ADEQ
Arizona Department of Environmental Quality

Appendix C: Copies of SIP Regulations - Draft Significant Permit Revision No. 97168, *Attachment "I": Hayden Smelter Site - Specific Requirements*

Air Quality Division
May 20, 2024

This page is intentionally blank.

DRAFT PERMIT No. 39948 (As Amended By Significant Permit Revision No. 97168)
PLACE ID No. 2435

PERMITTEE:	**ASARCO LLC**
FACILITY:	**Hayden Operations**
PERMIT TYPE	**Class I Air Quality Permit**
DATE ISSUED:	**December 24, 2018 (As Amended on DATE PENDING)**
EXPIRY DATE:	**April 20, 2023**

SUMMARY

This renewal Title V permit is issued to ASARCO LLC, the Permittee, for the continued operation of their copper concentrator and smelter facilities located in Hayden, Gila County, Arizona. This is a renewal of Permit #1000042 and #M070399P1-99.

This permit is issued in accordance with Arizona Revised Statutes (ARS) 49-426. It contains requirements from Title 18, Chapter 2 of the A.A.C., Title 40 of the Code of Federal Regulations and a consent decree filed on December 30, 2015 in *United States v. ASARCO LLC*, No. CV-15-02206-PHX-DLR (D. Ariz.). All definitions, terms, and conditions used in this permit conform to those in the Arizona Administrative Code R18-2-101 et. seq. (A.A.C.), Title 40 of the Code of Federal Regulations (CFR) and CV-15-02206-PHX-DLR (D. Ariz.), except as otherwise defined in this permit.

Significant Permit Revision (SPR) No. 97168

This SPR authorizes the incorporation of the Uptake Improvement Project, Fuming Ladle Control Project and the Anode Furnaces Secondary Hood Project. In addition, it authorizes the addition of lead emission limitations at the Hayden Smelter under Attachment "I": Hayden Smelter Site-Specific SIP Requirements as part of the state implementation plan (SIP) for the Hayden Lead Nonattainment Area.

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.

[ARS § 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.

[ARS § 49-426.F, 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 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 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 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, 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:

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.

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

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 ARS § 49-426(E) and A.A.C. R18-2-326.

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

VI. ANNUAL EMISSION INVENTORY QUESTIONNAIRE

A. The Permittee shall complete and submit to the Director an annual emissions inventory questionnaire. The questionnaire is due by March 31st or ninety (90) days after the Director makes the inventory form available each year, whichever occurs later, and shall include emission information for the previous calendar year.

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

B. The questionnaire shall be on a form provided by the Director and shall include the information required by A.A.C. R18-2-327.B.

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

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,

[A.A.C. R18-2-309.2c.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 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. All instances of deviations from permit requirements reported pursuant to Condition XII.B; and

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

[A.A.C. R18-2-309.2.a, -309.2.c-d, and -309.5.d]

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

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.

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. R18-2-304.I]

IX. INSPECTION AND ENTRY

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

B. 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]

C. 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]

D. 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]

E. 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]

F. Record any inspection by use of written, electronic, magnetic and photographic media.

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

X. PERMIT REVISION PURSUANT TO FEDERAL HAZARDOUS AIR POLLUTANT STANDARD

If this source becomes subject to a standard promulgated by the Administrator pursuant to Section 112(d) of the Act, then the Permittee shall, within twelve months of the date on which the standard is promulgated, submit an application for a permit revision demonstrating how the source will comply with the standard.

[A.A.C. R18-2-304.D.3]

XI. ACCIDENTAL RELEASE PROGRAM

If this source becomes subject to the provisions of 40 CFR Part 68, then the Permittee shall comply with these provisions according to the time line specified in 40 CFR Part 68.

[40 CFR Part 68]

XII. 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 telephone or facsimile within 24 hours of the time when the Permittee first learned of the occurrence of excess emissions including all available information from

Condition XII.A.1.b below.

(2) Detailed written notification by submission of an excess emissions report within 72 hours of the notification pursuant to Condition XII.A.1.a(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) Date, 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, 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 taken to limit the excess emissions; and

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

(8) If the excess emissions resulted from start-up or malfunction, the report shall contain a list of the steps taken to comply with the permit procedures.

[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 XII.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 A.A.C. R18-2-310.01.A is prompt for deviations that constitute excess emissions;

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

2. Notice regarding upset conditions, which are defined as malfunctions or breakdowns of pollution control equipment, continuous emissions monitoring systems (CEMS), or continuous opacity monitoring systems (COMS) that are submitted within two working days of discovery shall be considered prompt; and

3. Except as provided in Conditions XII.B.1 and 2, prompt notification of all other types of deviations shall be every 6-months, concurrent with the semi-annual compliance certifications required in Condition VII, and can be submitted on the annual/semiannual deviation monitoring report form located on the Arizona Department of Environmental Quality Website.

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 XII.C.3 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. Compliance Schedule

For any excess emission or permit deviation that cannot be corrected within 72 hours, the Permittee is required to submit a compliance schedule to the Director within 21 days of such occurrence. The compliance schedule shall include a schedule of remedial measures, including an enforceable sequence of actions with milestones, leading to compliance with the permit terms or conditions that have been violated.

[ARS § 49-426.I.3]

E. 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 XII.E.3.b, 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 XII.E.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 XII.E.2.

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

5. Demonstration of Reasonable and Practicable Measures

For an affirmative defense under Condition XII.E.2 or XII.E.3, the Permittee shall demonstrate, through submission of the data and information required by Condition XII.E and A.A.C. R18-2-310.01, 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]

XIII. 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]

XIV. REPORTING REQUIREMENTS

A. The Permittee shall submit the following reports:

B. Compliance certifications in accordance with Condition VII.

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

C. Excess emission; permit deviation, and emergency reports in accordance with Condition XII.

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

D. Other reports required by any condition of Attachment "B".

XV. 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 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]

XVI. 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 Condition XVII, as follows:

A. Administrative Permit Amendment (A.A.C. R18-2-318);

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

B. Minor Permit Revision (A.A.C. R18-2-319); and

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

C. Significant Permit Revision (A.A.C. R18-2-320)

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

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

XVII. FACILITY CHANGE WITHOUT A PERMIT REVISION

A. The Permittee may make changes at the permitted source without a permit revision if all of the following apply:

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

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 XVII.A and XVII.C of this Attachment.

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

C. For each change under Conditions XVII.A and XVII.B above, a written notice by certified mail or hand delivery shall be received by the Director and the 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.

[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.

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

G. Notwithstanding any other part of this Section, 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 this Section over the term of the permit, do not satisfy Condition XVII.A above.

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

XVIII. TESTING REQUIREMENTS

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

A. The Permittee shall conduct performance tests as specified in the permit and at such other times as may be required by the Director.

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.

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.

D. Test Plan

At least 14 working days prior to performing a test, the Permittee shall submit a test plan to the Director in accordance with A.A.C. R18-2-312.B and the Arizona Testing Manual. This test plan must include the following:

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:

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.

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 30 days after the test is performed, or as otherwise provided 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.

H. Extension of Performance Test Deadline

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

For performance testing required under Condition XVIII.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 subsections Conditions XVIII.H.1, 2, and 3 above, the Permittee remains subject to the requirements of Condition XVII of Attachment A.

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

5. For purposes of Condition XVIII, 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.1]

XIX. 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]

XX. 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]

XXI. 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 XVI.B of this Attachment and any facility changes without a permit revision pursuant to Condition XVII of this Attachment.

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

XXII. PROTECTION OF STRATOSPHERIC OZONE

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

[40 CFR Part 82]

XXIII. 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 and Part 63]

ATTACHMENT "B": SPECIFIC CONDITIONS

I. FACILITY-WIDE REQUIREMENTS

A. Unless otherwise noted, all references to consent decree (CD) in this permit shall refer to the consent decree filed on December 30, 2015 in *United States v. ASARCO LLC,* No. CV-15-02206-PHX-DLR (D. Ariz.). After termination of the CD, the Director shall exercise any responsibilities and authorities granted to EPA under the CD for the items identified in CD paragraph 101 and included in this permit, except as otherwise provided in this permit.

B. The following effective dates shall apply:

1. Any requirement contained in this permit authorized by A.A.C. R18-2-B1301 or A.A.C. R18-2-B1302 shall not be effective until the earlier of July 1, 2018 or 180 days after completion of all project improvements authorized by Significant Permit Revision No. 60647.

[A.A.C R18-2-715.I, 715.01.V, A.A.C. R18-2-B1301.A.2, B1302.A.2]

2. Any requirement contained in this permit authorized by A.A.C. R18-2-B1301.01 shall not be effective until December 1, 2018.

[A.A.C. R18-2-B1301.01.A.2]

C. At the time the compliance certifications required by Section VII of Attachment "A" are submitted, the Permittee shall submit summary reports of any monitoring required in this permit, and performed in the six months that correspond with the compliance certification periods.

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

D. Opacity

1. Instantaneous Surveys and Six-Minute Observations

a. Instantaneous Surveys

Any instantaneous survey required by this permit shall be determined by an EPA Reference Method 9 Certified Observer.

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

b. Six-Minute Observations

Any six-minute observation required by this permit shall be determined by EPA Reference Method 9.

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

2. Monitoring, Recordkeeping, and Reporting Requirements

a. At the frequency specified in 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 plume 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 plume on an instantaneous basis appears greater than the applicable opacity standard, then the Permittee shall immediately conduct a six-minute observation of the plume.

(1) If the six-minute observation of the plume 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 plume 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;

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

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

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

E. Definition of" Blowing"

"Blowing" shall mean the introduction of air or oxygen-enriched air into the converter furnace molten bath through tuyeres that are submerged below the level of the molten bath. The flow of air through the tuyeres above the level of the molten bath or into an empty converter shall not constitute "Blowing".

[CD CV-15-02206-PHX-DLR 6]

II. HAZARDOUS AIR POLLUTANTS REQUIREMENTS

A. Emissions Limitations

Total hazardous air pollutant (HAP) emissions from the facility shall be less than the following:

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

1. *10 tons of any single HAP on rolling 12-month basis; and*

2. *25 tons of all HAPs on rolling 12-month basis*.

B. Monitoring and Recordkeeping Requirements

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

1. The Permittee shall monitor and record:

   a. Total ore processed at the track hopper every calendar month.

   b. Total concentrate processed through the concentrate dryers every calendar month.

   c. Total feed processed through the flash furnace every calendar month

   d. Total natural gas used at the facility every calendar month, and total natural gas used in the flash furnace, converters and anode furnaces, every calendar month, measured at appropriate meters.

   e. Hours of operation for the emission sources for each stack in the concentrator and smelter every calendar month

   f. Material processed in brick crusher during every calendar month.

C. Testing Requirements

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

1. Composite Metallurgical Assay in the Ore and Flash Furnace Feedstock

   a. The Permittee shall determine concentrations in weight percent of arsenic, lead, manganese and selenium in the ore and flash furnace feedstock at least once every month by means of composite metallurgical assay of dry feed material. If any of these HAPs in ore or flash furnace feed sample is greater than the levels in Table 1, the Permittee shall test a second sample. In such an event, the average of two samples shall be taken for determining monthly average concentrations.

Table 1

HAP	Ore (%)	Feed (%)
As	0.027	0.586
Pb	0.042	1.162
Mn	0.511	0.205
Se	0.041	0.174
Other metal HAPs	0.236	0.615
Total metal HAPs	0.354	1.246

   b. The Permittee shall determine concentrations in weight percent of other metal HAPs (antimony, cadmium, chromium, , nickel, cobalt, beryllium and mercury) in the ore and flash furnace feedstock once a year by means of composite metallurgical assay of dry feed material.

   c. The protocol to conduct the composite metallurgical assay shall be made available for inspection when requested by the Department.

   d. The Permittee shall maintain records of monthly average concentrations in weight percent of HAPs in the ore and flash furnace feed.

2. Performance Test for Stacks in Concentrator

The Permittee shall conduct performance test for PM for scrubbers 1 through 10 once every year in accordance with EPA Reference Method 5.

3. Performance Test for Smelter Area Stacks

a. Within 6 months of the issuance of this permit, the Permittee shall conduct performance tests for Metal HAPs from the following emission points:

(1) Acid plant tail gas - Testing shall be conducted when the flash furnace and converters are operating

(2) Vent gas baghouse – Testing shall include product baghouse ventilation and matte tapping, slag skimming emissions.

(3) Secondary hood baghouse - Testing shall include at least one full charging and Blowing cycle.

