Drop distances at transfer points from conveyor belts to other conveyor belts, storage piles, and processing equipment will be minimized where possible. Pre-watering or pre-treating materials with chemical dust suppressant prior to transfer and/or applying them during material transfer will also be used if fugitive dust emissions are noted.

5. OPERATING PRACTICES, RECORDKEEPING AND TRAINING

5.1 Operating and Best Management Practices

South32 will employ the following operating and best management practices to control fugitive dust emissions.

- Key South32 employees will review National Weather Service (NWS) forecasts at a minimum daily and provide site-wide notice to personnel if wind gusts greater than 25 mph are anticipated so that activities such as material handling can be paused or modified during high wind events, as practicable. Key South32 employees will also be notified of high wind gusts by the onsite monitoring system.

- Key South32 employees will maintain EPA Method 9 certification to read the opacity and perform weekly and as needed visible emissions observations of dust to ensure compliance with permit requirements. However, an uncertified observer can still signal to trigger assessment and implementation of operational practices and control measures if visible emissions are observed.

- South32 will assign appropriate personnel and/or contractors the responsibility to control fugitive emissions in their operating areas through application of applicable operating practices and control measures.

- South32 will maintain adequate chemical dust suppressant and/or watering capacity, including backup quantities in the event of breakdown, to control fugitive dust. South32 will also evaluate new technologies or methods in dust suppression for their technical and economic feasibility as they become commercially available.

If dust generating activities are observed, the following action will be taken:

- Ensure that all applicable operational practices and control measures described is this DCP are implemented to the maximum extent possible, and

- If visible fugitive dust cannot be prevented or controlled by better application, operation, or maintenance of these practices and measures, cease the dust-generating activity or activities and continue efforts to stabilize fugitive dust sources.

5.2 Recordkeeping

The following records will be maintained at South32:

- Visible emission records and Method 9 Reports.
- Daily weather records.
- Purchasing records for chemical dust suppressant.
- Street sweeping frequency.
- Daily water truck records.
- Employee training records.
- Monthly watering records and chemical application records.
- Manufacturers specifications for chemical dust suppressants.

5.3 Training

An integral part of the implementation of the DCP is appropriate training for the personnel involved. Training will be provided for all levels of personnel at the facility and will cover a subset of the following subjects as needed for their operating areas:

- Employee responsibilities
- Forms and recordkeeping
- Reporting
- Corrective actions
- Maintenance
- Work orders
- Dust observation and visibility training
- Weather observations
- Location of information

South32 will provide training in the areas listed above to new employees as their job function demands. Refresher training will be provided to existing employees as needed.

APPENDIX A. CONTROL EFFICIENCY

Dust Control Program A

The control efficiency of a chemical dust suppressant is dependent upon the ground inventory of the dust suppressant and the frequency between applications. A model developed by EPA and published in Fugitive Dust Background Document and Technical Information Document for Best Available Control Measures, provides the relationship between these parameters and PM_{10} control performance for dust suppressants in general. A graph representing this model is presented in Figure 1.

The sufficiency of Dust Control Program A to achieve a control efficiency of 90% for PM_{10} is verified by considering this figure. Using a chemical dust suppressant, a ground inventory of 0.25 gallons/yd^2 with a monthly reapplication frequency will provide a control efficiency for PM_{10} of 90%. It should be noted that the model for PM_{10} control efficiency of petroleum-based dust suppressants published in the AP-42, Section 13.2.2 (11/06), agrees with the EPA model used to determine the sufficiency of Dust Control Program A. The control efficiencies in the above-mentioned models are averages and not maximums. Therefore, it can be assumed that using a chemical dust suppressant with a ground inventory of 0.25 gallons/yd^2 could result in control efficiencies higher than 90%.

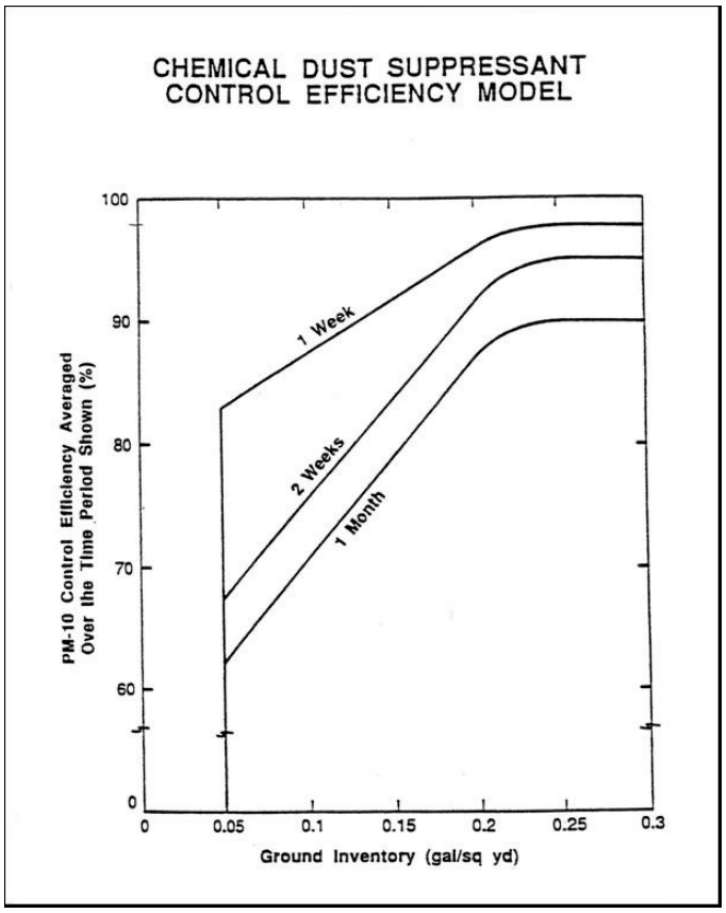


Figure 1. Model for Control Efficiency of PM_{10} when Using Chemical Dust Suppressants Dust Control Program B

The water application intensity during daylight and nighttime hours required to achieve a 90% control efficiency for each roadway system category is calculated using an empirical model developed by EPA (Control of Open Fugitive Sources, EPA-U50/3-88-008, September, 1988). The following equations were derived from this model:

$$i = \frac{0.8 \times p \times d \times t}{(100 - W_c)} \qquad \text{Equation 1}$$

$$p = 0.0049 \times PER \qquad \text{Equation 2}$$

Where:

i = application intensity (liters/m^2·hr);

d = average hourly daytime traffic (vehicles/hr; see Table below);

t = time between applications (hours, 1 for hourly applications);

W_c = average particulate control efficiency (%, 90 in this case);

PER = mean annual pan evaporation rate (inches/year, 57.30 for S32 onsite MET tower evaporation pan rate).

p = calculated potential average hourly daytime evaporation rate (mm/hr, 0.0049 * 57.30 = 0.28 mm/hr).

As shown by Equation 1, the application intensity is dependent upon the pan evaporation rate. Because the pan evaporation rate differs between daytime and nighttime conditions, as well as meteorological conditions, application intensities will also vary with daylight hours and nighttime hours and with meteorological conditions. Nighttime hour application intensities are calculated assuming the average hourly nighttime pan evaporation rate is equal to 50% of the average hourly daytime pan evaporation rate.

The application intensity required to achieve a 90% control efficiency is calculated using Equation 1. However, the application intensities are for illustration purposes due to the varying conditions of evaporation rates and traffic volumes. A summary of the input variables and resulting application intensities during daylight hours and nighttime hours derived from the above equation are presented in the Tables below, respectively.

The application intensities in Tables 1 and 2 are based upon an hourly frequency of application at Taylor and Tables 3 and 4 are based on the application frequency at Clark. The calculations for Program B have been based on the traffic volumes generated for Plan I of the Hermosa Project. Similar calculations will be done to determine the necessary water application for Plan II. South32 may reduce the frequency of application by increasing the application intensity. A frequency of once every two hours, for example, would require that the application intensities in Tables 1 and 2 to be increased by a factor of 2.

Table 1. Summary of Data Used to Verify Dust Control Strategy B During Daylight Hours at Taylor

Roadway Segment	Variables				Average Hourly Water Application Intensity (i) [1]	Proposed Peak Water Application Rate per Hour
	W_c (%)	p (mm/h)	d (vehicle/hr)	t (hrs)	Gal/yd^2·hr	Gal/hr
AR	90	0.28	69.00	1.00	0.34	225
RB	90	0.28	37.00	1.00	0.18	1646
BQ	90	0.28	11.00	1.00	0.05	92
BM	90	0.28	26.00	1.00	0.13	321
MT	90	0.28	7.00	1.00	0.03	77
GB	90	0.28	19.00	1.00	0.09	1115
DB	90	0.28	48.00	1.00	0.24	766
DE	90	0.28	18.00	1.00	0.09	180
RD	90	0.28	46.00	1.00	0.23	611
RH	90	0.28	33.00	1.00	0.16	419
HC	90	0.28	10.00	1.00	0.05	17
FH	90	0.28	12.00	1.00	0.06	103
HI	90	0.28	21.00	1.00	0.10	186
JI	90	0.28	7.00	1.00	0.03	40
IL	90	0.28	13.00	1.00	0.06	239
IK	90	0.28	7.00	1.00	0.03	170
PR	90	0.28	16.00	1.00	0.08	527
OP	90	0.28	10.00	1.00	0.05	63
LP	90	0.28	9.00	1.00	0.04	307
LA	90	0.28	7.00	1.00	0.03	97
LB	90	0.28	3.00	1.00	0.01	20
LC	90	0.28	5.00	1.00	0.02	130
ST	90	0.28	30.00	1.00	0.15	550
TU	90	0.28	5.00	1.00	0.02	17
BP	90	0.28	31.00	1.00	0.15	642
TP	90	0.28	31.00	1.00	0.15	598
TV	90	0.28	3.00	1.00	0.01	110
DP	90	0.28	3.00	1.00	0.01	80

Table 2. Summary of Data Used to Verify Dust Control Strategy B During Nighttime Hours at Taylor

Roadway Segment	Variables				Average Hourly Water Application Intensity (i) [1]	Proposed Peak Water Application Rate per Hour
	W_c (%)	p (mm/h)	d (vehicle/hr)	t (hrs)	Gal/yd^2·hr	Gal/hr
AR	90	0.14	69.00	1.00	0.17	112
RB	90	0.14	37.00	1.00	0.09	823
BQ	90	0.14	11.00	1.00	0.03	46
BM	90	0.14	26.00	1.00	0.06	160
MT	90	0.14	7.00	1.00	0.02	39
GB	90	0.14	19.00	1.00	0.05	557
DB	90	0.14	48.00	1.00	0.12	383
DE	90	0.14	18.00	1.00	0.04	90
RD	90	0.14	46.00	1.00	0.11	305
RH	90	0.14	33.00	1.00	0.08	209
HC	90	0.14	10.00	1.00	0.02	9
FH	90	0.14	12.00	1.00	0.03	52
HI	90	0.14	21.00	1.00	0.05	93
JI	90	0.14	7.00	1.00	0.02	20
IL	90	0.14	13.00	1.00	0.03	120
IK	90	0.14	7.00	1.00	0.017	85
PR	90	0.14	16.00	1.00	0.04	264
OP	90	0.14	10.00	1.00	0.025	31
LP	90	0.14	9.00	1.00	0.022	154
LA	90	0.14	7.00	1.00	0.017	48
LB	90	0.14	3.00	1.00	0.007	10
LC	90	0.14	5.00	1.00	0.012	65
ST	90	0.14	30.00	1.00	0.074	275
TU	90	0.14	5.00	1.00	0.012	8
BP	90	0.14	31.00	1.00	0.077	321
TP	90	0.14	31.00	1.00	0.077	299
TV	90	0.14	3.00	1.00	0.007	55
DP	90	0.14	3.00	1.00	0.007	40

Table 3. Summary of Data Used to Verify Dust Control Strategy B During Daylight Hours at Clark

Roadway Segment	Variables				Average Hourly Water Application Intensity (i) [1]	Proposed Peak Water Application Rate per Hour
	W_c (%)	p (mm/h)	d (vehicle/hr)	t (hrs)	Gal/yd^2·hr	Gal/hr
RS	90	0.28	44.00	1.00	0.22	389
SV	90	0.28	27.00	1.00	0.13	629
VC	90	0.28	7.00	1.00	0.03	9
VB	90	0.28	25.00	1.00	0.12	396
VD	90	0.28	24.00	1.00	0.12	704
VW	90	0.28	26.00	1.00	0.13	230
VX	90	0.28	9.00	1.00	0.04	424
WY	90	0.28	22.00	1.00	0.11	126
WX	90	0.28	12.00	1.00	0.06	34
XB	90	0.28	9.00	1.00	0.04	169
BC	90	0.28	5.00	1.00	0.02	6
BZ	90	0.28	7.00	1.00	0.03	127
ZA	90	0.28	6.00	1.00	0.03	7
ZY	90	0.28	4.00	1.00	0.02	70
VA	90	0.28	5.00	1.00	0.02	23
XA	90	0.28	5.00	1.00	0.02	70
YA	90	0.28	5.00	1.00	0.02	72

Table 4. Summary of Data Used to Verify Dust Control Strategy B During Nighttime Hours at Clark

Roadway Segment	Variables				Average Hourly Water Application Intensity (i) [1]	Proposed Peak Water Application Rate per Hour
	W_c (%)	p (mm/h)	d (vehicle/hr)	t (hrs)	Gal/yd^2·hr	Gal/hr
RS	90	0.14	44.00	1.00	0.11	195
SV	90	0.14	27.00	1.00	0.07	314
VC	90	0.14	7.00	1.00	0.02	4
VB	90	0.14	25.00	1.00	0.06	198
VD	90	0.14	24.00	1.00	0.06	352
VW	90	0.14	26.00	1.00	0.06	115
VX	90	0.14	9.00	1.00	0.02	212
WY	90	0.14	22.00	1.00	0.05	63
WX	90	0.14	12.00	1.00	0.03	17
XB	90	0.14	9.00	1.00	0.02	84
BC	90	0.14	5.00	1.00	0.01	3
BZ	90	0.14	7.00	1.00	0.02	64
ZA	90	0.14	6.00	1.00	0.01	3
ZY	90	0.14	4.00	1.00	0.01	35
VA	90	0.14	5.00	1.00	0.01	12
XA	90	0.14	5.00	1.00	0.01	35
YA	90	0.14	5.00	1.00	0.01	36

[1.] The model predicts a 90% control efficiency regardless of whether the water application intensity is met with a single hourly application, multiple applications during the 1-hour period, or greater application intensities for less frequent applications.