(4) Anode furnace baghouse - Testing shall include at least one full refining cycle (charging, blowing, and poling).

(5) Tertiary capture system - Testing shall be conducted when the converters are operating.

b. Brick crusher stack – The Permittee shall conduct a performance test for the brick crusher stack once during the permit term if the brick crusher is operated to process bricks. The Permittee shall ensure that prior to the initial use of the brick crusher in the permit term, sufficient amount of bricks are available to conduct the performance test.

c. The performance tests in Conditions II.C.3.a and II.C.3.b above shall be conducted in accordance with USEPA Reference Method 29.

d. Except as required in Condition II.C.3.e, performance tests for the emission points in Condition II.C.3.a shall be repeated every 6 months. After the first 3 performance tests, tests for the stacks shall be performed annually.

e. If for any two consecutive months following the last Method 29 test of the five smelter process emission points in Condition II.C.3.a, the monthly assays of feed for any single metal HAP, or Total Metal HAPs are greater than the levels in Table 1, within 30 days, and quarterly thereafter, the Permittee shall conduct a Method 29 test on all the five process emission points in Condition II.C.3.a, until the monthly assays for HAPs are below the levels in Table 1 for two consecutive months. Method 29 tests performed to comply with this provision shall be included in the 3 most recent performance tests referenced in Condition II.D.1.c.

f. The Permittee shall record the hours of operation and process throughput during each test.

g. The performance test report shall provide the following information for

each emission point unit in Conditions II.C.3.a and II.C.3.b:

(1) Emissions of total particulate, in pounds per hour

(2) Emissions of each HAP, in pounds per hour, and as % particulate emissions

(3) Emissions of total HAP, pounds per hour, and as % particulate emissions

D. Compliance Demonstration

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

1. By the 15th day of the following month, the Permittee shall calculate the total tons of each individual HAP and the sum of all HAP emitted during a month using the following procedure.

a. HAPs emissions from each wet scrubber = PM in pounds per hour (based on Method 5 test) * number of hours of operation * current month assay concentration of HAPs in the ore/2000.

b. Fugitive HAPs emissions from concentrator facility = Estimated fugitive PM emissions (0.12 pound per ton of ore) * ore processed in the month *current month assay concentration of HAPs in the ore/2000.

c. For each of the emission points in smelter facility identified in Conditions II.C.3.a, the emissions of each HAP shall be calculated by either of the two methods below:

(1) If PM CEMS data is available,

HAPs emissions = Total PM from PM CEMS * average HAP weight % of PM from the 3 most recent performance tests in Condition C.3.f.

(2) If a PM CEMS data is not available,

HAPs emissions = average HAP in pounds per hour from 3 most recent performance tests in Condition II.C.3.g * number of hours of operation during the calendar month and divided by 2000

d. For Brick crusher, the emissions of each HAP = most recent Method 29 test result, in pounds per ton * throughput for brick crusher during the calendar month.

e. Process Fugitive emissions from the smelter shall be calculated as follows:

(1) Until the Fugitive Emissions Study for the smelter is completed, calculate process fugitive HAP emissions by multiplying tons of concentrate tons processed during the month by the following factors:

Pollutant	Process Sources (lb./ton of Concentrate)
Pb	0.0013
As	0.00064
Mn	0.00061
Se	0.00043
Other metal HAPs	0.00024

(2) After the Fugitive Emissions Study for the smelter is completed, calculate process fugitive HAP emissions by multiplying tons of concentrate tons processed during the month by the factors developed in the study.

f. Non-process Fugitive HAP emissions from the smelter shall be calculated by multiplying tons of concentrate processed during the month by the following factors:

Pollutant	Non-process Sources (lb./ton of Concentrate)
Pb	0.0010
As	0.00035
Mn	0.00013
Se	0.000058
Other metal HAPs	0.00028

g. Natural gas metal HAP shall be calculated by multiplying the total natural gas purchased during the month, less natural gas used at the flash furnace, converters, and anode furnaces * AP-42 emission factors.

h. Natural gas non-metallic HAP shall be calculated by multiplying the total natural gas purchased * AP-42 emission factors.

i. Total HAP shall be calculated as the sum of paragraphs a through h.

2. The 12-month rolling sum for each HAP and total HAPs shall be calculated by taking the prior month's value and adding it to the eleven prior calendar month's values. Compliance is demonstrated if the 12-month rolling sum for each HAP is less than 10 tons and if the 12-month rolling sum of all HAPs is less than 25 tons.

3. If the 12-month rolling sum of any HAP exceeds 9 tons or the 12-month rolling sum for all HAP exceeds 23.0 tons, the Permittee shall make the compliance demonstration in Conditions II.D.1 and II.D.2 by the third working day of each week in lieu of monthly.

III. GENERAL FACILITY-WIDE REQUIREMENTS

A. Fugitive Emissions Studies

[CD CV-15-02206-PHX-DLR 22]

1. The Permittee shall conduct Fugitive Emissions Studies in accordance with Paragraph 22 of the CD and as per the following schedule:

   a. The first Fugitive Emissions Study shall commence no later than six (6) months after completion of the Converter Aisle Retrofit Project.

   b. The subsequent Fugitive Emissions Study commencement date shall occur within the same calendar quarter, but five (5) years later from the date of commencement of the first Fugitive Emissions Study.

B. Fugitive Dust Plan

1. Requirements from CD

   The Permittee shall submit to EPA an initial fugitive Dust Plan for approval in accordance with the CD. Once approved, the Permittee shall comply with the requirements of the Dust Plan at all times.

   [CD CV-15-02206-PHX-DLR 25]

   a. The Dust Plan shall, at a minimum, contain the elements and requirements set forth in Appendix B of the CD.

      [CD CV-15-02206-PHX-DLR 25.a]

   b. For any element of the Dust Plan that requires new construction at the Facility, the Permittee shall complete such construction, in accordance with the specifications and schedule set forth in the approved Dust Plan and the CD.

      [CD CV-15-02206-PHX-DLR 25.b]

   c. Until the termination of the CD, the Permittee shall submit any proposed modifications and/or revisions to the approved Dust Plan to EPA for review and approval.

      [CD CV-15-02206-PHX-DLR 25]

   d. Upon approval by the EPA of the initial or any revised Dust Plan, the Permittee shall comply with the terms of the approved Fugitive Dust Plan, including all modifications and revisions approved or directed by EPA prior to termination of the CD.

      [CD CV-15-02206-PHX-DLR 101(i)]

   e. After termination of the CD, the Permittee shall submit any proposed modifications and/or revisions to the approved Fugitive Dust Plan to the Director pursuant to A.A.C. R18-2-317 through R18-2-320, as applicable. Permittee must comply with the proposed modification(s) and/or revision(s) upon approval or when deemed approved by operation of law. A copy of any application shall be provided to EPA.

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

   f. Any proposed modifications and/or revisions to the approved Fugitive Dust Plan shall comply with all elements and requirements set forth in Appendix B of the CD, even if the CD has terminated, except that requirements made pursuant to CD, Appendix B, Paragraphs 31.B-D and 33, shall not survive the termination of the CD.

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

g. The Permittee shall maintain a copy of the currently approved Fugitive Dust Plan on-site and provide a copy of the currently-approved plan to the Department.

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

h. Any violation of the Fugitive Dust Plan, including all approved modifications or revisions, shall constitute a violation of this permit, except violations of Appendix B, Paragraphs 31.B-D and 33 shall not constitute a violation of the permit. Any violation of the Fugitive Dust Plan that is also a violation of an identical provision of this permit or A.A.C. R18-2-B1301.01 shall constitute a single violation.

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

i. The requirements of this Subsection shall survive termination of the CD.

[CD CV-15-02206-PHX-DLR 101(i)]

2. Requirement from Lead Rule A.A.C. R18-2-B1301.01

a. Definitions

[A.A.C. R18-2-B1301.01.B]

(1) "High wind event" means any period of time beginning when the average wind speed, as measured at a meteorological station maintained by the owner or operator that is approved by the Department, is greater than or equal to 15 miles per hour over a 15 minute period, and ending when the average wind speed, as measured at the approved meteorological station maintained by the owner or operator, falls below 15 miles per hour over a 15 minute period.

(2) Lead-bearing fugitive dust" means uncaptured and/or uncontrolled particulate matter containing lead that is entrained in the ambient air and is caused by activities, including, but not limited to, the movement of soil, vehicles, equipment, and wind.

(3) "Non-smelting process sources" means sources of lead bearing fugitive dust that are not part of the hot metal process, which includes smelting in the INCO flash furnace, converting, and anode refining and casting. Non-smelting process sources include storage, handling, and unloading of concentrate, uncrushed reverts, crushed reverts, and bedding material; acid plant scrubber blowdown solids; and paved and unpaved roads.

b. The Permittee shall develop, implement, and follow a fugitive dust plan that is designed to minimize lead-bearing fugitive dust from non-smelting process sources. At minimum, the fugitive dust plan shall contain all the requirements in A.A.C. R18-2-B1301.01.C.2.

[A.A.C. R18-2-B1301.01.C.2]

c. The fugitive dust plan shall also contain all the Performance and Housekeeping Requirements in A.A.C. R18-2-B1301.01.D. The Permittee

shall comply with these requirements at all times regardless of a fugitive dust plan.

[A.A.C. R18-2-B1301.01.D]

d. The Permittee shall keep current the fugitive dust plan. Any plan or plan revision shall be consistent with this A.A.C. R18-2-B1301.01, and shall be submitted to the Department for review. Plans and plan revisions shall be consistent with good air pollution control practice for fugitive dust. Except for the meteorological station to be used for high wind events which shall require prior approval, plans and plan revisions may be implemented upon submittal and shall remain in effect until superseded or until disapproved by the Department. Disapprovals are appealable Department actions.

[A.A.C. R18-2-B1301.01.C.3]

e. Any violation of A.A.C. R18-2-B1301.01 that is also a violation of an identical provision of this permit or the Fugitive Dust Plan required by III.B. of this Attachment shall constitute a single violation.

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

C. Operating and Maintenance Plan Requirements

1. Requirements from Consent Decree

a. The Permittee shall prepare and submit to EPA a written Operation and Maintenance (O&M) Plan that has been prepared according to the requirements in 40 C.F.R. § 63.1447(b) and the CD.

[CD CV-15-02206-PHX-DLR 27]

b. In addition to the requirements specified in 40 C.F.R. § 63.1447(b), this Plan shall include:

[CD CV-15-02206-PHX-DLR 27]

(1) All operational requirements specified in Paragraphs 7, 8, 9, 10, 11, 12, 23, and 26 of the CD;

(2) The corrective action triggers based on COMS readings as approved by EPA pursuant to Paragraph 16 of the CD; and

(3) All requirements of the approved Dust Plan.

c. The Permittee shall conduct an annual review of the O&M Plan and update as necessary. The Permittee shall also submit an updated O&M Plan within sixty (60) days of each major change to an operational or substantive requirement of the CD that is not already captured within the terms of the existing O&M Plan, including but not limited to additional provisions that apply because of the Converter Retrofit Project, changes made to the parametric monitoring of the hooding, and changes made to the Dust Plan.

[CD CV-15-02206-PHX-DLR 27 & 101.k]

d. Upon approval by EPA, the Permittee shall operate the capture systems according to the written O&M Plan, as updated, at all times that material is being processed in the process vessels controlled or partially controlled

by such systems. The Permittee shall also operate all fugitive dust controls according to the written O&M Plan, as updated, at all times that fugitive dust producing materials are being processed and/or stored at and around the Facility.

[CD CV-15-02206-PHX-DLR 27]

e. After termination of the CD, the Permittee shall submit any proposed modifications and/or revisions to the O & M Plan to the Director pursuant to A.A.C. R18-2-317 through R18-2-320, as applicable. Permittee must comply with the proposed modification(s) and/or revision(s) upon approval or when deemed approved by operation of law. A copy of any application shall be provided to EPA.

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

2. Requirements from National Emission Standards for Hazardous Air Pollutants (NESHAP) 40 CFR Part 63 Subpart QQQ

a. The Permittee shall prepare and operate at all times according to a written operation and maintenance plan for each capture system and control device subject to standards in 40 CFR 63.1444 or 1446. The plan must address the requirements in Conditions III.C.2.a(1) through III.C.2.a(3) below as applicable to the capture system or control device.

[40 CFR 63.1447(b)]

(1) Preventive Maintenance

The Permittee must perform preventative maintenance for each capture system and control device according to written procedures specified in the operation and maintenance plan. The procedures shall include a preventative maintenance schedule that is consistent with the manufacturer's instructions for routine and long-term maintenance.