Dust Control Program C

The sufficiency of Dust Control Program C to achieve a control efficiency of 90% for fugitive dust emissions is verified by considering Figure 1. Using a chemical dust suppressant, a ground inventory of 0.05 gallons/yard^2 with a 1-month reapplication frequency provides a control efficiency of 62% for PM10. The additional 28% control necessary to increase the control efficiency to 90% will be attained through periodic watering. The control efficiency of the watering program, W_c, necessary to increase the chemical dust suppressant control efficiency, CDS_c, of 62% to a combined dust suppressant/watering control efficiency of 90% is derived from the following equation:

$$W_c = \left(\frac{\text{Additional Control Necessary (\%)}}{(100\% - CDS_c)}\right) \times 100\%$$

$$W_c = \left(\frac{28\%}{100\% - 62\%}\right) \times 100\%$$

$$W_c = 73.7\%$$

This watering program control efficiency, 73.7%, is used in conjunction with the model described in Dust Control Program B to determine the average application intensity of watering that is necessary to achieve a 73.7% control efficiency. A summary of the input variables and resulting hourly application intensities during daylight and nighttime hours derived from the model is given in Tables 5, 6, 7 and 8, respectively.

Table 5. Summary of Data Used to Verify Dust Control Strategy C During Daylight Hours at Taylor

Roadway Segment	Variables				Average Hourly Water Application Intensity (i) [1]	Proposed Peak Water Application Rate per Hour
	W_c (%)	p (mm/h)	d (vehicle/hr)	t (hrs)	Gal/yd^2·hr	Gal/hr
AR	73.7	0.28	69.00	1.00	0.13	86
RB	73.7	0.28	37.00	1.00	0.07	626
BQ	73.7	0.28	11.00	1.00	0.02	35
BM	73.7	0.28	26.00	1.00	0.05	122
MT	73.7	0.28	7.00	1.00	0.01	29
GB	73.7	0.28	19.00	1.00	0.04	424
DB	73.7	0.28	48.00	1.00	0.09	291
DE	73.7	0.28	18.00	1.00	0.03	69
RD	73.7	0.28	46.00	1.00	0.09	232
RH	73.7	0.28	33.00	1.00	0.06	159
HC	73.7	0.28	10.00	1.00	0.02	7
FH	73.7	0.28	12.00	1.00	0.02	39
HI	73.7	0.28	21.00	1.00	0.04	71
JI	73.7	0.28	7.00	1.00	0.01	15
IL	73.7	0.28	13.00	1.00	0.02	91
IK	73.7	0.28	7.00	1.00	0.01	65
PR	73.7	0.28	16.00	1.00	0.03	200
OP	73.7	0.28	10.00	1.00	0.02	24
LP	73.7	0.28	9.00	1.00	0.02	117
LA	73.7	0.28	7.00	1.00	0.01	37
LB	73.7	0.28	3.00	1.00	0.01	8
LC	73.7	0.28	5.00	1.00	0.01	50
ST	73.7	0.28	30.00	1.00	0.06	209
TU	73.7	0.28	5.00	1.00	0.01	6
BP	73.7	0.28	31.00	1.00	0.06	244
TP	73.7	0.28	31.00	1.00	0.06	227
TV	73.7	0.28	3.00	1.00	0.01	42
DP	73.7	0.28	3.00	1.00	0.01	30

Table 6. Summary of Data Used to Verify Dust Control Strategy C During Nighttime Hours at Taylor

Roadway Segment	Variables				Average Hourly Water Application Intensity (i) [1]	Proposed Peak Water Application Rate per Hour
	W_c (%)	p (mm/h)	d (vehicle/hr)	t (hrs)	Gal/yd^2·hr	Gal/hr
AR	73.7	0.14	69.00	1.00	0.07	43
RB	73.7	0.14	37.00	1.00	0.03	313
BQ	73.7	0.14	11.00	1.00	0.01	18
BM	73.7	0.14	26.00	1.00	0.02	61
MT	73.7	0.14	7.00	1.00	0.01	15
GB	73.7	0.14	19.00	1.00	0.02	212
DB	73.7	0.14	48.00	1.00	0.05	146
DE	73.7	0.14	18.00	1.00	0.02	34
RD	73.7	0.14	46.00	1.00	0.04	116
RH	73.7	0.14	33.00	1.00	0.03	80
HC	73.7	0.14	10.00	1.00	0.01	3
FH	73.7	0.14	12.00	1.00	0.01	20
HI	73.7	0.14	21.00	1.00	0.02	35
JI	73.7	0.14	7.00	1.00	0.01	8
IL	73.7	0.14	13.00	1.00	0.01	45
IK	73.7	0.14	7.00	1.00	0.007	32
PR	73.7	0.14	16.00	1.00	0.02	100
OP	73.7	0.14	10.00	1.00	0.009	12
LP	73.7	0.14	9.00	1.00	0.008	58
LA	73.7	0.14	7.00	1.00	0.007	18
LB	73.7	0.14	3.00	1.00	0.003	4
LC	73.7	0.14	5.00	1.00	0.005	25
ST	73.7	0.14	30.00	1.00	0.028	105
TU	73.7	0.14	5.00	1.00	0.005	3
BP	73.7	0.14	31.00	1.00	0.029	122
TP	73.7	0.14	31.00	1.00	0.029	114
TV	73.7	0.14	3.00	1.00	0.003	21
DP	73.7	0.14	3.00	1.00	0.003	15

Table 7. Summary of Data Used to Verify Dust Control Strategy C During Daylight Hours at Clark

Roadway Segment	Variables				Average Hourly Water Application Intensity (i) [1]	Proposed Peak Water Application Rate per Hour
	W_c (%)	p (mm/h)	d (vehicle/hr)	t (hrs)	Gal/yd^2·hr	Gal/hr
RS	73.7	0.28	44.00	1.00	0.08	148
SV	73.7	0.28	27.00	1.00	0.05	239
VC	73.7	0.28	7.00	1.00	0.01	3
VB	73.7	0.28	25.00	1.00	0.05	151
VD	73.7	0.28	24.00	1.00	0.05	268
VW	73.7	0.28	26.00	1.00	0.05	87
VX	73.7	0.28	9.00	1.00	0.02	161
WY	73.7	0.28	22.00	1.00	0.04	48
WX	73.7	0.28	12.00	1.00	0.02	13
XB	73.7	0.28	9.00	1.00	0.02	64
BC	73.7	0.28	5.00	1.00	0.01	2
BZ	73.7	0.28	7.00	1.00	0.01	48
ZA	73.7	0.28	6.00	1.00	0.01	3
ZY	73.7	0.28	4.00	1.00	0.01	27
VA	73.7	0.28	5.00	1.00	0.01	9
XA	73.7	0.28	5.00	1.00	0.01	27
YA	73.7	0.28	5.00	1.00	0.01	27

Table 8. Summary of Data Used to Verify Dust Control Strategy C During Nighttime Hours at Clark

Roadway Segment	Variables				Average Hourly Water Application Intensity (i) [1]	Proposed Peak Water Application Rate per Hour
	W_c (%)	p (mm/h)	d (vehicle/hr)	t (hrs)	Gal/yd^2·hr	Gal/hr
RS	73.7	0.14	44.00	1.00	0.04	74
SV	73.7	0.14	27.00	1.00	0.03	120
VC	73.7	0.14	7.00	1.00	0.01	2
VB	73.7	0.14	25.00	1.00	0.02	75
VD	73.7	0.14	24.00	1.00	0.02	134
VW	73.7	0.14	26.00	1.00	0.02	44
VX	73.7	0.14	9.00	1.00	0.01	81
WY	73.7	0.14	22.00	1.00	0.02	24
WX	73.7	0.14	12.00	1.00	0.01	6
XB	73.7	0.14	9.00	1.00	0.01	32
BC	73.7	0.14	5.00	1.00	0.00	1
BZ	73.7	0.14	7.00	1.00	0.01	24
ZA	73.7	0.14	6.00	1.00	0.01	1
ZY	73.7	0.14	4.00	1.00	0.00	13
VA	73.7	0.14	5.00	1.00	0.00	4
XA	73.7	0.14	5.00	1.00	0.00	13
YA	73.7	0.14	5.00	1.00	0.00	14

[1.] The model predicts a 73.7% control efficiency regardless of whether the water application intensity is met with a single hourly application, multiple applications during the 1-hour period, or greater application intensities for less frequent applications.

It should be noted that the pan evaporation rates used to calculate the application intensities in the Tables above represent annual averages which, when used with Equation 1, will result in an application intensity that is too high for winter months and too low for summer months. Actual application intensities will be determined based on pan evaporation rates representative of the different climatological periods of the year. Lower production rates, resulting in less traffic, will be characterized by lower application intensities. If any type of water adhesion enhancing material, such as a surfactant, is used with Dust Control Program B and C, application intensities will be reevaluated.

APPENDIX B. FIGURES

Figure 2. Plan I Road Network

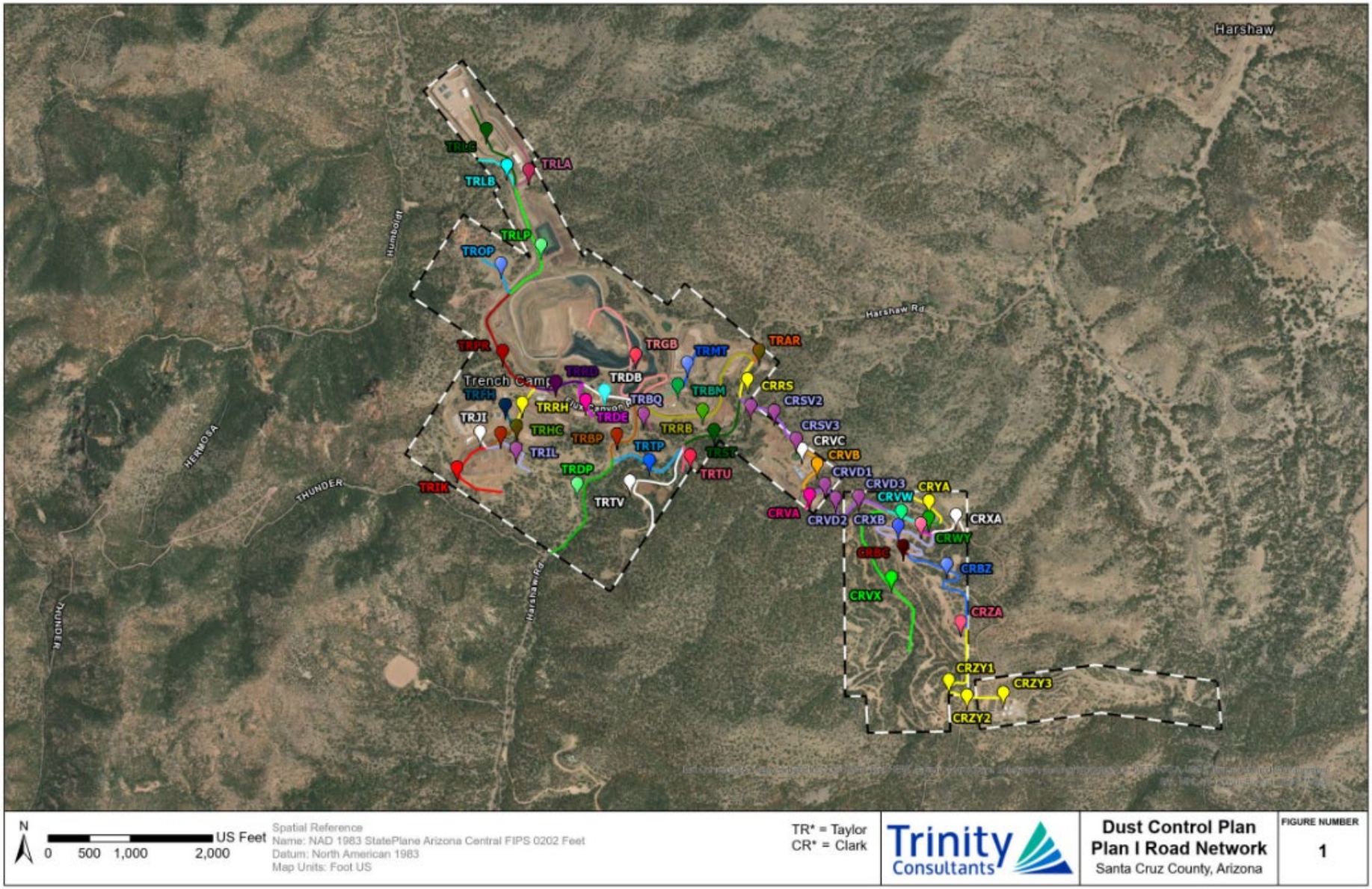
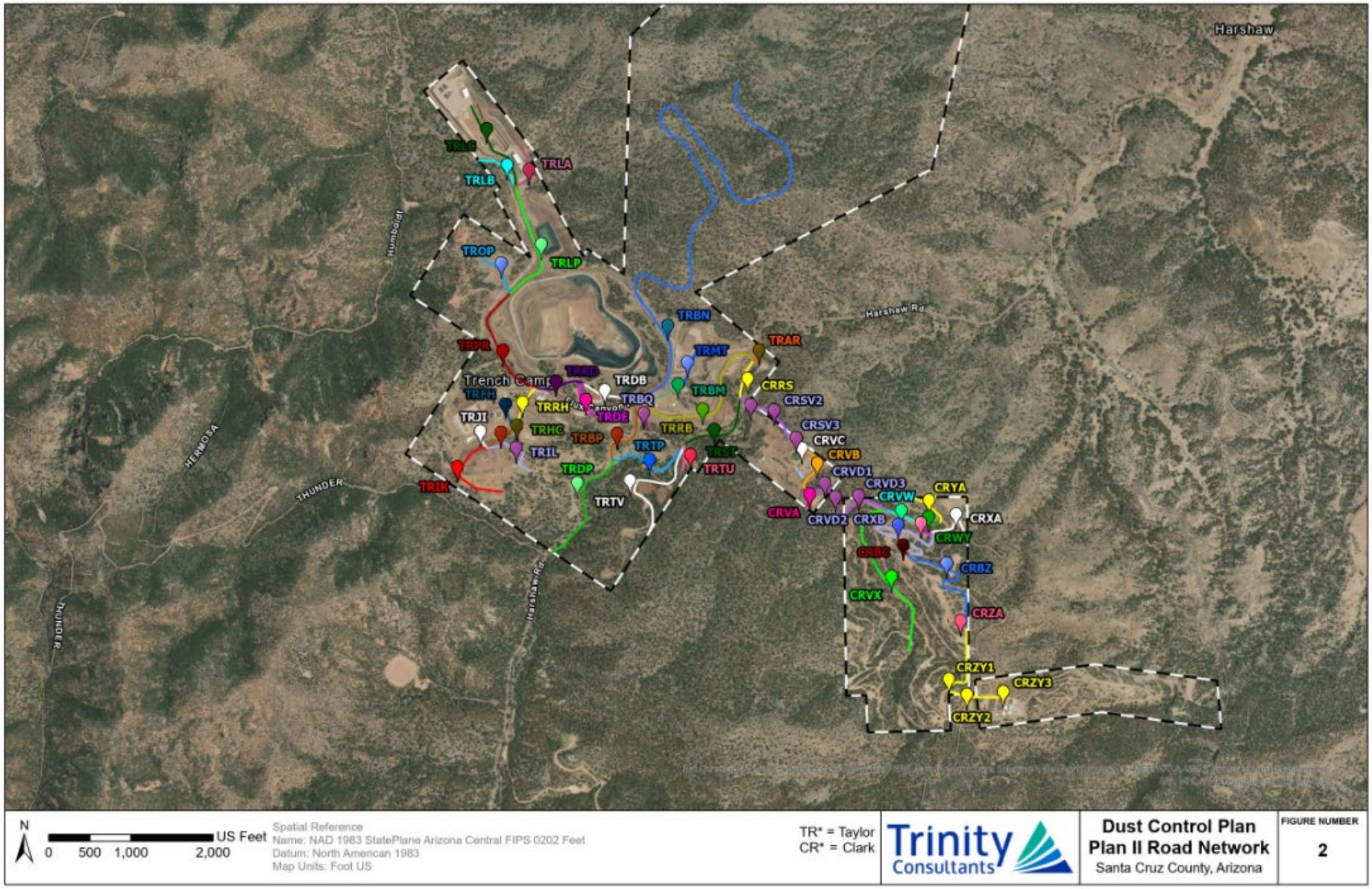


Figure 3. Plan II Road Network



ATTACHMENT A. DUST SUPRESSANTS

SAFETY DATA SHEET
DUSTREAT* DC9112F

1. Identification

Product identifier **DUSTREAT DC9112F**

Other means of identification None.

Recommended use Material handling treatment.

Recommended restrictions None known.

Company/undertaking identification

SUEZ WTS USA, Inc.
4636 Somerton Road
Trevose, PA 19053
T 215 355 3300, F 215 953 5524

Emergency telephone

(800) 877 1940

2. Hazard(s) identification

Physical hazards Not classified.

Health hazards Not classified.

OSHA defined hazards Not classified.

Label elements

Hazard symbol None.

Signal word None.

Hazard statement The material is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard's (29CFR 1910.1200) implementation of the Globally Harmonized System (GHS), i.e., material is not a dangerous substance or mixture requiring GHS classification.

Precautionary statement

Prevention Observe good industrial hygiene practices.

Response Wash hands after handling.

Storage Store away from incompatible materials.

Disposal Dispose of waste and residues in accordance with local authority requirements.

Hazard(s) not otherwise classified (HNOC) None known.

Supplemental information None.

3. Composition/information on ingredients

Mixtures

The manufacturer lists no ingredients as hazardous according to OSHA 29 CFR 1910.1200.

Composition comments Information for specific product ingredients as required by the U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to additional sections of this SDS for our assessment of the potential hazards of this formulation.

4. First-aid measures

Inhalation If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. Call a physician if symptoms develop or persist.

Skin contact	Rinse skin with water/shower. Get medical attention if irritation develops and persists.
Eye contact	Rinse with water. Get medical attention if irritation develops and persists.
Ingestion	Rinse mouth. If ingestion of a large amount does occur, call a poison control center immediately.
Most important symptoms/effects, acute and delayed	Direct contact with eyes may cause temporary irritation.
Indication of immediate medical attention and special treatment needed	Treat symptomatically.
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.
Fire fighting equipment/instructions	In case of fire and/or explosion do not breathe fumes. Use standard firefighting procedures and consider the hazards of other involved materials. Move containers from fire area if you can do so without risk. Cool containers / tanks with water spray.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	No unusual fire or explosion hazards noted.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away.
Methods and materials for containment and cleaning up	Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water. Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Never return spills to original containers for re-use.
Environmental precautions	Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling	Use care in handling/storage.
Conditions for safe storage, including any incompatibilities	Store in original tightly closed container. Store in accordance with local/regional/national/international regulation.

8. Exposure controls/personal protection

Occupational exposure limits	This mixture has no ingredients that have PEL, TLV, or other recommended exposure limit.
Biological limit values	No biological exposure limits noted for the ingredient(s).
Appropriate engineering controls	Not available.

Individual protection measures, such as personal protective equipment

Eye/face protection	Wear safety glasses with side shields (or goggles).
Skin protection	
Hand protection	Wear appropriate chemical resistant gloves. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. Glove selection must take into account any solvents and other hazards present.
Other	Wear suitable protective clothing.

Respiratory protection	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. A RESPIRATORY PROTECTION PROGRAM THAT MEETS OSHA'S 29 CFR 1910.134 AND ANSI Z88.2 REQUIREMENTS MUST BE FOLLOWED WHENEVER WORKPLACE CONDITIONS WARRANT A RESPIRATOR'S USE.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance	
Color	Brown
Physical state	Liquid
Odor	Mild
Odor threshold	Not available.
pH (concentrated product)	5.3 Neat
Melting point/freezing point	28 °F (-2 °C)
Initial boiling point and boiling range	219 °F (104 °C)
Flash point	Not Applicable
Evaporation rate	Slower than Ether
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	14.2 mmHg
Vapor pressure temp.	68 °F (20 °C)
Vapor density	< 1
Relative density	1.26
Relative density temperature	70 °F (21 °C)
Solubility(ies)	
Solubility (water)	100 %
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.
Specific gravity	1.262

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Contact with incompatible materials. None under normal conditions.
Incompatible materials	Strong oxidizing agents.

Hazardous decomposition products No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation No adverse effects due to inhalation are expected.

Skin contact No adverse effects due to skin contact are expected.

Eye contact Direct contact with eyes may cause temporary irritation.

Ingestion Expected to be a low ingestion hazard.

Symptoms related to the physical, chemical and toxicological characteristics Direct contact with eyes may cause temporary irritation.

Information on toxicological effects

Acute toxicity Not known.

Product	Species	Test Results
DUSTREAT DC9112F (CAS Mixture)		
Acute		
Oral		
LD50	Rat	> 5000 mg/kg, (Calculated according to GHS additivity formula)

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Prolonged skin contact may cause temporary irritation.

Serious eye damage/eye irritation Direct contact with eyes may cause temporary irritation.

Respiratory or skin sensitization

Respiratory sensitization This product is not expected to cause respiratory sensitization.

Skin sensitization This product is not expected to cause skin sensitization.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

IARC Monographs. Overall Evaluation of Carcinogenicity

Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)

Not regulated.

US. National Toxicology Program (NTP) Report on Carcinogens

Not listed.

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure Not classified.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard Based on available data, the classification criteria are not met.

12. Ecological information

Ecotoxicity No ecotoxicity data noted for the ingredient(s).

Persistence and degradability

Bioaccumulative potential No data available.

Mobility in soil No data available.

Other adverse effects Not available.

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT

Not regulated as dangerous goods.

Some containers may be exempt from Dangerous Goods/Hazmat Transport Regulations, please check BOL for exact container classification.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

15. Regulatory information

US federal regulations This product is not known to be a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)

Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

US state regulations

US. California Proposition 65

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Developmental toxin

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Female reproductive toxin

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Male reproductive toxin

No ingredient listed.

16. Other information, including date of preparation or last revision

Issue date	Jan-10-2019
Revision date	Jan-10-2019
Version #	1.0
NFPA ratings	Health: 0 Flammability: 0 Instability: 0
NFPA ratings	
List of abbreviations	ACGIH: American Conference of Governmental Industrial Hygienists BOD: Biochemical Oxygen Demand CAS: Chemical Abstract Service Registration Number COD: Chemical Oxygen Demand DOT: Department of Transportation (49 CFR 172.101). GHS: Globally Harmonized System of Classification and Labeling of Chemicals. IARC: International Agency for Research on Cancer. IATA: International Air Transport Association IMDG: International Maritime Dangerous Goods Code LC50: Lethal Concentration, 50% LD50: Lethal Dose, 50% NOEL: No Observed Effect Level OSHA: Occupational Safety & Health Administration. STEL: Short Term Exposure Limit TDG: Transportation of Dangerous Goods Regulations, Canada TOC: Total Organic Carbon TWA: Time Weighted Average WHMIS: Workplace Hazardous Materials Information System.
References:	No data available
Disclaimer	The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.
Prepared by	This SDS has been prepared by SUEZ Regulatory Department (1-215-355-3300).

* Trademark of SUEZ. May be registered in one or more countries.

1101 3rd Street Southeast
Canton, OH 44707 USA
330.456.3121
800.321.0699
www.midwestind.com

EARTH ARMOUR® Series

SAFETY DATA SHEET

SECTION I -- IDENTIFICATION OF SUBSTANCE/PREPARATION AND COMPANY/UNDERTAKING

TRADE NAME:	EARTH ARMOUR® Series (2100, 2200, 7100, 7200)
MANUFACTURER:	Midwest Industrial Supply, Inc 1101 3rd Street SE Canton, OH 44707
EMERGENCY PHONE NUMBER:	330-456-3121
RECOMMENDED USE:	Dust Suppressant, stabilization agent
CHEMICAL NAME:	Refined paraffinic oil, isoalkane with or without binder
SYNONYMS:	Dust retardant

SECTION II -- HAZARDS IDENTIFICATION

CLASSIFICATION:	Aspiration Hazard Eye Irritant, 2B
SIGNAL WORD:	Danger
HAZARD STATEMENT(S):	May be fatal if swallowed and enters airway Causes eye irritation

Pictograms

Aspiration Hazard

PRECAUTIONARY STATEMENT(S):	Do not induce vomiting. If swallowed, contact medical professionals or poison control. Flush eyes for several minutes. Wash hands and exposed areas thoroughly. Store locked up. Dispose of contents and container in approved facility. Contact physician if irritation persists.
OTHER HAZARDS:	Not classified as flammable but will burn Prolonged or repeated skin contact without proper cleaning can clog pores on the skin resulting in disorders such as acne.

SECTION III -- COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS #	WT %
Severly hydrotreated, high viscosity, synthetic iso-alkane	72623-86-0	variable
Distillates (petroleum), hydrotreated heavy paraffinic	64742-54-7	variable
Distillates (petroleum), solvent-dewaxed light paraffinic	64742-56-9	variable
White mineral oil	8042-47-5	variable
Polyolefin	9003-27-4	>20%

SECTION IV -- FIRST AID MEASURES

INHALATION: Move subject to fresh air. If victim is not breathing, perform artificial respiration. Administer oxygen if available. Keep victim warm and at rest. Seek medical attention as soon as possible.