[40 CFR 63.1447(b)(1)]

(2) Capture System Inspections

The Permittee shall conduct monthly inspections of the equipment components of the capture system that can affect the performance of the system to collect the gases and fumes emitted from the affected source (e.g., hoods, exposed ductwork, dampers, fans) according to written procedures specified in the operation and maintenance plan. The inspection procedure shall include the following requirements as applicable to the capture system or control device.

[40 CFR 63.1447(b)(2)]

(a) Observations of the physical appearance of the equipment to confirm the physical integrity of the equipment (e.g., verify by visual inspection no holes in ductwork or hoods, no flow constrictions caused by dents, or accumulated dust in ductwork).

[40 CFR 63.1447(b)(2)(i)]

(b) Inspection, and if necessary testing, of equipment

components to confirm that the component is operating as intended (e.g., verify by appropriate measures that flow or pressure sensors, damper plates, automated damper switches and motors are operating according to manufacture or engineering design specifications).
[40 CFR 63.1447(b)(2)(ii)]

(c) In the event that a defective or damaged component is detected during an inspection, the Permittee shall initiate corrective action according to written procedures specified in the operation and maintenance plan to correct the defect or deficiency as soon as practicable.
[40 CFR 63.1447(b)(2)(iii)]

(3) Copper Converter Department Capture System Operating Limits

The Permittee shall establish, according to the requirements in Conditions III.C.2.a(3)(a) through III.C.2.a(3)(c) below, operating limits for the capture system that are representative and reliable indicators of the performance of capture system when it is used to collect the process off-gas vented from batch copper converters during Blowing.
[40 CFR 63.1447(b)(3)]

(a) The Permittee shall select operating limit parameters appropriate for the capture system design that are representative and reliable indicators of the performance of the capture system when it is used to collect the process off-gas vented from batch copper converters during Blowing. At a minimum, the Permittee must use appropriate operating limit parameters that indicate the level of the ventilation draft and the damper position settings for the capture system when operating to collect the process off-gas from the batch copper converters during Blowing. Appropriate operating limit parameters for ventilation draft include, but are not limited to, volumetric flow rate through each separately ducted hood, total volumetric flow rate at the inlet to control device to which the capture system is vented, fan motor amperage, or static pressure. Any parameter for damper position setting may be used that indicates the duct damper position relative to the fully open setting.
[40 CFR 63.1447(b)(3)(i)]

(b) For each operating limit parameter selected in Condition III.C.2.a(3)(a) above, the Permittee shall designate the value or setting for the parameter at which the capture system operates during batch copper converter Blowing.
[40 CFR 63.1447(b)(3)(ii)]

(c) The Permittee shall include documentation in the plan to support the selection of the operating limits established

for the capture system. This documentation must include a description of the capture system design, a description of the capture system operation during blister copper production, a description of each selected operating limit parameter, a rationale for why the parameter was chosen, a description of the method used to monitor the parameter according to the requirements in 40 CFR 63.1452(a), and the data used to set the value or setting for the parameter for each of the Permittee's batch copper converter configurations.

[40 CFR 63.1447(b)(3)(iii)]

3. O & M Requirements from SO_2 SIP Rule A.A.C. R18-2-B1302

(Note: These requirements are state enforceable only until EPA approval of the SO_2 SIP rule A.A.C. R18-2-B1302 into the Arizona SIP, after which the requirements shall also be federally enforceable)

a. The Permittee shall operate each capture system and/or control device used to ventilate or control process gas or emissions from the flash furnace including matte tapping, slag skimming, and slag return operations; converter primary hoods, converter secondary hoods, tertiary ventilation system, and anode refining operations in accordance with the O & M Plan, developed in accordance with A.A.C. R18-2-1302.D.2. The initial plan shall include the initial volumetric flow monitoring provisions, the initial operational limits, preventative maintenance procedures, and the inspection procedures.

[A.A.C. R18-2-B1302.D.2]

b. Revisions to O & M Plan

[A.A.C. R18-2-B1302.D.2.e]

(1) The Permittee shall submit to the Department for approval a plan revision with changes, if any, to the initial volumetric flow monitoring provisions and initial operational limits in the O & M Plan not later than six months after completing a fugitive emissions study conducted in accordance with A.A.C R18-2, Appendix 14. The Department shall submit the approved changes to the volumetric flow monitoring provisions and operational limits to EPA Region IX as a SIP revision not later than 12 months after completion of a fugitive emissions study.

(2) Other plan revisions may be submitted at any time when necessary. All plans and plan revisions shall be designed to achieve operation of the capture system and/or control device consistent with the attainment demonstration in the Hayden 2010 Sulfur Dioxide National Ambient Air Quality Standards Nonattainment Area SIP.

(3) Except for changes to the volumetric flow monitoring provisions and operational limits in Condition III.C.3.b(1), which shall require prior approval, plans and plan revisions

may be implemented upon submittal and shall remain in effect until superseded or until disapproved by the Department.

(4) Any plan revision submitted shall include the associated manufacturer's recommendations and/or instructions used for capture system and control device operations and maintenance.

c. Compliance with the O & M Requirements

The Permittee shall determine compliance with the O & M requirements by

[A.A.C. R18-2-B1302.F.3]

(1) Maintaining and operating the emissions capture and control equipment in accordance with the capture system and control device operations and maintenance plan and recording operating parameters for capture and control equipment; and

(2) Conducting a fugitive study in accordance with A.A.C. R18-2, Appendix 14 starting not later than 6 months after completion of the Converter Retrofit Project. The fugitive study shall demonstrate that fugitive emissions from the smelter are consistent with estimates used in the attainment demonstration in the Hayden 2010 Sulfur Dioxide National Ambient Air Quality Standards Nonattainment Area SIP.

d. Recordkeeping Requirements

The Permittee shall maintain a record of the operation and maintenance plan.

[A.A.C. R18-2-B1302.G.1]

4. O & M Plan Requirements from Lead Rule A.A.C. R18-2-B1301

(*Note: These requirements are state enforceable only until EPA approval of the Lead SIP rule A.A.C. R18-2-B1301 into the Arizona SIP, after which the requirements shall also be federally enforceable)*

a. The Permittee shall operate each capture system and/or control device used to ventilate or control process gas or emissions from the flash furnace including matte tapping, slag skimming, and slag return operations; converter primary hoods, converter secondary hoods, tertiary ventilation system, and anode refining operations in accordance with the O & M Plan, developed in accordance with A.A.C. R18-2-B1301.D.2. The initial plan shall include the initial volumetric flow monitoring provisions, the initial operational limits, preventative maintenance procedures, and the inspection procedures.

[A.A.C. R18-2-B1301.D.2]

b. Revisions to O & M Plan

[A.A.C. R18-2-B1301D.2.e]

(1) The Permittee shall submit to the Department for approval a plan revision with changes, if any, to the initial volumetric flow monitoring provisions and initial operational limits in the O & M Plan not later than six months after completing a fugitive emissions study conducted in accordance with A.A.C. R18-2, Appendix 14 . The Department shall submit the approved changes to the volumetric flow monitoring provisions and operational limits to EPA Region IX as a SIP revision not later than 12 months after completion of a fugitive emissions study.

(2) Other plan revisions may be submitted at any time when necessary. All plans and plan revisions shall be designed to achieve operation of the capture system and/or control device consistent with the attainment demonstration in the Hayden 2008 Lead National Ambient Air Quality Standards Nonattainment Area SIP.

(3) Except for changes to the volumetric flow monitoring provisions and operational limits, which shall require prior approval, plans and plan revisions may be implemented upon submittal and shall remain in effect until superseded or until disapproved by the Department.

(4) Any plan revision submitted shall include the associated manufacturer's recommendations and/or instructions used for capture system and control device operations and maintenance.

c. Compliance Requirements

The Permittee shall determine compliance with the O & M requirements by

[A.A.C. R18-2-B1301.F.2]

(1) Maintaining and operating the emissions capture and control equipment in accordance with the capture system and control device operations and maintenance plan and recording operating parameters for capture and control equipment as required in the O & M Plan; and

(2) Conducting a fugitive emissions study in accordance with A.A.C R18-2, Appendix 14 starting not later than 6 months after completion of the Converter Retrofit Project authorized by Significant Permit Revision No. 60647, and demonstrating that the fugitive emissions from the smelter are consistent with estimates used in the attainment demonstration in the Hayden 2008 Lead National Ambient Air Quality Standards Nonattainment Area SIP.

d. Recordkeeping Requirements

(1) The Permittee shall maintain a record of the operation and

maintenance plan.

[A.A.C. R18-2-B1301.G.1]

(2) All records of major maintenance activities and inspections conducted on emission units, capture systems, monitoring devices, and air pollution control equipment, including those set forth in the operations and maintenance plan.

[A.A.C. R18-2-B1301.G.2]

e. Reporting Requirement

Within 30 days after the end of each calendar-year quarter, the Permittee shall submit a quarterly report to the Department for the preceding quarter that shall include dates, times, and descriptions of deviations when the Permittee operated smelting processes and related control equipment in a manner inconsistent with the operations and maintenance plan.

[A.A.C. R18-2-B1301.H.5]

D. Emissions Reductions

[CD CV-15-02206-PHX-DLR Section IX & 101.l]

1. "CD Emissions Reductions" shall mean any emissions reductions that result from any projects, controls, or any other actions utilized to comply with the CD.

[CD CV-15-02206-PHX-DLR 51]

2. The Permittee shall neither generate nor use any CD Emissions Reductions: as netting reductions; as emissions offsets; or to apply for, obtain, trade, or sell any emission reduction credits. Baseline actual emissions for each unit during any 24-month period selected by Permittee shall be adjusted downward to exclude any portion of the baseline emissions that would have been eliminated as CD Emissions Reductions had Permittee been complying with this Consent Decree during that 24-month period. The Permittee and the EPA understand that the Converter Aisle Retrofit Project requires that the five (5) existing Peirce-Smith converters be replaced with three (3) new Peirce-Smith converters and that adjustment of baseline actual emissions to reflect CD Emissions Reductions resulting from that project would therefore reflect converter aisle emissions post-project based on the replacement of the converters rather than only the retirement of the existing converters.

[CD CV-15-02206-PHX-DLR 52]

3. Nothing in this section prevents the Permittee from seeking to:

[CD CV-15-02206-PHX-DLR 53]

a. Use or generate emission reductions from emissions units that are covered by the CD to the extent that the proposed emission reductions represent the difference between CD Emissions Reductions and more stringent control requirements that Permittee may accept for those emissions units in any permitting process;

b. Use or generate emission reductions from emissions units that are not subject to an emission limitation or control requirement pursuant to the CD; or

c. Use CD Emissions Reductions for compliance with any rules or

regulations designed to address regional haze or the non-attainment status of any area (excluding PSD and non-attainment NSR rules, but including, for example, RACT rules) that apply to the facility; provided, however, that the Permittee shall not be allowed to trade or sell any CD Emissions Reductions.

4. Notwithstanding the general prohibition set forth in Condition III.D.2, Permittee may use all pollutant emissions reductions generated by the installation and operation of emissions control devices on the anode furnaces, to which the EPA and Permittee acknowledge that no emissions limit or control requirements apply under 40 C.F.R. Part 63, Subpart QQQ, and which was permitted prior to EPA's November 10, 2011 FOV pursuant to Air Quality Control Permit No. 54251 (minor permit revision to Permit No. 1000042) for the Facility, issued by the ADEQ on August 23, 2011, for purposes of obtaining netting credits or offsets in any PSD, major NSR, and/or minor NSR or other permit or permit proceeding. Utilization of this exception is subject to each of the following conditions:

[CD CV-15-02206-PHX-DLR 54]

a. Under no circumstances shall the Permittee use CD Emissions Reductions prior to the time that actual CD Emissions Reductions have occurred;

b. CD Emissions Reductions may be used only at the facility that generated them;

c. The Permittee shall still be subject to all federal and state regulations applicable to the PSD, Non-attainment NSR, and/or Minor NSR permitting process; and

d. Not later than 30 Days before Permittee seeks to use any CD Emissions Reductions allowed under Condition III.D.4, Permittee shall provide notice of such projects to EPA (including copies of all permit applications and other relevant documentation submitted to the permitting authority).

E. Any requirements included pursuant to the CD in this Attachment or any other Attachment of this permit shall not be deleted or modified without the approval of EPA.