SKIN: Flush with large amount of water or wash with soap and water. Seek medical attention as soon as possible.

EYES: Flush eyes with flowing water at least 15 minutes. Get medical attention. Do not use any eye ointment. Remove contact lenses.

INGESTION: If swallowed do not induce vomiting. Transport to nearest medical facility for additional treatment. If vomiting occurs spontaneously, keep head below nips to prevent aspiration. If any of the following delayed signs and symptoms appear within the next 6 hours, transport to the nearest medical facility: fever greater then 101 F (38.3 C), shortness of breath, chest congestion or continued coughing or wheezing.

SYMPTOMS AND EFFECTS, ACUTE AND DELAYED: If material enters lungs, signs and symptoms may include : coughing, choking wheezing, difficulty in breathing, chest congestion, shortness of breath, and /or fever. The on set of respiratory symptoms may be delayed for several hours after exposure. Defatting dermatitis signs and symptoms may include a burning sensation and/or a dried cracked appearance. Ingestion may result in nausea, vomiting and/or diarrhea.

IMMEDIATE MEDICAL ATTENTION, SPECIAL TREATMENT: Treat symptomatically.
Call a doctor or poison control center for guidance.

FIREFIGHTERS ON SPECIAL PROTECTIVE EQUIPMENT OR PRECAUTIONS: Respiratory and eye protection are required for firefighting personnel. Self contained breathing apparatus (SCBA) as required for conditions.
When administering first aid ensure that you are wearing the proper personal protective

equipment.

SECTION V -- FIREFIGHTING MEASURES

EXTINGUISHING MEDIUM: Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth on small fires. DO not use water in a jet, it can spread fire.

SPECIAL FIREFIGHTING PROCEDURES: If a tank, railcar of tank truck is involved in a fire isolate for 0.5 miles in all directions. Shut off fuel to fire if it is possible to do so without hazard. If this is impossible, withdraw from the area and let the fire burn itself out under controlled conditions. Withdraw immediately in case of rising sound from venting safety device or any discoloration of the tank due to fire. Cool containing vessels with water spray in order to prevent pressure build-up, autoignition or explosion.

SPECIAL HAZARDS DURING FIREFIGHTING Hazardous combustion product may include: a complex mixture of airborne solid and liquid particulate and gases (smoke).
Carbon monoxide may be evolved is incomplete combustion occurs.
Unidentified organic and inorganic compounds.

FIREFIGHTER PROTECTIVE EQUIPMENT: Proper protective equipment including chemical resistant gloves, chemical resistant suit is indicated if large contact with spilled product is expected. Self-contained breathing apparatus.

SECTION VI -- ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS: Safety glasses and gloves. Avoid contact with eyes and skin

ENVIRONMENTAL PRECAUTIONS: Use appropriate containment to avoid environmental contamination. Prevent from spreading into drains, ditches, river, streams by using barriers of earth or sand.
Notify local authorities if significant spillage cannot be contained.

SPILL AND LEAK PROCEDURES: ELIMINATE ALL IGNITION SOURCES. Stop leak without risk and contain spill. Absorb with inert absorbent materials such as clay or sand. Place absorbent in closed metal containers for later disposal or burn in appropriate facility. Keep spills out of sewers and open bodies of water. Slippery when spilled.

SECTION VII -- HANDLING AND STORAGE

STORAGE: Store locked up. Keep in cool, dry, ventilated storage area and in closed containers. Keep away from sources of ignition and oxidizing materials.
Suitable materials for storage: mild steel or high density polyethylene.
NOT SUITABLE: PVC
Polyethylene containers should not be exposed to high temperatures because of possible

container distortion.

HANDLING: KEEP AWAY FROM SOURCES OF IGNITION. Do not reuse empty containers. Practice good hygiene. Wash hands before eating. Launder clothes before reuse. Discard saturated leather goods. Use local exhaust ventilation if there is a risk of inhalation of vapors, mists or aerosols. Avoid prolonged or repeated skin contact. Avoid breathing vapors and mists. Safely dispose of contaminated rags or cleaning material in order to prevent fires. This material is a potential static accumulator. Proper grounding and bonding procedures should be used during bulk transfers.

SECTION VIII -- EXPOSURE CONTROL/PERSONAL PROTECTION

ACGIH 8 hour TLV-TWA	5 mg/m^3 for oil mists/synthetic fluid mists.
OSHA TWA	5 mg/m^3 for oil mists/synthetic fluid mists.
VENTILATION:	Under normal handling conditions special ventilation is not necessary. If operation generates mist or fumes, use ventilation of keep exposure to airborne contaminants below exposure limits.
RESPIRATORY PROTECTION:	None required if good ventilation is maintained. If mist is generated by heating or spraying, use a NIOSH approved organic respirator with a mist filter.
EYE PROTECTION:	Chemical splash, goggles recommended.
PROTECTIVE CLOTHING:	Clothing to minimize skin contact, long sleeves, boots or shoes. For casual contact PVC gloves are suitable, for prolonged contact use neoprene or nitrile gloves.

SECTION IX -- PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Odor:	None
Vapor Density:	N/D
Solubility in Water:	Insoluble
Relative Density:	0.82 - 0.88 g/mL @ 68°F
Melting/Freezing Point:	Will not freeze
VOC Content:	N/D
Viscosity:	25 - 120 cSt @ 20°C
Flashpoint:	>170°C (338°F)
Flammable Limits LEL:	N/D
Flammable Limits UEL:	N/D
Odor Threshold:	N/D
Initial Boiling Point/Range:	>280 C (536 F)

Vapor Pressure:	Negligible at ambient temperature
Evaporation Rate:	N/D
pH:	N/A, not an aqueous solution or emulsion
Octanol/Water Coefficient:	N/D
Decomposition Temperature:	N/D
Flammability (solid/gas):	N/A
Auto Ignition Temperature:	>320°C (608°F)

SECTION X -- STABILITY AND REACTIVITY

REACTIVITY:	None
CHEMICAL STABILITY:	Stable
CHEMICAL INCOMPATIBILITY:	Can react with strong organic oxidizing materials
HAZARDOUS DECOMPOSITION PRODUCTS:	None expected under normal storage conditions.
THERMAL DECOMPOSITION PRODUCTS:	Thermal decomposition in the presence of air may yield carbon monoxide and/or carbon dioxide, smoke, hydrocarbons and irritating fumes.
HAZARDOUS POLYMERIZATION:	Does not occur under normal industrial conditions.
CONDITIONS TO AVOID:	Excessive heat and flame, direct sunlight.

SECTION XI -- TOXICOLOGICAL INFORMATION

EFFECTS OF OVEREXPOSURE

INHALATION:	Inhalation is highly unlikely, however, prolonged or repeated inhalation of fumes or mists may cause irritation to the respiratory tract. Product deposits in lungs may lead to fibrosis and reduced pulmonary function.
ACUTE INHALATION TOXICITY:	LC50 (rat) >5mg/L, exposure time 4 hours, Low toxicity by inhalation
ASPIRATION TOXICITY:	Aspiration into the lungs when swallowed or vomited may cause chemical pneumonitis which can be fatal.
INGESTION:	Relatively non-toxic to digestive tract.
SKIN:	It is not a skin irritant, however, prolonged or repeated contact may cause skin irritation, dermatitis, or oil acne.
EYES:	Prolonged or repeated contact may be irritating to eyes. Will not cause permanent damage.
SKIN SENSITIZER:	Not expected to be a skin sensitizer.
CARCINOGENICITY:	Based on studies to date EARTH ARMOUR® is not known to be carcinogenic to humans.

GERM CELL MUTAGENICITY: Based on data to date, it is not expected to be mutagenic.
REPRODUCTIVE TOXIN: Based on data to date, it does not pose a reproductive risk.

SECTION XII -- ECOLOGICAL INFORMATION

Aquatic toxicity testing of Earth Armour® shows that in all tested species, both acute and chronic, the toxicity is "practically non-toxic" (LC50>100 ppm) per EPA definition.

C. dubia	acute	48 hr. LC50	> 1000 ppm
	chronic	IC50	> 1000 ppm
P. promelas	acute	96 hr. LC50	> 1000 ppm
	chronic	IC25	> 1000 ppm
M. bahia	acute	96 hr. LC50	> 1000 ppm
	chronic	IC50	> 1000 ppm
M. mykiss	acute	96 hr. LC50	> 1000 ppm
	chronic	IC50	> 1000 ppm

Biodegradability: Expected to be inherently biodegradable.
Bioaccumulation: Has the potential to bioaccumulate
Mobility in Soil Earth Armour® has an affinity to soil and will absorb into the particles and will not be mobile.

SECTION XIII -- DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: Consult your local authorities for regulations. Preferred waste management: recycle or reuse, incinerate with energy recovery, disposal in a licensed facility. Disposal facility should be compliant with state, local and federal government regulations.

SECTION XIV -- TRANSPORTATION INFORMATION

DOT HAZARDOUS MATERIAL DESCRIPTION: Non-regulated
PROPER SHIPPING NAME: EARTH ARMOUR®
UN NUMBER: N/D
HAZARD CLASS/PACKAGING GROUP: Non-regulated
LABELS REQUIRED: None

SECTION XV -- REGULATORY INFORMATION

NFPA RATING:	Health:	1	**HMIS RATING:**	Health:	1
	Flammability:	1		Flammability:	1

1101 3rd Street Southeast
Canton, OH 44707 USA
330.456.3121
800.321.0699
www.midwestind.com

SAFETY DATA SHEET

Instability:	0	Physical Hazard:	0
		PPE:	B

EPA SARA Title III hazard class: None
OSHA HCS hazard class: Aspiration toxicity
EPCRA - Emergency Planning and Community Right-to-Know Act
CERCLA Reportable Quantity:

This material does not contain any components with CERCLA RQ. Earth Armour® is an oil and under the CERCLA Petroleum exclusion. Therefore releases to the environment are not reportable under CERCLA.

SARA 304 Extremely Hazardous Substance: none
SARA 311/312 Hazards: Immediate (acute) health hazard
SARA 302: none
SARA 313 none
Clean Water Act (CWA) none
TSCA: Listed
EINECS: Listed or polymer exempt
DSL: Listed
California Proposition 65: Does not contain any Prop 65 chemicals.

SECTION XVI -- OTHER INFORMATION

ABBREVIATIONS AND SYMBOLS:

N.D.	Not Determined	N.A.	Not Applicable	N.T.	Not Tested
<	Less Than	>	More Than		

Part Number: WT-1001

Last Revised: September 9, 2013

Section 1 - Material Identification

Supplier: Martin Engineering
One Martin Place
Neponset, IL 61345

Telephone: 1-800-544-2947

CHEMTREC (24 HR Emergency Telephone), call: 1-800-424-9300

Medical: Rocky Mountain Poison Center: 1-303-623-5716

Trade Name: WT-1001
Product Description: A clear, fluorescent pink liquid having a very slight, mild odor.
Product Use: Used as a dust control agent in industrial applications.

Section 2- Hazardous Ingredients

Classification: A clear, fluorescent pink liquid having a very slight, mild odor. The mists and liquid may cause mild to moderate irritation to the eyes and skin. Inhalation of mists may cause mild or moderate irritation to the entire respiratory tract. This product is not combustible per OSHA and WHMIS definition, but it can be ignited at high temperatures and will burn.

DOT Hazard Classification: Non-hazardous material

Slip Hazard: Slip hazard when spilled.

Eyes: Exposure to the mists or liquid may cause severe eye irritation. Symptoms of exposure may include tearing, redness and irritation. May cause irritation of the conjunctiva. Exposure is not expected to cause corneal damage or visual impairment, when treated promptly.

Skin: Prolonged contact may cause drying or chapping or mild skin irritation. Symptoms of exposure may include redness and discomfort. May cause dermatitis. No published reports indicate this product is absorbed through the skin.

Ingestion: Ingestion may cause moderate irritation to the gastrointestinal tract and of the digestive tract. Symptoms may include: headache, excitement, fatigue, nausea, vomiting, stupor and coma. May cause central nervous system effects: May cause headache, muscle weakness and incoordination and confusion. This product if ingested in a large amount may have more serious effects than those listed.

Chronic: Animal tests on the 1, 2, 3-Propanetriol in this product, indicate possible reproductive effects and kidney damage due to the chronic ingestion of high doses. Human mutation data has also been reported. Otherwise, the chronic health effects are expected to be the same as for acute exposure.

Form No. L3979-09/13
© Martin Engineering Company 2013

CAS #	Chemical	Composition
56-81-5	1,2,3-Propanetriol	12-15%
7732-18-5	Water	78-83%
107-41-5	2-Methyl-2,3-pentanediol	5-7%

Section 3 - Physical Data

Melting Point:	Less than 0°C
Boiling Point:	Greater than 100°C
Physical State:	Liquid
Solubility in Water:	Soluble
Appearance:	Clear, fluorescent pink
Odor:	Very slight mild
pH	8.0-9.0
Specific Gravity:	1.037 g/ml at 20°C
Vapor Pressure:	NA
VOC Content:	Nil
%Volatile:	Nil

Section 4 – Fire-Fighting Measures

General Advice: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and toxic gases may be generated. This product is an aqueous solution of organic poly- alcoholic compounds. The Uniform Fire Code health hazard classification for this product is IRRITANT. When heated sufficiently, this product can produce hazardous decomposition products.

Suitable Extinguishing Media: Water. Dry Chemical. Carbon dioxide. Use a water spray to cool the containers exposed to the heat of a fire. Do not direct a solid stream of water or foam into hot, burning pools of this product; this may cause frothing and increase the fire's intensity.

Hazardous Combustion Products: When heated to decomposition, it emits toxic carbon monoxide and carbon dioxide, with possibly some corrosive Acrolein, plus possibly highly irritating smoke.

Specific Hazards: Do not breathe smoke, gases or vapors generated.

Form No. L3979-09/13
© Martin Engineering Company 2013

Special Protective Equipment for Firefighters:	In the event of a fire, wear self-contained breathing apparatus and full protective equipment.
Flashpoint and Method:	93.3°C Pensky-Martins Closed Tester (ASTM D 93-79)
Flammable Limits:	NA
Auto ignition Temperature:	306°C

Section 5 – First Aid Measures

General Advice:	Remove material from eyes, skin and clothing. In case of doubt or when symptoms persist, seek medical attention. Wash heavily contaminated clothing before reuse.
Eye Contact:	Hold eyelids apart and flush eyes with a steady, gentle stream of water for fifteen minutes. If eye irritation persists, seek medical attention.
Skin Contact:	Wash off with soap and plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse.
Inhalation:	Move to fresh air. If symptoms persist, call a physician. If not breathing, give artificial respiration. Get medical aid.
Ingestion:	If swallowed, give plenty of water to drink. Call a physician. DO NOT induce vomiting unless directed to do so by a medical personnel. Never give anything by mouth to an unconscious person.

Section 6 – Stability and Reactivity Data

Stability: Material is stable and hazardous polymerization will not occur.

Materials to Avoid: Ignition sources and hot storage.

Conditions to Avoid: Avoid excessive heat and all sources of ignition.

Hazardous Decomposition Products: Thermal decomposition products are carbon monoxide and carbon dioxide and Acrolein plus possibly highly irritating smoke.

Sensitivity to Mechanical Impact: This product is not sensitive to mechanical impact.

Sensitivity to Static Discharge: This product is not sensitive to normal static discharge.

Form No. L3979-09/13
© Martin Engineering Company 2013

Section 7 - Spill, Leak or Accident Procedures

Land Spill: Wearing recommended protective equipment and clothing dike the spill and pick up the bulk of liquid using pumps or a vacuum truck for potential recovery and return to the appropriate container. Absorb the remaining liquid using sand or a commercial absorbent; dispose as non-hazardous solid waste. Flush the spill area with water and collect the risates for disposal or sewer as appropriate.

Water Spill: Wear recommended protective equipment and clothing if contact with hazardous material can occur. Stop or divert water flow. Dike contaminated water and remove for disposal and or treatment. As appropriate, notify all downstream users of possible contamination.

Disposal: Laws and regulations for disposal vary widely by locality. Observe all applicable regulations and laws. This material may be disposed of in solid waste in a manner similar to other nuisance dust materials. Disposal in sanitary landfill is usual but local regulations should be checked and observed.

Extinguishing Media: Large quantities of water. In case of a fire in close proximity, all means of extinguishing are acceptable. Self-contained breathing apparatus or approved gas mask should be worn due to small particle size. Use extinguishing media appropriate for surrounding fire. Apply cooling water to sides to transport or storage vessels that are exposed to flames until the fire is extinguished. Do not approach hot vessels that contain the product.

First Aid: After contact with skin, wash immediately with plenty of water and soap. In case of contact with eyes, rinse immediately with plenty of water and seek medical attention. Consult an ophthalmologist in all cases.

Section 8 - Special Protection or Handling

Storage:	Store in a roofed and well-ventilated area in the unopened original package at ambient temperature and pressure. Store in a cool, dry area away from incompatible materials and products.
Protective Gloves:	Vinyl or Rubber
Eyes:	Splash Goggles or Full Face Shield
	Area should have approved means of washing eyes.
Ventilation:	General exhaust.
Storage:	Store in cool, dry, ventilated area. Protect from incompatible materials.

Form No. L3979-09/13
© Martin Engineering Company 2013

Section 9- Exposure Controls/Personal Protection

Control Measures: Use a local or general, mechanical exhaust ventilation system capable of maintaining emissions, in the work area, below the ACGIH-TLV, OSHA-PEL, or levels that may cause irritation.

Recommended Personal Protective Equipment:
Respirator: Respiratory protection is not normally required. However, for exposures above the ACGIH-TLV or OSHA-PEL, wear a NIOSH approved full face piece or half mask air-purifying cartridge respirator equipped with a good mist/particulate cartridge or supplied air.

Eyes: Wear chemical goggles (recommended by ANSI Z87.1-1979), unless a full face piece respirator is worn.

Gloves: Wear Neoprene or Butyl Rubber gloves when handling this product.

Clothing & Equipment: If splashing or contact is likely, wear a Neoprene or Butyl Rubber apron when handling this product. An eye wash station and safety shower should be available in the work area.

Footwear: If contact is likely, wear Neoprene or butyl Rubber boots.

Section 10- Toxicology

Components	**1,2,3-Propenetriol**	**2-Methyl-2,4 Pentanediol**
Eye Contact	Rabbit: 500 mg/24H: Mild	Rabbit: 93 mg: Severe
Skin Contact	Rabbit: 500 mg/24H: Mild	Rabbit: 465 mg/24 H Moderate
Oral Rat LD50:	12,600 mg/kg	3,700 mg/kg
Dermal Rabbit LD50:	Greater than 10 mg/kg	8,560 mg/kg
Inhalation Rat LC50:	Greater than 570 mg/m3/1H	Greater than 310 mg/m3/1H
Human Data	Oral Human TD Lo: 1428 mg/kg Headache, gastrointestinal effects	Inhalation Human TClo: 50 ppm/15 minutes: Toxic Effects: Sense organs and special senses.
Other Toxicological Data	Oral Mouse LD50: 4090 mg/kg	Oral Mouse LD50: 3,097 mg/kg
Carcinogenicity:	NA	NA
Teratogenicity:	Oral Rat TDLo: 100 mg/kg (male 1 day prior to mating) Effects on Fertility-Post-implantation mortality	NA
Mutagenicity:	Human DNA Inhibition; Lymphocyte: 200mmol/liter	NA
Synergistic Products:	None reported	None reported
Target Organs:	Eyes, Skin, Mucous membranes, Lungs and Kidneys	Eyes, Skin, Mucous membranes, Lungs, Central Nervous System
Medial Conditions Aggravated by Exposure	Skin, Respiratory or Kidney disorders	Skin or respiratory disorders

Form No. L3979-09/13
© Martin Engineering Company 2013

Section 11- Ecological Information

Environmental Fate: This product is completely soluble in water and it is expected to be biodegradable in both aerobic and anaerobic conditions. This product is not expected to affect the pH of water.

Environmental Considerations: The aquatic toxicity for this product has not been determined.

Section 12-Regulatory Information

OSHA Target Organs:
Eyes, Skin, Mucous membranes, Lungs, Kidneys, Central Nervous System

Carcinogenic Potential:
Regulated by OSHA: No
Listed on NTP Report: No
Listed by IARC: No
IARC Group: NA
ACGIH Appendix A: Not listed
A 1 Confirmed Human: NA A 2
Confirmed Human: NA

US EPA Requirements:
Release Reporting CERCLA (40 CFR 302)
Listed Substance: Not listed
Reportable Quantity: NA
Category: NA
RCRA Waste No. NA
Unlisted Substance: NA
Reportable Quantity: NA
Characteristic: NA
RCRA Waste No: NA

SARA TITLE III
Section 302 & 303 (40 CFR 355)
Listed Substance: Not listed
Reportable Quantity: NA
Planning Threshold: NA

Section 311 & 312 (40 CFR 370)
Hazard Categories: Fire: N Sudden Release of Pressure: N Reactive: N
Acute Health: Y Chronic Health: N
Planning threshold: 10,000 pounds

Section 313 (40 CFR 372)
Listed Toxic Chemical: Not listed
Planning Threshold: NA

Form No. L3979-09/13
© Martin Engineering Company 2013

US TSCA Status
Listed (40 CFR 710): Yes

State Regulations: State of California: Safe Drinking Water and Toxins Enforcement Act. 1986 (Proposition 65)
Carcinogen: No
Reproductive Toxin: No
State Right To Know Laws: MA, PA, CA

CANADIAN REGULATIONS Product Information
Controlled Product: Yes
WHMIS Hazard Symbols: Material Causing Other Toxic Effects
WhMIS Class and Division: D.2B
Ingredient Information: IDL
Substance: Yes
DSL or NDSL Lists: Yes

Section 13-Disposal Considerations

RCRA 40 CFR 261 Classification: Non-Hazardous Waste
US EPA Waste Number/Description: NA

If this product is deposed of as shipped, it does not meet the criteria of a hazardous waste as defined under 40 CFR 261, in that it does not exhibit the characteristics of a hazardous waste of Subpart C, nor is it listed as a hazardous waste under Subpart D due to toxicity. As a non-hazardous liquid waste, it should be disposed of in accordance with all local, state, and federal regulations. Consult state or local officials for proper disposal method.

Section 14 - Other Information

Materials containing reactive chemicals should be used only by personnel with appropriate chemical training. This product may contain trace amounts (less than 3ppm) of Dichloromethane and 1, 3-Dichloropropene which the State of California found to cause cancer and/or birth defects or other reproductive harm.

Martin Engineering provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using the product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose.

Form No. L3979-09/13
© Martin Engineering Company 2013

MARTIN ENGINEERING MAKES NO REPRESENTATIONS OR WARRANTIES EITHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE INFORMATION SET FORTH HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS. ACCORDINGLY, MARTIN ENGINEERING WILL NOT BE RESPONSIBLE FOR DAMAGES RESULTING FROM USE OF OR RELIANCE UPON THIS INFORMATION.

Martin Engineering USA
One Martin Place
Neponset, IL 61345-9766 USA
800 544 2947 or 309 852 2384
Fax 800 814 1553
www.martin-eng.com

COMPANY WITH QUALITY SYSTEM CERTIFIED BY DNV = ISO 9001:2008 =

Form No. L3979-09/13
© Martin Engineering Company 2013

1101 3rd Street
Southeast
Canton, OH 44707 USA
330.456.3121
800.321.0699
www.midwestind.com

ROAD PRO® NT

SAFETY DATA SHEET

SECTION I -- IDENTIFICATION OF SUBSTANCE/PREPARATION AND COMPANY/UNDERTAKING

TRADE NAME: ROAD PRO® NT
MANUFACTURER: Midwest Industrial Supply, Inc
1101 3rd Street SE
Canton, OH 44707
EMERGENCY PHONE NUMBER: 330-456-3121
RECOMMENDED USE: Dust Control
CHEMICAL NAME: Polymer Enhanced Asphalt Emulsion
SYNONYMS: Dust Retardant

SECTION II -- HAZARDS IDENTIFICATION

CLASSIFICATION: Not Classified
SIGNAL WORD: Not Classified
HAZARD STATEMENT(S): Not Classified

Pictograms

PRECAUTIONARY STATEMENT(S): Observe good industrial hygene.
Wash hands and exposed areas after handling.
Store in sealed containers.
Dispose of in accordance with local, state, and federal laws.
OTHER HAZARDS: None

SECTION III -- COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS #	WT %
Asphalt, petroleum	008052-42-4	Non-Hazardous
Water	7732-18-5	Non-Hazardous
Proprietary Ingredients	Non-Hazardous	Non-Hazardous

SECTION IV -- FIRST AID MEASURES

INHALATION: If overexposure occurs, remove individual to fresh air. If discomfort continues, seek medical attention.
SKIN: Clean skin with waterless type hand cleaner followed by soap and water. If irritation develops, seek medical attention. Cool product may be cleaned with waterless type hand cleaner.
EYES: Flush eyes immediately with copious amounts of water for at least 15 minutes, occasionally lifting the upper and lower eye lids. Get medical attention immediately.
INGESTION: If emulsion is swallowed do not induce vomiting. Treat symptomatically and get medical attention.

Revision Date : 5/27/2015

NEVER GIVE FLUIDS OR INDUCE VOMITING IF PATIENT IS UNCONSCIOUS OR HAVING CONVULSIONS.

RECOMMENDATION TO FIREFIGHTERS ON SPECIAL PROTECTIVE EQUIPMENT OR PRECUATIONS:

Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Structural firefighters protective clothing will only provide limited protection.

SECTION V -- FIREFIGHTING MEASURES

EXTINGUISHING MEDIUM:	Non Flammable in Emulsion State
SPECIAL FIREFIGHTING PROCEDURES:	Non Flammable in Emulsion State **In asphalt state**: for small fires-dry chemical CO_2, halon, water spray or standard foam. For large fires-use water spray, fog or standard foam.
UNUSUAL FIRE AND EXPLOSION HAZARDS:	None
SPECIAL HAZARDS:	None

SECTION VI -- ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS:	Safety glasses and gloves
SPILL AND LEAK PROCEDURES:	Create dikes or ponds as soon as possible. Use earth, sawdust, or sand to make dikes or to use as absorbent. Upon absorption, material will revert to asphalt state and can be removed with absorption material. Keep spills out of sewers or open bodies of water.