[CD CV-15-02206-PHX-DLR 101.m]

F. Performance and Housekeeping Requirements from Lead Rule A.A.C. R18-2-B1301.01

The Permittee shall comply with these requirements at all times regardless of a fugitive dust plan.

1. The Permittee shall implement a recordkeeping system to capture sprayer operations, including identification of the particular operation, leadbearing fugitive dust source, timing and intensity of watering, and data regarding the quantity of water used at each water sprayer.

[A.A.C. R18-2-B1301.D.1]

2. The Permittee shall ensure that wind fences used to control lead-bearing fugitive dust from the non-smelting process sources specified in Conditions III.F.9 and III.F.10 below meet the following requirements:

[A.A.C. R18-2-B1301.D.2]

a. Wind fence height shall be greater than or equal to the material pile height. The allowed material pile height shall be posted in a readily visible location at each wind fence.

b. Wind fence porosity shall not exceed 50 percent.

3. For sources specified in Conditions III.F.9 and III.F.10 below, as applicable, the Permittee shall:

[A.A.C. R18-2-B1301.D.3]

a. Minimize conveyor drop heights to the greatest extent practicable.

b. Clean any spills from conveyors within 30 minutes of discovery. The material collected must be handled in such a way so as to minimize lead-bearing fugitive dust to the maximum extent practicable.

4. The Permittee shall maintain vehicle cargo compartments used to transport materials capable of producing lead-bearing fugitive dust so that the cargo compartment is free of holes or other openings and is covered by a tarp.

[A.A.C. R18-2-B1301.D.4]

5. High wind event requirements

[A.A.C. R18-2-B1301.D.5]

a. During high wind events, the Permittee shall evaluate the non-smelting process sources specified in Conditions III.F.9 and III.F.10 below for ongoing visible emissions using the appropriate logsheet for each source.

b. If ongoing visible emissions are observed, the Permittee shall promptly wet the source of emissions with the objective of mitigating further emissions.

c. If wetting does not appear to mitigate the ongoing visible emissions to 20 percent opacity or less, the Permittee shall postpone associated handling of the source until the high wind event has ceased.

6. The Permittee shall conduct physical inspections as follows:

[A.A.C. R18-2-B1301.D.6]

a. Daily inspections of all water sprayers to make sure they are functioning and are in accordance with the dust plan;

b. Daily visual inspections of all material piles to make sure they are maintained within areas protected by a wind fence, that they are not higher than allowed for the wind fence, and to verify that moisture content requirements are met;

c. Daily inspections of all material handling areas to identify and clean up track out or spills of materials;

d. Daily inspections of conveyor systems to identify and clean up material spills;

e. Daily inspections of rumble grates sump levels;

f. Daily spot inspections of vehicles carrying lead bearing fugitive dust-producing materials when vehicles are in use to ensure that material is not overloaded, is properly covered, and cargo compartments are intact;

g. Weekly inspections of wind fences for material integrity and structural stability;

h. Daily inspections of all paved roads to identify and clean up track out or spills of materials;

i. Daily inspections of unpaved roads in Condition III.F.8.a to identify areas where chemical dust suppressant coverage has broken down; and

j. Bi-weekly inspections of the acid plant scrubber blowdown drying system enclosure.

7. These requirements apply to all roads at the facility currently paved and roads to be paved in the future. The Permittee shall:

[A.A.C. R18-2-B1301.D.9]

a. Clean roads at least once daily with a sweeper, vacuum, or wet broom in accordance with applicable manufacturer recommendations.

b. Maintain the integrity of the road surface.

c. Clean up trackout and carry-out of material on the following schedule:

(1) As expeditiously as practicable, when trackout and carry-out extends a cumulative distance of 50 linear feet or more; and

(2) At the end of the workday, for all other trackout and carry-out.

d. Comply with a speed limit not to exceed 15 miles per hour for all vehicular traffic. At minimum, speed limit signs shall be posted at all entrances and truck loading and unloading areas and/or at conspicuous areas along the roadway.

8. For the unpaved roads identified in Condition III.F.8.a, including any access points where the unpaved roads adjoin paved roads and any areas of vehicular handling of material, the Permittee shall:

[A.A.C. R18-2-B1301.D.10]

a. Implement a chemical dust suppressant application intensity and schedule, which at minimum shall be:

(1) For the slag hauler road and all other unpaved roads used or to be used by the slag hauler, chemical dust suppressant shall be applied at least once per week during the summer, and once per every two weeks during the winter.

(2) For the main road to the secondary crusher, chemical dust suppressant shall be applied at least once every six weeks,

year-round.

(3) For unpaved roads near reverts and silica flux crushing operations, chemical dust suppressant shall be applied at least once per two weeks during the summer, and once per month in the winter.

b. Increase the frequency of chemical dust suppressant application if necessary to reduce fugitive dust emissions from unpaved roads.

c. Maintain sufficient watering trucks and personnel to operate such trucks to be employed as an interim measure whenever visible emissions or a breakdown in dust suppressant covering are observed at any point along the treated unpaved road system.

d. Immediately, but no later than 30 minutes after initial observation of any visible emissions, apply water or chemical dust suppressant to the portion of the unpaved road where the visible emissions were observed.

e. Reapply chemical dust suppressant within 24 hours of discovery of any area where the surface chemical dust suppressant coverage has broken down.

f. Collect and prevent from becoming airborne any runoff or material from rinsing or sweeping as soon as practicable.

g. Comply with a speed limit not to exceed 15 miles per hour for all vehicular traffic. At minimum, speed limit signs shall be posted at all entrances and truck loading and unloading areas and/or at conspicuous areas along the roadway.

9. The Permittee shall, at all times, comply with the requirements applicable to Concentrate Storage, Handling, and Unloading Operations, bedding operations, furnace/converter silica flux handling and storage operations, converter dust handling operations as identified in the CD CV-15-02206-PHX-DLR B.6, 7, 8, 9 and 11, and included in the approved fugitive dust plan.

[A.A.C. R18-2-B1301.D.11 and 14]

10. The Permittee shall, at all times, comply with the requirements applicable to Uncrushed Reverts Handling and Storage operations and Reverts Crushing and Crushed Reverts Storage as identified in the CD CV-15-02206-PHX-DLR B.3 and 4, included in the approved fugitive dust plan.

[A.A.C. R18-2-B1301.D.12 and 13]

11. cid Plant Scrubber Blowdown Drying System

a. The Permittee shall, at all times, comply with the requirements applicable to Acid Plant Scrubber Blowdown Drying System as identified in the CD CV-15-02206-PHX-DLR B.10, and included in the approved fugitive dust plan.

[A.A.C. R18-2-B1301.D.15]

b. The Permittee shall maintain the negative pressure of the electric dryer

using a 2,500 ACFM dryer ventilation fan that must run at all times the electric dryer is operational. Monitoring of the negative pressure shall be demonstrated through the run and stop states of the ventilation fan and electric dryer.

[A.A.C. R18-2-B1301.D.15.b]

IV. GENERAL COMPLIANCE ASSURANCE MONITORING (CAM) REQUIREMENTS

A. Applicability

These general CAM requirements are applicable to all equipment required to comply with specific CAM requirements identified in the permit.

B. CAM Operation Requirements

1. At all times, the Permittee shall maintain the CAM monitoring equipment, including but not limited to, maintaining necessary parts for routine repairs of the CAM monitoring equipment.

[40 CFR 64.7(b)]

2. Except for, as applicable, monitoring malfunctions, associated repairs, and required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments), the Permittee shall conduct all monitoring in continuous operation (or shall collect data at all required intervals) at all times that the pollutant-specific emissions unit is operating. Data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities shall not be used for purposes of this part, including data averages and calculations, or fulfilling a minimum data availability requirement, if applicable. The Permittee shall use all the data collected during all other periods in assessing the operation of the control device and associated control system. 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 64.7(c)]

3. Upon detecting an excursion or exceedance, the Permittee shall restore operation of the pollutant-specific emissions unit (including the control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include minimizing the period of any startup, shutdown or malfunction and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion or exceedance. Such actions may include initial inspection and evaluation, recording that operations returned to normal without operator action (such as through response by a computerized distribution control system), or any necessary follow-up actions to return operation to within the indicator range, designated condition, or below the applicable emissions limitation or standard, as appropriate.

[40 CFR 64.7(d)(1)]

4. Determination of whether the Permittee has used acceptable procedures in response to an excursion will be based on information available, which may include but is not limited to, monitoring results, review of operation and

maintenance procedures and records, and inspection of the control device, associated capture system, and the process.

[40 CFR 64.7(d)(2)]

5. If the Permittee identifies a failure to achieve compliance with an emission limitation or standard for which CAM did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing indicator ranges or designated conditions, then the Permittee shall promptly notify the Director and, if necessary, submit a proposed modification to the permit to address the necessary monitoring changes. Such a modification may include, but is not limited to, reestablishing indicator ranges or designated conditions, modifying the frequency of conducting monitoring and collecting data, or the monitoring of additional parameters.

[40 CFR 64.7(e)]

C. Quality Improvement Plan (QIP) Requirements

1. In the event that the excursions exceed 5% duration of a pollutant-specific emissions unit's operating time for a reporting period, the Permittee shall develop and implement a QIP. The Director may otherwise specify the threshold at a higher or lower number of excursions or rely on other criteria for purposes of indicating whether a pollutant-specific emissions unit is being maintained and operated in a manner consistent with good air pollution control practices.

[40 CFR 64.8(a)]

2. The QIP shall include the following elements:

[40 CFR 64.8(b)]

a. The Permittee shall maintain a written QIP, if required, and have it available for inspection. Within 30 days of development of the QIP, the Permittee shall notify the Department in writing. The notification shall identify the equipment for which the QIP was developed.

b. The plan initially shall include procedures for evaluating the control performance problems and, based on the results of the evaluation procedures, the Permittee shall modify the plan to include procedures for conducting one or more of the following actions, as appropriate:

(1) Improved preventive maintenance practices;

(2) Process operation changes;

(3) Appropriate improvements to control methods;

(4) Other steps appropriate to correct control performance; and

(5) More frequent or improved monitoring (only in conjunction with one or more of steps (1) through (4).

3. If required, pursuant to Condition IV.C.1, then the Permittee shall develop and implement a QIP as expeditiously as practicable and shall notify the Director if the period for completing the improvements contained in the QIP exceeds 180 days

from the date on which the need to implement the QIP was determined.
[40 CFR 64.8(c)]

4. Following implementation of a QIP, the Director may require the Permittee to make reasonable changes to the QIP if the QIP is found to have:
[40 CFR 64.8(d)]

   a. Failed to address the cause of the control device performance problems; or

   b. Failed to provide adequate procedures for correcting control device performance problems as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions.

5. Implementation of a QIP shall not excuse the Permittee from compliance with any existing emission limitation or standard, or any existing monitoring, testing, reporting or recordkeeping requirement that may apply under federal, state or local law, or any other applicable requirements under the Act.
[40 CFR 64.8(e)]

D. Reporting and Recordkeeping Requirements

1. Along with the compliance certifications required by Condition VII of Attachment "A", the Permittee shall submit to the Director monitoring reports required by this Section.
[40 CFR 64.9(a)(1)]

2. A monitoring report under this Section shall include, at a minimum, the information required under Condition I.B, and the following information, as applicable:
[40 CFR 64.9(a)(2)]

   a. Summary information on the number, duration and cause (including unknown cause, if applicable) of excursions or exceedances, and the corrective actions taken.

   b. Summary information on the number, duration and cause (including unknown cause, if applicable) for monitor downtime incidents (other than downtime associated with zero and span or other daily calibration checks, if applicable); and

   c. A description of the actions taken to implement a QIP during the reporting period as specified in Condition IV.C. Upon completion of a QIP, the Permittee shall include in the next summary report documentation that the implementation of the plan has been completed and reduced the likelihood of similar levels of excursions occurring.

3. The Permittee shall maintain records of monitoring data, corrective actions taken, any written quality improvement plan required pursuant to Condition IV.C and any activities undertaken to implement a quality improvement plan, and other supporting information required to be maintained under this Section (such as data used to document the adequacy of monitoring, or records of monitoring, maintenance or corrective actions).
[40 CFR 64.9(b)(1)]

4. Instead of paper records, the Permittee may maintain records on alternative media, such as microfilm, computer files, magnetic tape disks, or microfiche, provided that the use of such alternative media allows for expeditious inspection and review, and does not conflict with other applicable recordkeeping requirements.

[40 CFR 64.9(b)(2)]

E. Permit Shield

Compliance with the conditions of this Section shall be deemed compliance with 40 CFR Part 64.