SECTION VII -- HANDLING AND STORAGE

STORAGE:	Keep in a cool, dry, ventilated storage area and in closed containers. Minimize contact with air to prevent microorganism contamination and reduce the formation of skins in the surface.
HANDLING:	Handle in a well ventilated work space.

SECTION VIII -- EXPOSURE CONTROL/PERSONAL PROTECTION

ACGIH TLV:	5.00 mg/m^3
VENTILATION:	As needed to remove mists or vapors.
RESPIRATORY PROTECTION:	Normally not needed, but if conditions warrant, use organic vapor respirators.
EYE PROTECTION:	Chemical goggles or safety glasses with side shields
PROTECTIVE CLOTHING:	Protective gloves with impervious coating.

SECTION IX -- PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Odor:	Slight petroleum odor
Vapor Density:	N/D
Solubility in Water:	Miscible
Relative Density:	0.99-1.02
Melting/Freezing Point:	N/D
VOC Content:	none
Viscosity:	N/D
Flashpoint:	N/D
Flammable Limits LEL:	N/D
Flammable Limits UEL:	N/D
Odor Threshold:	N/D
Initial Boiling Point/Range:	212°F
Vapor Pressure:	N/D
Evaporation Rate:	N/D
pH:	5-9
Octanol/Water Coefficient:	N/D
Decomposition Temperature:	N/D
Flammability (solid/gas):	N/A
Auto Ignition Temperature:	N/D

SECTION X -- STABILITY AND REACTIVITY

REACTIVITY:	N/D
CHEMICAL STABILITY:	Stable
CHEMICAL INCOMPATIBILITY:	None
HAZARDOUS DECOMPOSITION PRODUCTS:	Thermal Decomposition may release harmful or toxic gases: Carbon dioxide, carbon monoxide, oxides of sulfur, oxides of nitrogen, reactive hydrocarbons and hydrogen sulfide.
HAZARDOUS POLYMERIZATION:	Does not occur
CONDITIONS TO AVOID:	None

SECTION XI -- TOXICOLOGICAL INFORMATION

Asphalt Emulsions have not been investigated as possible carcinogens

Possible carcinogens status of Petroleum Asphalt:	NAT, Toxicology Program	- NO
	OSHA	- NO
	I.A.R.C. MONOGRAPHS	- UNDETERMINED

EFFECTS OF OVEREXPOSURE

INHALATION: Excessive exposure to fumes, vapors or mists may cause some respiratory discomfort or irritation of the mucous membranes. Asphalt when heated, releases various concentrations of hydrogen sulfide (H2S) gas. H2S is an extremely toxic and flammable gas that at low concentrations is irritating to the respiratory tract and has a rotten egg odor. Odor can not be relied on as means of detection because at higher concentrations H2S causes olfactory paralysis. Even short time exposure to concentrations of 500 - 1000 ppm may lead to unconsciousness, respiratory paralysis and death.

SKIN: Prolonged or repeated contact with cool product may cause irritation.
EYES: N/D
INGESTION: Emulsions may cause nausea and irritation of gastrointestinal tract.
CARCINOGENICITY: N/D
GERM CELL MUTAGENICITY: N/D
REPRODUCTIVE TOXIN: N/D

SECTION XII -- ECOLOGICAL INFORMATION

ENVIRONMENTAL STUDIES HAVE NOT BEEN PERFORMED TO DETERMINE THE EFFECT OF ASPHALT EMULSIONS ON THE ENVIRONMENT.

SECTION XIII -- DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: Emulsion can be mixed with any stabilizing material (e.g., rock, gravel or sand) in order to change its state from a liquid into a solid. This material can then be disposed of at an approved landfill.

SECTION XIV -- TRANSPORTATION INFORMATION

DOT HAZARDOUS MATERIAL DESCRIPTION: None
PROPER SHIPPING NAME: None
UN NUMBER: None
HAZARD CLASS/PACKAGING GROUP: None
LABELS REQUIRED: None

SECTION XV -- REGULATORY INFORMATION

NFPA RATING:	Health:	1	**HMIS RATING:**	Health:	1
	Flammability:	1		Flammability:	1
	Instability:	0		Physical Hazard:	0

1101 3rd Street
Southeast
Canton, OH 44707 USA
330.456.3121
800.321.0699
www.midwestind.com

ROAD PRO® NT

SAFETY DATA SHEET

	PPE: B

EPA SARA Title III hazard class:	None
OSHA HCS hazard class:	Not Classified
EPA SARA Title III Section 313 (40CFR372):	None
TSCA:	All of the ingredients are on the TSCA (Toxic Substance Control Act) inventory or are not required to be listed on the TSCA inventory.
Canadian WHIMIS:	D2B - Skin or eye irritant

SECTION XVI -- OTHER INFORMATION

LATEST REVISION: 27-May-15

ABBREVIATIONS AND SYMBOLS:

N.D.	Not Determined	N.A.	Not Applicable	N.T.	Not Tested
<	Less Than	>	More Than		

1101 3rd Street
Southeast
Canton, OH 44707 USA
330.456.3121
800.321.0699
www.midwestind.com

Soil-Sement®EF69PB (Series)

SAFETY DATA SHEET

SECTION I -- IDENTIFICATION OF SUBSTANCE/PREPARATION AND COMPANY/UNDERTAKING

TRADE NAME: Soil-Sement® EF69PB (Series)
MANUFACTURER: Midwest Industrial Supply, Inc
1101 3rd Street SE
Canton, OH 44707
EMERGENCY PHONE NUMBER: 330-456-3121
RECOMMENDED USE: Soil Stabilizing Agent; Dust Suppressant; Aggregate Pile Sealer
CHEMICAL NAME: Aqueous vinyl acrylic polymer emulsion
SYNONYMS: None

SECTION II -- HAZARDS IDENTIFICATION

CLASSIFICATION: Skin Sensitizer, 1
SIGNAL WORD: Warning
HAZARD STATEMENT(S): May cause an allergic skin reaction

Pictograms

PRECAUTIONARY STATEMENT(S):

Keep in closed containers to minimize evaporation or water.
Avoid breathing dust or fumes
Wear protective gloves
Contaminated work clothing should not be allowed out of the workplace
Get medical advice if you feel unwell
If ON SKIN wash with plentyof soap and water
If skin irritation or rash occurs Get medical attention
Wash contaminated clothing before reuse
Dispose of containers to an approved waste disposal facility

OTHER HAZARDS: None

SECTION III -- COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS #	WT %
Vinyl acrylic polymer	trade secret	< 60%

Revision Date : 11/03/2016

Water	7732-18-5	>40%

SECTION IV -- FIRST AID MEASURES

INHALATION: Move subject to fresh air.
SKIN: Flush with large amounts of water or wash with soap and water.
EYES: Flush eyes with water for at least 15 minutes. Get medical attention.
INGESTION: Give water to drink. Call a physician.
NEVER GIVE FLUIDS OR INDUCE VOMITING IF PATIENT IS UNCONSCIOUS OR HAVING CONVULSIONS.

SECTION V -- FIREFIGHTING MEASURES

EXTINGUISHING MEDIUM: Use extinguising measures that are appropriate for circumstances and srrounding environment. Dry chemical, CO2, alcohol resistant foam.

SPECIAL FIREFIGHTING PROCEDURES: Use of water spray may be insufficient when fire fighting.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Material can splatter above 212°F. Dried polymer film can burn but will not support combustion.

SPECIAL HAZARDS: None

RECOMMENDATION TO FIREFIGHTERS ON SPECIAL PROTECTIVE EQUIPMENT OR PRECAUTIONS:
As in any fire, wear self contained breathing apparatus (SCBA) pressure demand.MSHA/NIOSH approved and full face gear

SECTION VI -- ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS: Use propper personal protective equipment.
SPILL AND LEAK PROCEDURES: Dike and control spill. Transfer liquid to containers for recovery or disposal. Keep spills out of sewers and open bodies of water.

SECTION VII -- HANDLING AND STORAGE

STORAGE: Keep in a cool, dry, ventilated storage area and in closed containers. Avoid freezing temperatures. Minimize contact with the air to prevent microorganism contamination and reduce the formation of skins on the surface.
HANDLING: Handle in a well-ventilated workspace. Use good industrial hygiene practices.

SECTION VIII -- EXPOSURE CONTROL/PERSONAL PROTECTION

VENTILATION:	Mechanical exhaust at point of contaminant
RESPIRATORY PROTECTION:	None required if good ventilation is maintained.
EYE PROTECTION:	Chemical splash goggles recommended
PROTECTIVE CLOTHING:	Impervious gloves recommended

SECTION IX -- PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Odor:	Characteristic sweet odor
Vapor Density:	N/D
Solubility in Water:	Dilutable
Relative Density:	1.01 - 1.12
Melting/Freezing Point:	32^0F
VOC Content:	0%
Viscosity:	50 - 500 cps at 22°C
Flashpoint:	Emulsion, >210°F
Flammable Limits LEL:	N/D
Flammable Limits UEL:	N/D
Odor Threshold:	N/D
Initial Boiling Point/Range:	N/D
Vapor Pressure:	N/D
Evaporation Rate:	N/D
pH:	4-9.5
Octanol/Water Coefficient:	N/D
Decomposition Temperature:	N/D
Flammability (solid/gas):	N/A
Auto Ignition Temperature:	N/A

SECTION X -- STABILITY AND REACTIVITY

REACTIVITY:	None
CHEMICAL STABILITY:	Stable
CHEMICAL INCOMPATIBILITY:	No hazardous reactions are expected to occur under normal industrial conditions.
HAZARDOUS DECOMPOSITION PRODUCTS:	Thermal decomposition in the presence of air may yield carbon monoxide and/or carbon dioxide and water.
HAZARDOUS POLYMERIZATION:	Does not occur
CONDITIONS TO AVOID:	Keep from freezing

SECTION XI -- TOXICOLOGICAL INFORMATION

EFFECTS OF OVEREXPOSURE

INHALATION:	N/D
SKIN:	N/D
EYES:	N/D
INGESTION:	N/D
CARCINOGENICITY:	N/D
GERM CELL MUTAGENICITY:	N/D
REPRODUCTIVE TOXIN:	N/D

SECTION XII -- ECOLOGICAL INFORMATION

Comparison of the EPA guidelines to the LC_{50} levels of all the species show that Soil Sement® Engineered Formula is practically non-toxic to all species.

Soil Sement Aquatic Toxicity Test Results

*Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms, EPA/600/4-90/027F.

*Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, EPA/600/4-91/002.

*Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Marine and Estuarine Organisms, EPA/600/4-91/003.

	Ceriodaphnia dubia	Fathead minnow	Americamysis bahia	Rainbow trout
ACUTE/SURVIVAL (mg/L)				
LC50	>1000	>1000	>1000	320
NOEC	1000	1000	1000	
LOEC	>1000	>1000	>1000	
CHRONIC/SURVIVAL (mg/L)				
LC50	>1000	>1000	>1000	510
NOEC	1000	1000	1000	340
LOEC	>1000	>1000	>1000	700
CHRONIC/GROWTH/ REPRODUCTION (mg/L)				
LC50	>1000	>1000	>1000	540
NOEC	1000	1000	1000	340
LOEC	>1000	>1000	>1000	700

LC50 - Lethal Concentration, 50%

1101 3rd Street
Southeast
Canton, OH 44707 USA
330.456.3121
800.321.0699
www.midwestind.com

SAFETY DATA SHEET

SECTION XIII -- DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: Consult your local authorities for regulations. Preferred waste management: recycle or reuse, incinerate with energy recovery, disposal in a licensed facility. Disposal facility should be compliant with state, local and federal government regulations.