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

V. FOSSIL FUEL FIRED EQUIPMENT

A. Applicability

The requirements of this Section are applicable to the acid plant preheater, natural gas-fired boilers, water heaters and space heaters identified in the equipment lists in Attachment "I and J" as subject to this Section V.

B. Fuel Limitations

The Permittee shall fire only natural gas in acid plant preheater, boilers, water heaters, and space heaters.

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

C. Operational Limitation

1. *The Permittee shall not fire natural gas in the acid plant preheater in excess of 460 million standard cubic feet (MMscf) per year based on a 365-day rolling total.*

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

2. The Permittee shall maintain a daily 365 day rolling total of the fuel being combusted in the acid plant preheater in order to demonstrate compliance with the annual fuel limitation requirement in Condition V.C.1.

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

D. Particulate Matter and Opacity

1. Emission Limitations and Standards

a. The Permittee shall not cause, allow or permit the emission of particulate matter, caused by the combustion of fuel in excess of the amount calculated by the following equation:

[A.A.C. R18-2-724.C.1]

$E = 1.02\ Q^{0.769}$

Where:

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

Q= the heat input in million Btu per hour.

b. For purposes of this Section, the heat input shall be the aggregate heat content of all fuels whose products of combustion pass through a stack or other outlet. The total heat input of all fuel-burning units on a plant or premises shall be used for determining the maximum allowable amount of particulate matter which may be emitted.

[A.A.C. R18-2-724.B]

c. The Permittee shall not cause, allow or permit to be emitted into the atmosphere, smoke which exceeds 15 percent opacity.

[A.A.C. R18-2-724.J]

2. Monitoring, Reporting, and Recordkeeping Requirements

a. The Permittee shall maintain a vendor-provided copy of that part of the Federal Energy Regulatory Commission (FERC) approved Tariff agreement that contains the lower heating value of the natural gas fuel.

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

b. The Permittee shall conduct a quarterly monitoring of visible emissions from the stacks of all boilers/heaters greater than 10 million BTU per hour in accordance with Condition I.D.

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

c. The Permittee shall report all 6-minute periods during which the visible emissions exceed 15 percent opacity, as required under Section XII of Attachment "A".

[A.A.C. R18-2-724.J]

E. Sulfur Dioxide

1. Emission Limitations and Standards

The Permittee shall not emit more than 1.0 pound of sulfur dioxide per million BTU heat input.

[A.A.C. R18-2-724.E]

2. Monitoring, Recordkeeping, and Reporting Requirements

The Permittee shall keep records of fuel supplier certifications to demonstrate compliance with Condition V.E.1 above.

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

F. Nitrogen Oxides

1. Emission Limitations and Standards

The Permittee shall not emit or cause to emit more than 0.17 pounds per MMBtu of nitrogen oxides from the acid plant preheater.

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

2. Performance Test Requirements

a. Within 60 days of achieving the maximum throughput, but not later than 180 days of the startup of the acid plant preheater, unless otherwise required by Condition V.F.2.b the Permittee shall conduct a performance test for nitrogen oxides in accordance with EPA reference Method 7 to demonstrate compliance with nitrogen oxides emission standard in Condition V.F.1. The performance test shall be repeated annually (between 11 and 13 months of the previous performance test).

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

b. If during any performance test, the nitrogen oxides emissions exceed 90% of the emission limit in Condition V.F.2.a, the Permittee shall conduct a subsequent performance test within six months.

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

3. Monitoring, Recordkeeping and Reporting Requirements

The Permittee shall record and report to the Director the actual emission increase for NOx resulting from the acid plant preheater. The report shall be done in accordance with R18-2-402.F.3. The report shall be prepared on a calendar year basis for 5 years from the year of installation, and reported by March 1 for each prior calendar year. The first report shall be due March 1, 2019. The Permittee shall calculate and record annual nitrogen oxides emissions based on the daily fuel consumption, and the average emission rate from the three most recent performance tests, if available.

[A.A.C. R18-2-306.A.4, A.5 and R18-2-402.F.3]

G. Permit Shield

Compliance with the conditions of this Section shall be deemed compliance with A.A.C. R18-2-402.F.3, 724.B, 724.C.1, 724.E, and 724.J.

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

VI. REQUIREMENTS FOR ENGINES

A. Requirements for Existing Engines

1. Applicability

The Conditions of this Section apply to emergency and non-emergency diesel engines listed in the equipment lists in Attachment I" and "J" as subject to Section VI.A.

2. Fuel Limitations

a. The Permittee shall only fire diesel fuel in the internal combustion engines.

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

b. The diesel fuel shall not contain 0.90% or more by weight of sulfur.

[A.A.C. R18-2-701.20]

3. Particulate Matter and Opacity

a. Emission Limitations and Standards

(1) The Permittee shall not cause or allow to be discharged into the atmosphere from the generator stacks affected under this Section, particulate matter in excess of the amount calculated by the following equation and rounded off to two decimal points:

[A.A.C. R18-2-719.C.1]

$E = 1.02Q^{0.769}$

Where:

E = The maximum allowable particulate emissions rate in pounds-mass per hour.

Q = The heat input in million Btu per hour.

(2) For the purposes of this condition, the heat input shall be the aggregate heat content of all fuels whose products of combustion pass through a stack or other outlet. The total heat input of all operating fuel-burning units at a plant or premises shall be used for determining the maximum allowable amount of particulate matter which may be emitted.

[A.A.C. R18-2-719.B]

(3) The Permittee shall not cause, allow or permit to be emitted into the atmosphere from any generator sets affected under this Section, smoke for any period greater than 10 consecutive seconds which exceeds 40% opacity, measured in accordance with EPA Reference Method 9. Visible emissions when starting cold equipment shall be exempt from this requirement for the first ten minutes.

[A.A.C. R18-2-719.E]

b. Monitoring and Recordkeeping Requirements

(1) The Permittee shall conduct a quarterly opacity monitoring for the engines, when in operation, in accordance with Condition I.D.

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

(2) The Permittee shall keep records of a current, valid purchase contract, tariff sheet or transportation contract. The records shall contain information regarding the lower heating value of the fuel. These records shall be made available to ADEQ upon request.

[A.A.C. R18-2-306.A.3.c and -719.I].

c. Permit Shield

Compliance with the terms of this Subsection shall be deemed compliance with A.A.C. R18-2-719.B, 719.C.1 and 719.E.

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

4. Sulfur Dioxide

a. Emission Limitations and Standards

The Permittee shall not cause, allow, or permit emissions of more than 1.0 pound of sulfur dioxide per million Btu heat input from each engine under this Section.

[A.A.C. R18-2-719.F]

b. Monitoring, Recordkeeping and Reporting Requirements

(1) The Permittee shall keep records of fuel supplier certifications or other documentation listing the sulfur content to demonstrate compliance with the sulfur content limit in Condition VI.A.2.b. These records shall be made available to ADEQ upon request.

[A.A.C. R18-2-306.A.3.c and -719.I]

(2) The Permittee shall report to the Director any daily period during which the sulfur content of the fuel being fired in the machine exceeds 0.8%.

[A.A.C. R18-2-719.J]

c. Permit Shield

Compliance with the terms of this Subsection shall be deemed compliance with A.A.C. R18-2-719.F, 719.I and 719.J.

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

5. National Emission Standards for Hazardous Air Pollutant (NESHAP) Requirements

a. General Requirements

(1) The Permittee shall operate and maintain at all times the engines, 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 you 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)]

(2) The Permittee shall minimize the engine 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 applicable to all times other than startup in shall apply.

[40 CFR 63.6625(h)]

(3) The Permittee shall operate and maintain the engines and after-treatment control device (if any) according to the manufacturer's emission-related written instructions or develop a maintenance plan which shall provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions.

[40 CFR 63.6625(e)]

b. Operation Requirements for Emergency Engines

(1) The Permittee shall comply with the following operation and maintenance requirements:

[40 CFR 63.6603, 63.6625(i) and 40 CFR 63, Subpart ZZZZ, Table 2d]

(a) The Permittee shall change the oil and filter every 500 hours operation or annually, whichever comes first. If the Permittee prefers to extend the oil change requirement, an oil analysis program shall be completed. The oil analysis must be performed at the same frequency specified for changing the oil. The Permittee shall at a minimum analyze the following three parameters: Total Base Number, viscosity and water content. The condemning limits for these parameters are as follows:

(i) Total Base Number is less than 30 percent of the Total Base Number of the oil when new;

(ii) Viscosity: changed more than 20 percent from the viscosity of oil when new; and

(iii) Water Content: greater than 0.5 percent by volume.

If all of the above limits are not exceeded, the Permittee is not required to change the oil. If any of the above limits are exceeded, the Permittee shall change the oil within 2 business days of receiving the results of the analysis or before commencing operation, whichever is later. The Permittee shall maintain records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for the engine. The analysis program shall be part of the maintenance plan for the operation of the engine.

(b) The Permittee shall inspect air cleaner every 1,000 hours of operation or annually, whichever comes first, and replace as necessary.

(c) The Permittee shall inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.

(2) If an emergency engine is operating during an emergency and it is not possible to shut down the engine in order to perform the work practice requirements on the schedule required in Conditions VI.A.5.b(1)(a) through VI.A.5.b(1)(c), or if performing the work practice on the required schedule would otherwise pose an unacceptable risk under federal, state, or local law, the work practice can be delayed until the emergency is over or the unacceptable risk under federal, state, or local law has abated. The work practice shall be performed as soon as practicable after the emergency has ended or the unacceptable risk under federal, state, or local law has abated.

[40 CFR 63 Subpart ZZZZ, Table 2d]

(3) The Permittee shall operate the emergency engines according to the requirements in Conditions VI.A.5.b(3)(a) through VI.A.5.b(3)(c).

[40 CFR 60.6640 (f)]

(a) There is no time limit on the use of emergency engine in emergency situations.

[40 CFR 60.6640 (f)(1)]

(b) The Permittee may operate an engine for maintenance checks and readiness testing for a maximum of 100 hours per year provided that the tests are recommended by Federal, State, or local government, the manufacturer, the vendor, or the insurance company associated with the engine. The Permittee may petition the Director for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the Permittee maintains records indicating that Federal, State, or local standards require maintenance and testing of emergency ICE beyond 100 hours per year.

[40 CFR 63.6640(f)(2)]

(c) The Permittee may operate an emergency engine for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing.

[40 CFR 63.6640(f)(4)]

(4) *The Permittee shall install non-resettable hour meter for each emergency engine*.

[40 CFR 63.6625(f), R18-2-331.A.3.c]
[Material Permit Conditions are indicated by underline and italics]

c. Operation Requirements for Non-Emergency Compression Ignition Engines

The Permittee shall comply with the following operation and maintenance requirements:

[40 CFR 63.6603, and 40 CFR 63, Subpart ZZZZ, Table 2c]

(1) The Permittee shall change the oil and filter every 1,000 hours operation or annually, whichever comes first. If the Permittee prefers to extend the oil change requirement, an oil analysis program described in Condition VI.A.5.b(1)(a). The oil analysis shall be performed at the same frequency specified for changing the oil.

(2) Every 1,000 hours of operation or annually, whichever comes first, the Permittee shall inspect and replace air cleaner as necessary.

(3) Every 500 hours of operation or annually, whichever comes first, the Permittee shall inspect all hoses and belts and replace as necessary.

d. Continuous Compliance Requirements

The Permittee shall demonstrate continuous compliance by operating and maintaining the engine according to the manufacturer's emission-related operation and maintenance instructions; or by developing and following its own maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions

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

e. Recordkeeping Requirements

(1) The Permittee shall keep records of the maintenance conducted on the stationary RICE in order to demonstrate that , the Permittee operated and maintained the stationary RICE and after-treatment control device (if any) according to the Permittee's own maintenance plan.

[40 CFR 63.6655(e)]

(2) The Permittee shall keep records of the parameters that are analyzed and the results of the oil analysis, if any, and the oil changes for the engine.

[40 CFR 63.6625(i)]

(3) For emergency engines, the Permittee shall keep records of the hours of operation of the RICE that is recorded through the non-resettable hour meter. Records shall include the hours spent for emergency operation, including what classified the operation as emergency and how many hours are spent for non-emergency operation.

[40 CFR 63.6655(f)]

(4) 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)]

(5) 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)]

(6) The record shall be 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.

[40 CFR 63.6660(c)]

f. Permit Shield

Compliance with the Conditions of this Subsection shall be deemed compliance with 40.CFR 63.6602, 63.6605(b), 63.6625(e), 63.6625(f), 63.6625(i), 63.6625(h), 63.6640(a), 63.6650(d), 63.6650(h), 63.6640(f), 63.6655(a)(5), 63.6655(e), 63.6655(f), 63.6660(a) through (c).

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

B. New Source Performance Standards (NSPS) Requirements for Emergency Compression Ignition Internal Combustion Engines (CI ICE)

1. Applicability

This Section applies to the emergency Stationary Compression Ignition Internal Combustion Engines identified in the equipment list as subject to this Subsection.

2. Operating Requirements

a. The Permittee shall operate and maintain the CI ICE and the control device according to the manufacturer's emission-related written instructions over the entire life of the engine. A copy of the instructions or procedures shall be kept onsite and made available to ADEQ upon request.

[40 CFR 60.4211(a)(1)]

b. The Permittee shall only change those engine settings that are permitted by the manufacturer.

[40 CFR 60.4211(a)(2)]

c. The Permittee shall meet the applicable requirements of 40 CFR Part 89, 94, and/or 1068, as they apply.

[40 CFR 60.4211(a)(3)]

d. *If an emergency stationary CI internal combustion engine does not meet the standards applicable to non-emergency engines, the Permittee shall install a non-resettable hour meter prior to startup of the engine..*

[40 CFR 60.4209(a), A.A.C. R18-2-331.A.3.a]
[Material Permit Conditions are indicated by underline and italics]

e. The Permittee shall operate the emergency engines according to the requirements in Conditions VI.B.2.e(1) through VI.B.2.e(3).

(1) In emergency situations, there is no time limit on the use of the emergency ICE.

[40 CFR 60.4211(f)(1)]

(2) The Permittee may operate an engine for maintenance checks and readiness testing for a maximum of 100 hours per year provided that the tests are recommended by Federal, State, or local government, the manufacturer, the vendor, or the insurance company associated with the engine. The Permittee may petition the Director for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the Permittee maintains records indicating that Federal, State, or local standards require maintenance and testing of emergency ICE beyond 100 hours per year.

[40 CFR 60.4211(f)(2)]

(3) The Permittee may operate an emergency engine for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing.

[40 CFR 60.4211(f)(3)]

3. Fuel Requirements

The Permittee operating a stationary CI ICE shall use diesel fuel that meets the requirements of non-road diesel fuel listed in 40 CFR 80.510(b) and listed below:

(1) Sulfur content: 15 ppm maximum; and

(2) A minimum cetane index of 40 or a maximum aromatic content of 35 volume percent.

[40 CFR 60.4207(b)]

4. Emission Limitations and Standards

The Permittee shall comply with the emission standards for new non-road CI engines the certification emission standards for new nonroad CI engines for the same model year and maximum engine power in 40 CFR 89.112 and 40 CFR 89.113 for all pollutants beginning in model year 2007.

[40 CFR 60.4202(a)(2), 4205(b)]

5. Compliance Requirements

a. The Permittee shall comply by purchasing an engine certified to the emission standards in Condition VI.B.4, for the same model year and maximum engine power. The engine must be installed and configured according to the manufacturer's specifications, except as permitted in Condition VI.B.5.b below.

[40 CFR 60.4211(c) and 60.4205(b)]

b. If the Permittee does not install, configure, operate, and maintain the ICE and control device according to the manufacturer's emission-related written instructions, or change the emission-related setting in a way that is not permitted by the manufacturer, the Permittee shall demonstrate compliance by keeping 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, 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 changing any non-permitted emission-related setting.

[40 CFR 60.4211(g)]

6. Recordkeeping Requirements

a. The Permittee shall record the time of operation of the engine and the reason the engine was in operation during that time.

[40 CFR 60.4214(b)]

b. The Permittee shall maintain a copy of the engine certification or other documentation demonstrating that the engine complies with the applicable standards in this permit, and shall make the documentation available to ADEQ upon request.

[40 CFR 60.4211(c)]

c. The Permittee shall keep records of fuel supplier specifications or other documentation such as results of laboratory tests. The documentation shall contain the name of the supplier or laboratory, sulfur content, and cetane index or aromatic content in the fuel. These records shall be made available to ADEQ upon request.

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

7. Permit Shield

Compliance with the conditions of this Subsection shall be deemed compliance with 40 CFR 60.4202(a)(2), 60.4205(a), 60.4205(b), 60.4205(d), 60.4205(f), 60.4207(b), 4211(a), 60.4211(b), 60.4211(c), 60.4211(d), 60.4211(e), 60.4211(f), 60.4211(g) and 60.4214(b).

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

C. NSPS Requirements for Emergency Stationary Spark Ignition Internal Combustion Engines (SI ICE)

1. Applicability

This Section applies to the emergency SI ICEs identified in the equipment list as subject to this Subsection.

2. Operating Requirements

The Permittee shall operate the emergency engines according to the requirements in Conditions VI.C.2.a through VI.C.2.c .

a. In emergency situations, there is no time limit on the use of the emergency ICE.

[40 CFR 60.4243(d)(1)]

b. The Permittee may operate an engine for maintenance checks and

readiness testing for a maximum of 100 hours per year provided that the tests are recommended by Federal, State, or local government, the manufacturer, the vendor, or the insurance company associated with the engine. The Permittee may petition the Director for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the Permittee maintains records indicating that Federal, State, or local standards require maintenance and testing of emergency ICE beyond 100 hours per year.

[40 CFR 60.4243(d)(2)]

c. The Permittee may operate the emergency stationary ICE up to 50 hours per year in non-emergency situations. These hours shall be counted towards the 100 hours per year provided for maintenance and testing.

[40 CFR 60.4243(d)(3)]

3. Emission Limitations and Standards

The emergency SI ICEs shall comply with the following emission standards:

[40 CFR 60.4233(e)]

a. NO_X: 2.0 g/HP-hr or 160 ppmvd @15% O_2

b. CO: 4.0 g/HP-hr or 540 ppmvd @15% O_2

c. VOC: 1.0 g/HP-hr or 86 ppmvd @15% O_2

4. Monitoring Requirements

If any emergency stationary SI ICE does not meet the standards applicable to non-emergency engine, the Permittee shall install a non-resettable hour meter.

[40 CFR 60.4237(a), R18-2-331.A.3.a]
[Material Permit Conditions are indicated by underline and italics]

5. Compliance Requirements

a. The Permittee operating a stationary SI ICE shall demonstrate compliance by purchasing engines certified to the emission standards in Condition VI.C.3. The engine shall be installed and configured according to the manufacturer's specifications. The Permittee shall

[40 CFR 60.4243(a)(1) and (b)]

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

(2) Keep records of conducted maintenance; and

(3) Meet the requirements specified in 40 CFR Part 1068, Subparts A through D.

b. If Permittee does not operate and maintain the certified stationary SI internal combustion engine and control device according to the manufacturer's emission-related written instructions, the engine will be considered a non-certified engine, and the Permittee must demonstrate

compliance by

[40 CFR 60.4243(a)(2)]

(1) 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.

(2) In addition, the Permittee shall conduct an initial performance test within 1 year of engine startup and conduct subsequent performance testing every 8,760 hours or 3 years, whichever comes first, thereafter to demonstrate compliance in accordance with 40 CFR 60.4244.

6. Recordkeeping and Reporting Requirements

a. The Permittee operating a stationary SI ICE must meet the following recordkeeping requirements:

[40 CFR 60.4245(a)]

(1) Records of all notifications submitted to comply with 40 CFR §60.4245 and all documentation supporting any notification;

(2) Maintenance conducted on the engine;

(3) If the stationary SI ICE 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 90, 1048, 1054, and 1060, as applicable; and

(4) If the stationary SI ICE is not a certified engine or is a certified engine operating in a non-certified manner and subject to the requirements in Condition VI.C.5.b, documentation that the engine meets the emission standards.

b. For the SI emergency ICE that do not meet the standards applicable to non-emergency engines, the Permittee shall keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. The Permittee shall document how many hours are spent for emergency operation, including what classified the operation as emergency and how many hours are spent for non-emergency operation.

[40 CFR 60.4245(b)]

c. For the engines that have not been certified by an engine manufacturer to meet the emission standards. 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 Permittee;

(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

d. If any SI ICE is subject to performance testing requirement, the Permittee shall submit a copy of each performance test as conducted in accordance with 40 CR CFR 60.4244 within 60 days after the test has been completed in accordance with 40 CFR 60.4245(d) .

[40 CFR 60.4245(d)]

7. Permit Shield

Compliance with the conditions of this Subsection shall be deemed compliance with 40 CFR 60.4233(e), 60.4237(a), 60.4243(a)(1), (a)(2), (b), (d), 60.4245(a), (b), (c) and (d).

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

VII. GASOLINE STORAGE TANK

A. Applicability

This Section applies to the gasoline storage tanks identified in the Equipment Lists in Attachments "I" and "J" as applicable to this Section.

B. Operating Limitations

1. Gasoline storage tank shall be equipped with a submerged filling device or acceptable equivalent, for control of hydrocarbon emissions.

[A.A.C. R18-2-710.B]

2. All pumps and compressors that handle gasoline shall be equipped with mechanical seals or other equipment of equal efficiency to prevent release of organic contaminants into the atmosphere.

[A.A.C. R18-2-710.D]

C. Monitoring and Recordkeeping Requirements

[A.A.C. R18-2-710.E]

The Permittee shall maintain a storage tank log showing the following:

1. The Permittee shall maintain a file of each type of petroleum liquid stored, the typical Reid vapor pressure of the petroleum liquid stored and the dates of storage. Dates on which the storage vessel is empty shall be shown.

2. The Permittee shall determine and record the average monthly storage temperature and true vapor pressure of the petroleum liquid stored at such temperature if either:

a. 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

b. 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.

3. 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.

4. 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 must be made available upon request to the Director when typical Reid vapor pressure is used.

D. Permit Shield

Compliance with the terms of this Section shall be deemed compliance with the A.A.C. R18-2-710.D, 710.D and 710.E.

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

VIII. GASOLINE DISPENSING FACILITY

A. Applicability

1. This Section applies to each gasoline dispensing facility (GDF) located at the facility. The affected source includes each gasoline cargo tank during the delivery of product to a GDF and also includes each gasoline storage tank identified in the Equipment Lists as applicable to this Section.

[40 CFR 63.11111(a)]

2. This Section applies to gasoline storage tank and associated equipment components in vapor or liquid gasoline service. Pressure/vacuum vents on gasoline storage tanks and the equipment necessary to unload product from cargo tanks into the storage tanks at GDF are covered emission sources. The equipment used for the refueling of motor vehicles is not covered by this Section.

[40 CFR 63.11112(a)]

3. The equipment associated with this Section is subject to the NESHAP General Provisions, as described in Table 3 to 40 CFR 63 Subpart CCCCCC.

[40 CFR 63.11130]

4. If at any time during the permit term, the monthly throughput at any GDF exceeds 10,000 gallons per month calculated pursuant to Condition VIII.C, the facility will,

thenceforth, be subject to additional requirements under 40 CFR 63.11117 for 10000 gallons threshold. These additional requirements will then continue to remain applicable, even if the throughput drops below this threshold.

[40 CFR 63.11111(h)(ii)]

B. Emission Standards

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)]

1. Minimize gasoline spills;

2. Clean up spills as expeditiously as practicable;

3. Cover all open gasoline containers and all gasoline storage tank fill-pipes with a gasketed seal when not in use;

4. Minimize gasoline sent to open waste collection systems that collect and transport gasoline to reclamation and recycling devices, such as oil/water separators.

C. Recordkeeping Requirements

The Permittee shall maintain records of monthly throughput of gasoline. Monthly throughput shall be calculated by summing the volume of gasoline loaded into, or dispensed from, the gasoline storage tanks at the GDF during the current day, plus the total volume of gasoline loaded into, or dispensed from, the gasoline storage tanks at the GDF during the previous 364 days, and then dividing that sum by 12. These records shall be available to the Director within 24 hours of the request.

[A.A.C. R18-2-306.A.3.c, 40 CFR 63.11116(b), 40 CFR 63.11132]

D. Permit Shield

Compliance with the conditions of this Section shall be deemed compliance with 40 CFR 63.11111(a), 40 CFR 63.11111(h)(ii), 40 CFR 63.11112(a), 40 CFR 63.11116(a), 40 CFR 63.11116(b), 40 CFR 63.11130 and 40 CFR 63.11132.