SECTION XIV -- TRANSPORTATION INFORMATION

DOT HAZARDOUS MATERIAL DESCRIPTION: None
PROPER SHIPPING NAME: Soil-Sement® EF69PB
UN NUMBER: N/A
HAZARD CLASS/PACKAGING GROUP: None
LABELS REQUIRED: None

SECTION XV -- REGULATORY INFORMATION

NFPA RATING:	Health:	1	**HMIS RATING:**	Health:	1
	Flammability:	0		Flammability:	0
	Instability:	0		Physical Hazard:	0
				PPE:	B

Toxic Chemicals present in quantities greater than the "de minimus" level are: None
OSHA HCS hazard class: Skin sensitizer, 1
EPA SARA Title III Section 313 (40CFR372): None
TSCA: all components listed or exempt
Canadian WHIMIS: N/A

SECTION XVI -- OTHER INFORMATION

LATEST REVISION: 3-Nov-16
ABBREVIATIONS AND SYMBOLS:

N.D.	Not Determined	N.A.	Not Applicable	N.T.	Not Tested
<	Less Than	>	More Than		

1101 3rd Street
Southeast
Canton, OH 44707 USA
330.456.3121
800.321.0699
www.midwestind.com

Soil-Sement® EF89PB

SAFETY DATA SHEET

SECTION I -- IDENTIFICATION OF SUBSTANCE/PREPARATION AND COMPANY/UNDERTAKING

TRADE NAME: Soil-Sement® EF89PB
MANUFACTURER: Midwest Industrial Supply, Inc
1101 3rd Street SE
Canton, OH 44707
EMERGENCY PHONE NUMBER: 330-456-3121
RECOMMENDED USE: Dust Suppresant; Soil Stabilizing Agent; Aggregate Pile Sealer
CHEMICAL NAME: Aqueous styrene butadiene polymer emulsion
SYNONYMS:

SECTION II -- HAZARDS IDENTIFICATION

CLASSIFICATION: None
SIGNAL WORD: None
HAZARD STATEMENT(S): None
PRECAUTIONARY STATEMENT(S): Wash hands and exposed areas while product is still in liquid form to minimize film formation on skin.
Keep in closed containers to minimize evaporation or water.
OTHER HAZARDS: None

SECTION III -- COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS #	WT %
Styrene Butadiene polymer	Non-hazardous	5-50%
Water	7732-18-5	95-50%
Ammonium hydroxide	1336-21-6	<0.1%

SECTION IV -- FIRST AID MEASURES

INHALATION: Move subject to fresh air.
SKIN: Flush with large amounts of water or wash with soap and water.
EYES: Flush eyes
INGESTION: Give water to drink. Call a physician.
NEVER GIVE
Ammonium hydroxide exposure may cause upper respritory tract irritation and eye damage.
RECOMMENDATION TO FIREFIGHTERS ON SPECIAL PROTECTIVE EQUIPMENT OR PRECAUTIONS: None

SECTION V -- FIREFIGHTING MEASURES

Revision Date : 5/21/2015

EXTINGUISHING MEDIUM:	water, dry foam, chemial foam, carbon dioxide, alcohol resistant foam
SPECIAL FIREFIGHTING PROCEDURES:	wear protective eyewear, gloves, clothing.
UNUSUAL FIRE AND EXPLOSION HAZARDS:	Material can splatter above 212°F. Dried polymer film can burn but will not support combustion. May release irritating vapor or fumes.
SPECIAL HAZARDS:	None

SECTION VI -- ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS:	Use propper personal protective equipment.
SPILL AND LEAK PROCEDURES:	Dike and control spill. Transfer liquid to containers for recovery or disposal. Keep spills out of sewers and open bodies of water.

SECTION VII -- HANDLING AND STORAGE

STORAGE:	Keep in a cool, dry, ventilated storage area and in closed containers. Avoid freezing temperatures. Minimize contact with the air to prevent microorganism contamination and reduce the formation of skins on the surface.
HANDLING:	Handle in a well-ventilated workspace. Follow good industrial hygiene procedures.

SECTION VIII -- EXPOSURE CONTROL/PERSONAL PROTECTION

CONTROL PARAMETERS:	1336-21-6. Ammonium hydroxide	ACGIH TLV 17mg/M^3 OSHA PEL 35mg/M^3 OSHA TWA 25ppm (18mg/M^3) ST 35ppm (27mg/M^3 ACGIH TWA 25ppm (18mg/M3) ST 35ppm (27mg/M^3
VENTILATION:	Mechanical exhaust at point of contaminant	
RESPIRATORY PROTECTION:	None required if good ventilation is maintained.	
EYE PROTECTION:	Chemical splash goggles recommended	
PROTECTIVE CLOTHING:	Impervious gloves recommended	

SECTION IX -- PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Odor:	Characteristic sweet odor

Vapor Density:	N/D
Solubility in Water:	Dilutable
Relative Density:	1.00-1.05
Melting/Freezing Point:	N/D
VOC Content:	0%
Viscosity:	50 - 500 cps at 22°C
Flashpoint:	Emulsion, >210°F
Flammable Limits LEL:	N/D
Flammable Limits UEL:	N/D
Odor Threshold:	N/D
Initial Boiling Point/Range:	100 C (212 F)
Vapor Pressure:	17 mm Hg @20C
Evaporation Rate:	N/D
pH:	6-9
Octanol/Water Coefficient:	N/D
Decomposition Temperature:	N/D
Flammability (solid/gas):	N/A
Auto Ignition Temperature:	N/A

SECTION X -- STABILITY AND REACTIVITY

REACTIVITY:	None
CHEMICAL STABILITY:	Stable
CHEMICAL INCOMPATIBILITY:	No hazardous reactions are expected to occur under normal industrial conditions.
HAZARDOUS DECOMPOSITION PRODUCTS:	Thermal decomposition in the presence of air may yield carbon monoxide and/or carbon dioxide and water.
HAZARDOUS POLYMERIZATION:	Does not occur
CONDITIONS TO AVOID:	N/A

SECTION XI -- TOXICOLOGICAL INFORMATION

ORAL	1336-21-6, ammonium hydroxide	LD50 350mg/kg (rat)

EFFECTS OF OVEREXPOSURE

INHALATION:	Vapor from stored, undiluted product can cause headache and nausea.
SKIN:	Stored, undiluted product is slightly irritating to skin.
EYES:	Slightly irritating to eyes
INGESTION:	May be irritating to digestive tract.
CARCINOGENICITY:	N/D

GERM CELL MUTAGENICITY: N/D
REPRODUCTIVE TOXIN: N/D

SECTION XII -- ECOLOGICAL INFORMATION

Soil Sement EF89PB is not expected to cause any ecological problems.

SECTION XIII -- DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: Consult your local authorities for regulations. Preferred waste management: recycle or reuse, incinerate with energy recovery, disposal in a licensed facility. Disposal facility should be compliant with state, local and federal government regulations.

SECTION XIV -- TRANSPORTATION INFORMATION

DOT HAZARDOUS MATERIAL DESCRIPTION: None
PROPER SHIPPING NAME: Soil-Sement® EF89PB
UN NUMBER: Not regulated
HAZARD CLASS/PACKAGING GROUP: Not regulated
LABELS REQUIRED: None

SECTION XV -- REGULATORY INFORMATION

NFPA RATING:	Health:	1	**HMIS RATING:**	Health:	1
	Flammability:	0		Flammability:	0
	Instability:	0		Physical Hazard:	0
				PPE:	A

Toxic Chemicals present in quantities greater than the "de minimus" level are: None
OSHA HCS hazard class: Non-hazardous
EPA SARA Title III Section 313 (40CFR372): None
TSCA: all components listed or exempt
Canadian WHIMIS: N/A

SECTION XVI -- OTHER INFORMATION

LATEST REVISION: 29-May-15

ABBREVIATIONS AND SYMBOLS:

N.D.	Not Determined	N.A.	Not Applicable	N.T.	Not Tested
<	Less Than	>	More Than		

ATTACHMENT "E": TAILINGS MANAGEMENT PLAN

TAILINGS MANAGEMENT PLAN

Hermosa Project

TRINITY CONSULTANTS
702 East Osborn Rd., Suite 160
Phoenix, Arizona 85014
(602) 274-2900

SOUTH32 Hermosa, Inc.
1860 E. River Road
Suite 200
Tucson, AZ 85718
Phone: (520) 485-1300

December 2023

Project 230301.0033

Trinity Consultants

TABLE OF CONTENTS

LIST OF TABLES

1. PLAN OBJECTIVES AND DESCRIPTION

South32 Hermosa, Inc. is a mineral exploration and development company focused on the exploration and potential development of the Hermosa Project near Patagonia, Arizona, in Santa Cruz County. The exploration work conducted thus far has shown deposits of zinc (Zn), silver (Ag), manganese (Mn), and lead (Pb) and further exploratory work is ongoing. This Tailings Management Plan (TMP) was developed per the request of the Arizona Department of Environmental Quality (ADEQ).

As part of the Hermosa project South32 plans to operate underground mining of two deposits:

- Taylor Deposit (Taylor), a high-grade Zinc-Lead-Silver deposit that will be mined primarily for Zinc (Zn) and lead (Pb).
- Clark Deposit (Clark), a high-grade Manganese-Zinc-Silver deposit that will be mined for manganese as the main constituent.

While the ore from each of the deposits will be handled separately, only the Taylor deposit will generate tailings for placement. Waste rock stockpiles will be shared between the two deposits. Tailings from the Taylor deposit, some of which will be used to generate a paste backfill for both the Taylor and Clark operations, will be thickened, filtered, and returned underground to backfill voids as cemented paste backfill or dry stacked in either of the tailing storage facilities (TSF1 or TSF2). Tailings handling and wind erosion of the TSFs have the potential to produce dust emissions. This TMP is meant to serve as a guidance document for general tailing operations, dust control measures, and monitoring procedures of the Hermosa Project TSFs to prevent excessive amounts of particulate matter from becoming airborne during the project's operations. Adherence to this TMP will also serve to enhance compliance with opacity and visibility requirements associated with the future Air Quality Permit for the Hermosa Project operations.

1.1 Plan Objectives

The primary objective of this Plan is to outline the methods, design and procedures South32 will follow to accomplish the following:

- Protect the TSFs against the erosion associated with wind and rain and;
- Minimize the generation of fugitive dust from the TSFs operation.

1.2 Operator Training Program

South32 will develop an operator training program that will provide employees who are responsible for the implementation of the procedures described in this TMP with the expertise and the information that would enable them to perform their respective duties. As operations mature, more frequent training sessions may be required to train employees on amendments to this TMP and to train newly assigned personnel.

1.3 Assignment of Responsibilities and Procedures

A list of key personnel with operating and maintenance responsibilities related to the TSF is shown in **Table 1-1**.

Table 1-1. Tailings Storage Facility TMP Responsibilities

Title	Responsibility
President Hermosa	Overall responsibility for project and environmental compliance.
Principial Environment	Environmental monitoring, reporting and permitting.
Responsible Tailings Engineer	TSF Management.
Responsible Tailings Engineer	TSF Operation.
Responsible Tailings Engineer	Routine maintenance work.
Responsible Tailings Engineer	Reading and recording monitoring data.
Responsible Tailings Engineer	Visual surveys.
Responsible Tailings Engineer	Review compaction/moisture data and record material placement volumes.
Responsible Tailings Engineer	Inspect for erosion, sediment or blockage of flow carrying capacity within the TSF including at internal detention ponds and internal diversion channels. Inspect for proper drainage.
Responsible Tailings Engineer	Inspect protective layer for erosion and damage from any rock armor rockfall.
Responsible Tailings Engineer	Review all weekly inspections.
Responsible Tailings Engineer	Inspect the dry stack TSF slopes for any slides, depressions, displacements, misalignments, cracking, burrowing by animals, erosion, or seepage.
Responsible Tailings Engineer	Visually inspect slope integrity, condition of geomembrane and anchor trench.
Responsible Tailings Engineer	Review all inspection records have been properly documented and logged.
Engineer of Record & Responsible Tailings Engineer	Review of construction records for adherence with the design requirements.
Engineer of Record & Responsible Tailings Engineer	Review of the quality control records for tailings moisture and compaction.

South32 will assign operators to the TSF who are responsible for conducting the weekly, monthly, and annual inspections and monitoring of the general operations of the TSF. The Environmental Department would review the daily inspection reports on at least a quarterly basis. The data collected would be filed electronically. Any variances from the design basis that could adversely affect facility performance will be reported to the responsible department so corrective actions can be taken.

2. GENERAL TAILINGS OPERATION

The proposed Hermosa Project will consist of the mining of both the Taylor Deposit (Taylor) and Clark Deposit (Clark). Two of the operations at the Hermosa Project are the tailings filtration and waste rock deposition/placement.

2.1 Tailings Filtration

There will be one tailings filtration facility at the Taylor site. The Taylor facility will process tailings from the zinc rougher and cleaner units. Tailings will be dewatered by a thickener first and then tailings filters. The majority of the filter cake will be temporarily stored in silos and be loaded into trucks and hauled to a lined, dry-stack tailings storage facility. The rest will be transported to the tailings paste plant. Flocculants will be mixed in the flocculant skid. Primary emissions are anticipated to be PM, PM_{10}, $PM_{2.5}$ and Pb.

2.2 Auxiliary Operations

2.2.1 Tailings Paste Plant

South32 is proposing to construct two separate tailings paste plants, one for Taylor and one for Clark. Through the use of recycled tailings and cement, the paste is able to serve as a fortification to stabilize mine conditions, making the underground environment safer and reducing the risk of subsidence. After the tailings have been mixed properly with cement, they will be pumped to the underground mine. South32 is proposing to include dust collectors to collect PM, PM_{10}, $PM_{2.5}$ and Pb emissions from cement handling and tailing/cement mixture activities at the paste plant.

2.3 Tailings Storage Facility

The planned development of the Hermosa Project includes development of a second TSF (TSF2) on National Forest System lands located to the northeast of the proposed Project as a supplement to the existing TSF (TSF1). The TSF2 would be used after being constructed and commissioned. Both TSFs would use the same technologies and are subject to the same air quality regulatory requirements. Addition of the second TSF requires approval from the Coronado National Forest through the approval of a Mine Plan of Operations (MPO). Addition of the second TSF does not trigger any additional applicable requirements beyond those discussed as applicable to the existing TSF.

South32 shall keep a log of the date that it switches from TSF1 only operations to TSF1 and TSF2 operation under A.A.C. R18-2-306(A)(11)(a).

2.3.1 Plan I (Base Case)

South32 currently operates a dry stack tailings storage facility that stores legacy tailings and other permitted materials. South32 is proposing to store future production tailings from the Hermosa Project at this facility. The tailings will be filtered at the tailing filtration plant before they are sent to the tailings facility. The external faces of the TSF will be covered with rock armoring to protect against erosion and minimize dust emissions. Dozers/roto-compactors will spread and compact material. This activity will produce dust emissions.