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

IX. OTHER STORAGE TANKS

A. Applicability

This Section is applicable to the sulfuric acid tanks identified in the Equipment list as applicable to this Section.

B. General Requirements

1. The Permittee shall not emit gaseous or odorous materials from equipment, operations or premises under the Permittee's control in such quantities or concentrations as to cause air pollution.

[A.A.C. R18-2-730.D]

2. Materials including solvents or other volatile compounds, and other chemicals

utilized in the processes under this Section shall be processed, stored, used, and transported in such a manner and by 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]

3. 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 Permittee 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]

C. Permit Shield

Compliance with the conditions of this Section shall be deemed compliance with A.A.C. R18-2-730.D, F and G.

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

X. FUGITIVE DUST REQUIREMENTS

A. Applicability

This Section applies to any source of fugitive dust in the facility.

B. Particulate Matter and Opacity

Open Areas, Roadways & Streets, Storage Piles, and Material Handling

1. Emission Limitations/Standards

a. Opacity from dust emissions shall not exceed 20% from any part of the facility at any time, as determined using EPA Reference Method 9.

[CD CV-15-02206-PHX-DLR B.29.A]

b. The Permittee shall employ the following reasonable precautions to prevent excessive amounts of particulate matter from any non-point source of fugitive dust from becoming airborne:

(1) 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;

[A.A.C. R18-2-604.A]

(2) 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;

[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 is 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;

[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, handling, or conveying material likely to give rise to 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) The Permittee shall take reasonable precautions, such as the use of dust suppressants, before the cleaning of a site, roadway, or alley. Earth or other material shall be removed from paved streets onto which earth or other material has been transported by trucking or earth moving equipment, erosion by water or by other means.

[A.A.C. R18-2-804.B]

(10) 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 operate and maintain each fugitive dust source covered by the Fugitive Dust Plan required pursuant to Condition III.B, including all associated air pollution control equipment and monitoring equipment, in a manner consistent with good air pollution control practices for minimizing emissions to the greatest extent practicable at all times.

[CD CV-15-02206-PHX-DLR B 22]

3. Opacity Monitoring Requirements

a. In the event ongoing visible emissions are observed at a source covered by the Fugitive Dust Plan required pursuant to Condition III.B, a Method 9 certified observer shall promptly evaluate the emissions and conduct a Method 9 reading, if possible.

[CD CV-15-02206-PHX-DLR B 29.B]

b. A Method 9 certified observer shall conduct a weekly visible emissions survey of all sources covered by the Fugitive Dust Plan in accordance with Condition I.D, and perform a Method 9 reading for any plumes that on an instantaneous basis appear to exceed 15% opacity.

[CD CV-15-02206-PHX-DLR B 29.C]

c. Except as provided otherwise in the Fugitive Dust Plan required pursuant Condition III.B, at any time that visible emissions appear to exceed 15% opacity from dust sources covered by the Fugitive Dust Plan, the Permittee shall take prompt corrective action to identify the source of the emissions and abate such emissions, with the corrective action starting within thirty (30) minutes after discovery.

[CD CV-15-02206-PHX-DLR B 24.A]

4. At any time that the Permittee becomes aware that provisions of the Fugitive Dust Plan required pursuant to Condition III.B are not being met, the Permittee shall take prompt action to return to compliance, which may include modifications to monitoring, recordkeeping, and/or reporting requirements in the Fugitive Dust Plan.

[CD CV-15-02206-PHX B 24.B]

5. The Permittee shall conduct physical inspections in accordance with, and at the frequencies specified in the Fugitive Dust Plan required pursuant to Condition III.B.

[CD CV-15-02206-PHX-DLR B 28]

6. Recordkeeping Requirements

a. The Permittee shall maintain records of the dates on which any of the activities listed in Conditions X.B.1.b(1) through X.B.1.b(10) were performed and the control measures that were adopted.

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

b. All records for purposes of the Fugitive Dust Plan shall be maintained in a recordkeeping log or recordkeeping system. The records shall include all the information required in Paragraph 35.B, Appendix B of the CD and as specified in the Fugitive Dust Plan.

CD CV-15-02206-PHX-DLR B 35.B]

c. For each inspection conducted in accordance with Condition X.B.5, the Permittee shall maintain in the log the completed inspection sheet or checklist.

[CD CV-15-02206-PHX-DLR B 35.C]

d. The Permittee shall maintain in the log which employees took the Dust Plan training or Method 9 certification course, the date of the training and/or certification, and the nature of the material included in the Dust Plan training.

[CD CV-15-02206-PHX-DLR B 35.D]

7. Reporting Requirements

On the 30th day after each calendar quarter, the Permittee shall submit a report to EPA covering the prior quarter that includes the information and data required in Paragraph 36A in Appendix B of the CD. The Permittee may submit these quarterly reports electronically.

[CD CV-15-02206-PHX-DLR B 36.A]

8. Permit Shield

Compliance with the conditions of this Section shall be deemed compliance with CD CV-15-02206-PHX-DLR B22, B24.A, B24.B, B28, B29.A, B29.B, B29.C, B35.B, B35.C, B35.D and B36.A, A.A.C. R18-2-604.A, 604.B, 605, 606, 607, 608, 614 and 804.B

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

XI. 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:

(1) Wet blasting;

(2) Effective enclosures with necessary dust collecting equipment; or

(3) Any other method approved by the Director.

[A.A.C. R18-2-726]

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]

2. Monitoring and Recordkeeping Requirement

Each time an abrasive blasting 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; and

c. Type of control measures employed.

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

3. Permit Shield

Compliance with this Section shall be deemed compliance with A.A.C. R18-2-726 and A.A.C. R18-2-702.B.

[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) 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.

[A.A.C.R18-2-727.B]

(3) For the purposes of Condition XI.B.1.a(2)(a), 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 XI.B.1.a(3)(a) through XI.B.1.a(3)(c) below, or which exceeds any of the following percentage composition limitations, referred to the total volume of solvent:

(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.

[A.A.C.R18-2-727.C]

(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 Conditions XI.B.1.a(3)(a) through XI.B.1.a(3)(c) above, 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

(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 XI.B.1.b(1).

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

c. Permit Shield

Compliance with this Section 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]

b. Permit Shield

Compliance with the conditions of this Section shall be deemed compliance with A.A.C.R18-2-702.B.

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

C. Demolition/Renovation - Hazardous Air Pollutants

1. Emission Limitation/Standard

The Permittee shall comply with all of the requirements of 40 CFR 61 Subpart M (National Emissions Standards for Hazardous Air Pollutants - Asbestos).

[A.A.C. R18-2-1101.A.8]

2. Monitoring and Recordkeeping Requirement

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 the conditions of this Section shall be deemed compliance with A.A.C. R18-2-1101.A.8.

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

D. Nonvehicle Air Conditioner Maintenance and/or Services

1. The Permittee shall comply with the applicable requirements of 40 CFR 82 - Subpart F (Protection of Stratospheric Ozone - Recycling and Emissions Reduction).

[40 CFR 82, Subpart F]

2. As a means of demonstrating compliance with Condition XI.D.1 above, the Permittee shall keep a record of all relevant paperwork to the applicable requirements of 40 CFR 82 - Subpart F on file.

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

3. Permit Shield

Compliance with the conditions of this Part shall be deemed compliance with 40 CFR 52, Subpart F.

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

E. Solvent Degreasing

1. The Permittee shall process, store, use, and transport materials including solvents or volatile compounds in such a manner and by such means that they will not evaporate, leak, escape, or be otherwise discharged into the atmosphere 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 usage of such control methods, devices, or equipment shall be mandatory.

[A.A.C. R18-2-730.F]

2. Permit Shield

Compliance with the conditions of this Part shall be deemed compliance with A.A.C. R18-2-730.F.

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

XII. COOLING TOWERS

A. General Operational Requirements

1. The Permittee shall not emit gaseous or odorous materials from equipment, operations, or premises in such quantities or concentrations so as to cause air pollution.

[A.A.C. R18-2-730.D]

2. 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 Permittee 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]

B. Particulate Matter and Opacity

1. Emission Limitations/Standards

a. The Permittee shall not cause or permit the emissions of particulate matter discharged into the atmosphere in any one hour from cooling towers in total quantities in excess of the amounts calculated by one of the following equations:

(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:

[A.A.C. R18-2-730.A.1.a]

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

Where:

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

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

(2) 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:

[A.A.C. R18-2-730.A.1.b]

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

Where "E" and "P" are defined as indicated in Condition XII.B.1.a(1) above.

b. The Permittee shall not cause or allow to be discharged into the atmosphere any plume or effluent from the cooling towers which exhibits opacity greater than 20%, measured in accordance with EPA Reference Method 9. Where the presence of uncombined water is the only reason for the exceedance of this opacity standard, such exceedance shall not constitute a violation.

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

2. Air Pollution Control Requirements

At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, maintain and operate the cooling towers in a manner consistent with good air pollution control practice for minimizing particulate matter emissions.

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

3. Monitoring, Record keeping and Reporting Requirements

A certified Method 9 observer shall conduct a quarterly (once in 3 months) visual survey of visible emissions from cooling towers as per the procedure in Condition I.D.

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

C. Permit Shield

Compliance with requirements of this Section shall be deemed compliance with A.A.C.R18-2-702.B.3, C, -730.A.1, 730.D, and 730.G.

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

XIII. AMBIENT MONITORING REQUIREMENTS

A. General Requirements

1. 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 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. Quality assurance, monitor siting, and sample probe installation procedures shall be in accordance with procedures described in the Appendices to 40 CFR 58.

[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]

e. All ambient air quality monitoring shall be conducted in accordance with the regulations and guidance listed below as applicable:

[A.A.C. R18-2-715.02.E]

(1) National Primary and Secondary Ambient Air Quality Standards, 40 CFR Part 50 and Appendices; and

(2) Ambient Air Quality Surveillance, 40 CFR Part 58 and Appendices.

f. The procedures and requirements associated with the ambient monitoring network shall be documented via a Quality Assurance Project Plan (QAPP) in accordance with 40 CFR 58 Appendix A. The Permittee shall work with ADEQ in formulating this documentation.

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

2. General Reporting and Recordkeeping Requirements

a. The Permittee shall retain record of all monitoring data in accordance with Section XIII of Attachment "A". The data shall be available to ADEQ upon request.

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

b. Quarterly 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, as applicable for each pollutant.

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

c. Updated site and monitor metadata information shall be included in the annual reports as applicable.

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

B. Meteorological Monitoring

1. Monitoring Requirements

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

a. The Permittee shall continue to maintain and operate meteorological monitoring stations at the monitoring sites listed in the table below to record wind speed, vector wind direction, and standard deviations of wind direction and temperature.

Identifier	Unit	Latitude/Longitude
MT0	Montgomery Ranch	33.029/-110.810
HJ0	Hayden Junction	33.011/-110.811
GH0	Globe Highway	33.002/-110.765

b. The Permittee shall maintain equipment at the Camera Hill ambient monitoring location and the meteorological monitoring stations at the following locations that shall, on a continuous basis, measure and record wind speed and wind direction, including calculation of the average wind speed (in miles per hour) at each location over fifteen (15) minutes, rolled each minute.

[CD CV-15-02206-PHX-DLR B.32.A, R18-2-B1301.01.F.2.a and b]

(1) ST-14 (the smelter parking lot),

(2) ST-16 (Terrace Street)

(3) ST-23 (Hillcrest area),

(4) ST-26 (post office), and

(5) ST-18 (next to the concentrate handling area).

c. The Permittee shall conduct wind speed and direction measurements using methods in accordance with EPA's Quality Assurance Handbook for Air Pollution Measurement Systems, Volume IV, Meteorological Measurements, Version 2.0.

[A.A.C R18-2-B1301.01.F.2.c]

2. Quality Assurance

No later than December 1, 2018, and annually thereafter, the Permittee shall conduct audits of the meteorological monitoring stations in Condition XIII.B.1.b consistent with applicable sections and appendices of the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume IV, Meteorological Measurements, Version 2.0.

[A.A.C. R18-2-B1301.01.F.2.c]

3. Recordkeeping Requirements

a. The Permittee shall maintain all records of major maintenance activities and inspections conducted on monitors required by Condition XIII.B.1.b.

[A.A.C. R18-2-B1301.01.H.1.e]

b. All records of quality assurance and quality control activities for the monitors required by subsection (F) of A.A.C. R18-2-B1301.01.

[A.A.C. R18-2-B1301.01.H.1.f]

c. The Permittee shall maintain all records of wind data from the meteorological station required in Condition XIII.B.1.b.