2.3.2 Plan II

The planned development of the Hermosa Project includes development of a second TSF on National Forest lands located to the northeast of the proposed Project area as a supplement to the existing TSF. The external faces of TSF2 will be covered with rock armoring to protect against erosion and minimize dust emissions. It will also produce dust emissions similar to the existing TSF.

2.3.3 Rock and Intermediate Piles

In Plan I, the TSF2 will not be developed so waste rock from both deposits will be transported from the mine to TSF1 and waste rock stockpiles for NAG and PAG. In Plan II, the TSF2 will be constructed so waste rock from both deposits will be transported from the mine to the TSF1 and/or TSF2. Additionally, for Clark, ore will also be stored in intermediate stockpiles. Dust emissions will occur due to wind erosion from these piles. Dozers/roto-compactors will spread and compact material at the waste rock stockpiles. This will produce emissions of dust as well.

3. TSF DESIGN CONCEPT

3.1 Physical Slope and Stability

Slope stability will be attained by implementing the following design parameters and controls in the dry stack TSF and observing a good operating approach to maintain the TSF in good condition:

- Compaction of the tailings to greater than 90% standard proctor maximum dry density (SPMDD).
- Moisture content of tailings at the active point of placement when compacting is to be within ±3% of the optimum moisture content (OMC). Slight variations from the specified moisture range may be acceptable subject to acceptance by the Engineer and provided the compaction requirements are achieved.
- Lift thickness prior to compaction is 1 ft or less.
- Placement of rock armoring berms prior to tailings placement to minimize erosion potential of the dry stack TSF side slopes.
- Keep the tailings unsaturated. The control measures are:
  - Moisture content at placement is to be OMC ±3% which is below the moisture content where the tailings would normally be considered liquefiable.
  - Maintaining a slope on the top surface of the tailings to avoid ponding of water, thereby keeping the tailings in a relatively dry condition.
  - An underdrain collection system will evacuate direct precipitation towards an external collection pond, for the tailings facility to remain dry and avoid accumulation of water.

3.2 Water and Wind Erosion

Dry stack tailings facilities are susceptible to erosion. The design concept to prevent water and wind erosion and the operational control measures adopted are summarized as follows:

- Exposed exterior tailings surfaces are to be minimized to the greatest extent practical. The primary method of controlling the exposed tailings is placement of rock armor berms along the perimeter of the dry stack TSF prior to placing compacted tailings inside of the berms. The rock armor berms are 5 ft high at 1.5H:1V side slopes placed on a 15 ft wide rock armor base.
- The dry stack TSF design slope is composed of two compound slopes. The first compound slope is the intermediate slope that resides between major bench breaks in the slope and it applies to every 25 ft of vertical rise in the dry stack TSF.
- The intermediate compound slope employs 5 ft high rock berms with 5 ft wide benches. This intermediate slope has an overall slope of 2.5H:1V. The intermediate compound slopes are incorporated into the overall compound slope which includes a 12.5 ft setback or bench, placed every 25 ft in vertical rise.
- The combination of compound slopes results in an overall slope of 3H:1V. Maintaining this geometry will minimize wind and water erosion of the dry stack TSF side slopes.

- The dry stack TSF top surface should be graded (minimum 0.5% and maximum 2%) during placement and post placement to promote surface water run-off to an underdrain and collection pond.
- Limitations on equipment speed and restrictions to travel on certain areas may be implemented to reduce dust production.
- The exposed surface of the tailings stack will be water-sprayed using water trucks in order to minimize wind erosion in areas that are continually disturbed.
- A chemical emulsion or chemical polymer may be utilized on the exposed surface of the tailings stack in an area that has not been disturbed for a long period of time.

4. MATERIAL PLACEMENT

Fugitive dust from the dry stack TSF will be controlled through rock armoring of side slopes, light wetting of the material surface and equipment speed limits. If fugitive dust is a continuous issue, a surface binder such as magnesium chloride or other soil binder will be used.

4.1 Material Placement and Compaction Requirements

Materials placed in the TSF shall be placed in 12-inch loose lifts. This material shall be moisture conditioned to within 3% of the 13% OMC and compacted to a minimum of 90% of the SPMDD.

The tailings shall be protected from weather related degradation. Given the risk of weather-related degradation is high during the monsoon season, the work would be planned carefully to make sure that the dry stack TSF is well compacted prior to rain events and graded to allow positive drainage away from both active and completed work areas. Any degradation due to weather shall be remediated as soon as practicable. Placement of material may be temporarily suspended due to weather if the materials and installation cannot comply with the guidance parameters. In such case, tailings will be temporarily stored in four silos or in an intermediate stockpile, and only then the tailings will be transported to the TSF.

Table 4-1. Material Placement Requirement

Parameter	Requirement
Compaction	Equal to or greater than 90% of the maximum dry density
Lift Thickness	Equal to or less than 1 ft
Moisture Content	Equal to ± 3% optimum moisture content
Surface Drainage	0.5% to 2% slope to promote drainage from the stacking surface

4.2 Rock Armoring

The rock armoring is intended to decrease the potential for wind and water erosion of the external dry stack TSF slopes. The rock armoring material shall consist of approved materials and generally shall be 8-inch minus material with less than 15% passing the No. 200 sieve. The rock armoring shall be placed at the exterior of the dry stack TSF in 5 ft high rock berms on a 20 ft wide and 1 ft thick berm foundation also consisting of rock armoring material. The foundation is placed along the perimeter of the dry stack TSF to provide continuity for rock armoring over the tailings and between berm placement locations. For every 5-ft change in vertical elevation, a new rock berm shall be established prior to subsequent material placement, thereby protecting the open slopes of the dry stack TSF with rock armoring. Rock armoring may be sourced from development rock generated from construction of the exploration declines and/or underground waste rock and may be supplemented from onsite borrow areas as needed.

Table 4-2. Rock Armoring Placement

Parameter	Requirement
Compaction / Moisture Content	None.
Dry Stack TSF Placement Geometry	► 5 ft high berm at 1.5H:1V slopes. ► 1 ft thick and 20 ft wide rock armor base plating placed prior to each rock armor berm. ► 2.5H:1V compound slope consisting of 5 rock armor berms which are each 5 ft high at 1.5H:1V open slopes and each with a 5 ft bench placed every 5 ft of vertical. ► Every 25 ft in vertical rise a single 12.5 ft wide bench will be established on the dry stack TSF (bench totals 17.5 ft when combined with the rock armor bench). Overall compound slope will be 3H:1V for the finished dry stack.
Precautions	► Place rock armor berm prior to subsequent dry stack TSF lifts. Do not leave exposed dry stack TSF surface on exterior slopes. ► Prevent segregation of rock armoring material in stockpiles and during placement.

The Rock Armor material should be stockpiled along the edge of the dry stack TSF on the perimeter of the facility and placed by pushing the material to the required geometry.

5. GENERAL DUST CONTROL ACTIVITIES

The following procedures describe additional activities that may be utilized at the Project site for general dust control methods.

- Keep dust and other types of air contaminants to a minimum in an open area where construction operations, repair operations, demolition activities, clearing operations, leveling operations, or any earth moving or excavating activities are taking place, by good modern practices such as using an approved dust suppressant or adhesive soil stabilizer, paving, covering, landscaping, continuous wetting, detouring, barring access, or other acceptable means;

- Keep dust to a minimum from driveways, parking areas, and vacant lots where motor vehicular activity occurs by using an approved dust suppressant, or adhesive soil stabilizer, or by paving, or by barring access to the property, or by other acceptable means;

- Keep dust and other particulates to a minimum by employing dust suppressants, temporary paving, detouring, wetting down or by other reasonable means when a roadway is repaired, constructed, or reconstructed;

- Take reasonable precautions, such as wetting, applying dust suppressants, or covering the load when transporting material likely to give rise to airborne dust;

- Take reasonable precautions, such as the use of spray bars, wetting agents, dust suppressants, covering the load, and hoods when crushing, handling, or conveying material likely to give rise to airborne dust;

- Take reasonable precautions such as chemical stabilization, wetting, or covering when organic or inorganic dust producing material is being stacked, piled, or otherwise stored;

- Operate stacking and reclaiming machinery utilized at storage piles at all times with a minimum fall of material, or with the use of spray bars and wetting agents;

- Operate tailings piles by taking reasonable precautions to prevent excessive amounts of particulate matter from becoming airborne. Reasonable precautions shall mean rock armoring of sides, wetting, chemical stabilization, revegetation, or other such measures.

- Water, or an equivalent control, shall be used to control visible emissions from haul roads and storage piles;

- All vehicle traffic will be limited to 15 MPH while traveling on-site.

- The use of appropriate means, such as berms, signs, or other effective procedures, to restrict traffic usage to the treated areas.

6. OPACITY MONITORING PROCEDURES

The following section includes observation points for the TSFs as well as the entire Project site itself. Observations will be conducted by an EPA Certified Method 9 Observer. Visual observations have two distinctions, point source and fugitive. Point source emissions generated from stationary sources include two subcategories: pollution control equipment that generate process-related emissions and exhaust through a stack, and emissions from fugitive sources that are not collected by a capture system such as vent hoods and dust collectors. The second distinction is non-point source fugitive emissions that include all other activities such as mobile sources and windblown fugitives.

Since compliance with the EPA reference method requires opacity to be viewed from specific distances and angles with the sun in a specific location relative to the observer, it is more than likely that the observer will need to move to various locations at the facility to meet the distance and sun angle position requirements while conducting an EPA Reference Method 9 (40 CFR 60, Appendix A) observation for any emission source.

6.1 Observation Monitoring Locations and Frequency

Pursuant to the Arizona Administrative Code Title 18, Chapter 2, Article 6, the opacity of emissions from any fugitive dust non-point source shall not be greater than 40% as measured by EPA Reference Method 9. The following describes the monitoring frequency of various fugitive dust emission points.

- Twice daily visibility surveys shall be conducted by a certified Method 9 observer.
- A weekly visual survey of visible emissions (opacity) from process fugitive emissions shall be conducted by a certified Method 9 observer.
- A weekly visual survey of visible emissions (opacity) from the fugitive dust sources shall be conducted by a certified Method 9 observer.
- Once daily when wind speeds are at or above 15 MPH, or gusts at or above 20 MPH, the dry stack tailings areas shall be inspected for easily erodible areas.

6.2 Recordkeeping

- When the wind speeds are at or above 15 mph, or gusts are at or above 20 mph, South32 will maintain a record of each of the following:
    - Meteorological data.
    - Tailings inspections.
    - Control measures used.
    - Corrective action(s) taken to demonstrate compliance with the opacity limitations.

7. ROUTINE MONITORING ACTIVITIES

7.1 Weekly Inspections

The following routine monitoring activities at the TSF shall be conducted each week:

- During material placement perform and / or review compaction and moisture data. Record material placement volumes.
- Visually inspect for erosion, sediment or blockage of flow carrying capacity within the TSF including at internal detention ponds and internal diversion channels. Also, inspect water in the detention ponds and if present record the water level.
- During material placement, visually inspect for proper drainage and identify pooling water (if any).
- Visually inspect for indications of excessive dust. The dry stack TSF may be lightly moisture-conditioned by on-site water trucks as required to minimize fugitive dust generation.
- Visually inspect protective layer for erosion and damage from any rock armor rockfall.

7.2 Monthly Inspections

The following routine monitoring activities at the TSF shall be conducted each month:

- Review all weekly inspections for the month. Review daily quality assurance records.
- Supervise or perform one monthly inspection during the month. All weekly inspection items shall be covered during this once per month verification exercise.
- Visually inspect the dry stack TSF slopes for any slides, depressions, displacements, misalignments, cracking, burrowing by animals, erosion, or seepage.
- Visually inspect slope for any evidence of slides, depressions, displacements, misalignments, cracking, burrowing by animals or seepage.
- Visually inspect slope integrity, condition of geomembrane and anchor trench.
- Visually inspect geomembrane and anchor trench for damage or possible leakage areas. If geomembrane liner damage is noticed, repairs to the liner will be completed immediately with oversight and approval by a qualified quality assurance inspector.

7.3 Yearly Inspections

The following routine monitoring activities at the TSF shall be conducted each year:

- Review all inspection records have been properly documented and logged.
- Review of construction records for adherence with the design requirements.
- Review of the quality control records for tailings moisture and compaction.

8. ADAPTIVE MANAGEMENT

The adaptive management process will be incorporated into the implementation of operational dust control measures. This process will ensure that the most practicable dust control measures are utilized and that the intent of the Plan is being met. The three key general components of adaptive management are:

- Testing assumptions – collecting and using monitoring data to determine if current assumptions are valid.
- Adaptation – making changes to assumptions and monitoring program to respond to new or different information obtained through the monitoring data and project experience.
- Learning – documenting the planning and implementation processes and its successes and failures for internal learning.

Elements that may be modified as part of the adaptive management process for this Plan is the inclusion and implementation of improved methods/techniques for reducing emissions.

9. DATA MANAGEMENT

South32 currently maintains data in various formats including electronic logbooks, spreadsheets, hardcopy and database formats. It is South32's intent that, ultimately, a robust database will be used to house all data collected for the various monitoring programs.