[A.A.C. R18-2-B1301.01.H.1.h]

d. All records of any periods during which a monitoring device required by subsection (F) of A.A.C. R18-2-B1301.01 is inoperative or not operating correctly.

[A.A.C. R18-2-B1301.01.H.1.i]

C. Sulfur Dioxide Monitoring

1. Monitoring Requirements

a. The Permittee shall calibrate, maintain and operate ambient sulfur dioxide monitoring stations at the monitoring sites listed in the table below.

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

Identifier	Unit	Latitude/Longitude
MT0	Montgomery Ranch	33.029/-110.810
JL	Jail - The Permittee	33.006/-110.786
HJ0	Hayden Junction	33.011/-110.811
GA	Garfield Avenue	33.003/-110.785
GH0	Globe Highway	33.002/-110.765

b. The Permittee shall collect the maximum 5-minute block average concentration of the twelve 5-minute blocks in each hour or the twelve consecutive 5-minute block averages in each hour, and the consecutive hourly averages. Data that are influenced by routine maintenance, audits and periods of instrument calibration or other services should be identified using the appropriate flags. (40 CFR Part 58.16(a)).

[40 C.F.R. 58.16(g)]

c. The SO_2 data measurements shall be made continuously. In the event of system malfunction, the unit shall be repaired or replaced within 5 business days or as soon as practicable. The Permittee shall notify ADEQ of any such malfunction and expected duration within 2 business days. Monitoring shall resume as soon as practicable after the correction of the malfunction problem. The Permittee shall notify ADEQ if any malfunctions are not corrected within 5 business days.

d. Quality Assurance

(1) All samplers shall be operated, calibrated, and maintained in accordance with the procedures set forth in the respective manufacturer's instruction manuals and in accordance with applicable sections and appendices of 40 CFR Parts 50 and 58 and the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume II, U.S. Environmental Protection Agency. The Permittee shall use EPA approved SO_2 samplers.

(2) The Permittee shall conduct performance evaluation of the monitoring equipment in accordance with the requirements pertaining to sampler accuracy as specified in 40 CFR Part 58 Appendix A, section 3.1.2. The performance audits shall be

conducted by a qualified independent auditor under contract to the Permittee at least once per year.

(3) The Permittee shall conduct technical systems audits of its ambient air monitoring program consistent with the applicable sections of 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 independent auditor under contract to the Permittee at least once in every three (3) years beginning from the issuance of this permit.

(4) The Permittee shall participate in technical systems audits or performance audits conducted by the Department. The Department shall provide a minimum of 30-day notice of a technical systems audit and a minimum of 48-hour notice of a performance audit.

2. Reporting Requirements

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

The quarterly and annual reports as required by Condition XIII.A.2.b shall contain the following information specified by site and monitor. All concentration data shall be presented in accordance with the data reporting conventions in 40 CFR 50 Appendix T.

a. Valid hours of data expressed as the percentage obtained by dividing the actual valid data hours by the number of hours in the reporting period;

b. Daily maximum 5-min block average

c. Daily Maximum one-hour and second highest three-hour block average concentration of SO_2;

d. Number of exceedances of the three-hour, and one-hour standards;

e. The 99^{th} percentile of the daily maximum one-hour average SO_2 concentration for each quarter;

f. The Annual Report must include the annual 99^{th} percentile of the daily maximum 1-hour averages, and the most recent 3 year average of the annual 99^{th} percentiles; and

g. Precision (bi-weekly one-point QC check) and accuracy (multi-point audit) data.

D. Ambient Air Monitoring for Particulate Matter, Lead, Arsenic and Cadmium

1. The Permittee shall maintain and operate the ambient air monitors for TSP, PM_{10}, $PM_{2.5}$, lead, arsenic and cadmium as per the following table:

[CD CV-15-02206-PHX-DLR App B 31.A and E, and A.A.C. R18-2-B1301.01.F.1.a]

Station	Location/Monitor Type(s)	Pollutant

No.		
ST-14	Smelter Parking Lot TSP PM_{10} $PM_{2.5}$	Lead* PM_{10} $PM_{2.5}$ Cadmium** Arsenic**
ST-16	Terrace Street PM_{10}	PM_{10} Cadmium** Arsenic**
ST-18	Near Concentrate Handling Area TSP PM_{10}	Lead* PM_{10} Cadmium** Arsenic**
ST-23 and ST-26	Hillcrest area and Post Office TSP PM_{10} $PM_{2.5}$	Lead* PM_{10} $PM_{2.5}$ Cadmium** Arsenic**

* Lead from TSP monitor
** Cadmium and Arsenic from PM_{10} monitor

2. The Permittee shall follow the quality assurance project plan ("QAPP") applicable to these monitors under the AOC and otherwise operate them consistent with 40 C.F.R. Part 58 Appendix A.

[CD CV-15-02206-PHX-DLR B 31.A, A.A.C. R18-2-B1301.01.F.1.c and d]

3. The Permittee shall continuously monitor and record the ambient concentration levels of PM_{10}, $PM_{2.5}$, lead, arsenic and cadmium at the above locations. For the purposes of this provision, "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 TSP and PM_{10} monitors and every 3 days for the $PM_{2.5}$ monitors.

[CD CV-15-02206-PHX-DLR B 31.A, A.A.C. R18-2-B1301.01.F.1.b]

4. The Permittee shall provide each filter removed from a monitoring station to a certified laboratory for analysis consistent with the timeframes set forth in the QAPP, but no later than 18 days after the filter's removal. The Permittee shall also ensure that the laboratory performs its analysis and submits the results the Permittee as quickly as feasible, but not to exceed 21 days from the lab's receipt of the filter.

[CD CV-15-02206-PHX-DLR B 31.A, A.A.C. R18-2-B1301.01.F.1.e]

5. The Permittee shall calculate, update, and maintain as a record the following data within 14 calendar days of receipt of any results pertaining to the monitor filters received from a certified lab:

[A.A.C. R18-2-B1301.01.F.1.f]

a. The total pollutants on the filters collected and analyzed; and

b. Calculations of 30-day rolling average ambient air levels of lead for the ST-23, ST-26, and ST- 18 monitors, and 60-day rolling average ambient

air levels of lead for the ST-14 monitor, expressed as µg/m3.

6. The Permittee shall retain lead samples collected pursuant to this Section for at least three years. The samples shall be stored in individually sealed containers and labeled with the applicable monitor and date. Upon request, the samples shall be provided to the Department within five business days.

[A.A.C. R18-2-B1301.01.F.1.g]

7. Recordkeeping Requirements

a. All records of major maintenance activities and inspections conducted on monitors in Condition XIII.D.1.

[A.A.C. R18-2-B1301.01.H.1.e]

b. All records of quality assurance and quality control activities for the monitors in Condition XIII.D.1.

[A.A.C. R18-2-B1301.01.H.1.f]

c. All air quality monitoring samples, rolling averages of ambient lead concentrations and necessary calculations, and data required by Condition XIII.D.1.

[A.A.C. R18-2-B1301.01.H.1.g]

d. All records of any periods during which a monitoring device is inoperative or not operating correctly.

[A.A.C. R18-2-B1301.01.H.1.i]

e. Raw monitoring data and calculated ambient levels from the ambient monitoring stations maintained pursuant to Condition XIII.D.1.

[CD CV-15-02206-PHX-DLR B 35.B.xvii]

8. Reporting

a. Within 30 days after the end of each calendar-year quarter, the Permittee shall submit a report to the Department covering the prior quarter that includes the raw monitoring data and calculated ambient lead concentrations from the ambient air monitoring stations in Condition XIII.D.1. The Permittee may submit these quarterly reports electronically to the Department.

[A.A.C. R18-2-B1301.01.I.6]

b. On a quarterly basis, the Permittee shall submit a report to EPA covering the prior quarter that includes raw monitoring data and calculated ambient levels (24-hour concentrations and rolling averages) from the ambient monitoring stations maintained pursuant to Condition XIII.D.1, to the extent that the Permittee has begun ambient monitoring pursuant to the Dust Plan. The Permittee may submit these quarterly reports electronically to the email address identified by EPA.

[CD CV-15-02206-PHX-DLR App B 36.A]

ATTACHMENT "C": SPECIFIC CONDITIONS- CONCENTRATOR

AIR QUALITY CONTROL PERMIT NO. 39948
FOR
ASARCO LLC-HAYDEN OPERATIONS

I. TRACK HOPPER UNLOADING OPERATIONS

A. Applicability.

This Section applies to the emission units identified in Attachment "I" as subject to Section I.

B. Particulate Matter and Opacity

1. Emission Limitations and Standards

a. The Permittee shall not cause to be emitted particulate matter from Ducon wet scrubber 7 in excess of 0.05 grams per dry standard cubic meter (g/dscm).

[CD CV-15-02206-PHX-DLR 26.b.i]

b. The Permittee shall not cause to be discharged into the atmosphere from an affected facility that exhibits an opacity greater than 20 percent as measured by EPA Reference Method 9.

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

2. Air Pollution Controls Requirement

The Permittee shall, to the extent practical, operate and maintain *wet scrubber 7 in accordance with good air pollution control practices for minimizing particulate matter emissions.*

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

3. Monitoring, Reporting and Recordkeeping Requirements

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

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

b. *The Permittee shall install, calibrate*, operate and maintain *continuous monitoring devices to measure the change in gas pressure (accurate to +/- 1 water pressure) across each scrubber and a continuous monitoring device to measure the liquid flow rate (accurate to +/- 5% of design) for the scrubber*.

[CD CV-15-02206-PHX-DLR 26.b.ii, A.A.C. R18-2-331.A.3.c]
[Material permit conditions are indicated by underline and italics]

c. The wet scrubber shall be operated such that the hourly (block) average pressure drop of the gas stream across the scrubber and the hourly (block) average scrubber liquid flow rate is within the range established for each parameter during the most recent performance test. These values shall be

recorded and stored in an electronic data storage system that has an associated alarm system that will be triggered when values are outside of the range established for each parameter. The alarm system shall include visual indicators displayed in a control room that is staffed on a twenty-four (24) hour basis.

[CD CV-15-02206-PHX-DLR 26.b.iii]

d. The wet scrubber shall be visually inspected at least once per shift to detect any visual signs of operational problems.

[CD CV-15-02206-PHX-DLR 26.b.iv]

e. When either the pressure drop or scrubber liquid flow rates are outside the established range for that parameter, the Permittee shall maintain record of such instances in the maintenance log or other record. Within one (1) hour of the first discovery that a scrubber's flow rate and/or pressure drop reading is outside the established range for that parameter, the Permittee shall initiate investigation. If necessary, the Permittee shall take corrective action as soon as practicable to adjust or repair the wet scrubber to minimize any increased PM emissions. The records shall include the dates, times of occurrence and repair, scrubber liquid flow rates or pressure drop at the time of issue, their cause, and an explanation of the corrective actions taken, if any. The Permittee shall also record any dates, times, and durations when a wet scrubber was not in service or was believed to be malfunctioning.

[CD CV-15-02206-PHX-DLR 26.b.v]

f. The Permittee shall conduct a bi-weekly (once in every two weeks) monitoring of visible emissions from the stack as per the periodic opacity monitoring requirements specified in Condition I.D of Attachment "B".

[A.A.C. R 18-2-306.A.3.c]

4. Performance Test Requirements

a. The Permittee shall conduct annual performance tests on each wet scrubber for particulate matter in accordance with EPA Reference Method 5. For Method 5, Method 1 shall be used to select the sampling site and the number of traverse sampling points. The sampling time for each run shall be at least 60 minutes and the minimum sampling volume shall be 0.85 dscm (30 dscf), except that smaller sampling times or volumes, when necessitated by process variables or other factors, may be approved by the Director. The probe and filter holder heating systems in the sampling train shall be set to provide a gas temperature no greater than 160°C. (320°F.).

[CD CV-15-02206-PHX-DLR 26.b.i, A.A.C. R18-2-721.H.1 and 2 & 312.B]

b. The Permittee shall use the monitoring devices required in Condition I.B.3.b to determine the pressure loss of the gas stream through the scrubber and scrubbing liquid flow rate during each particulate matter test run and the average of the three determinations shall be computed to establish the range for pressure drop and scrubber liquid flow rate on the scrubber.

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

C. Permit Shield

Compliance with the conditions of this Section shall be deemed compliance with A.A.C. R18-2-721.F, 721.H.1 and CD CV-15-02206-PHX-DLR 26.b.

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

II. SECONDARY CRUSHER AND FINE ORE STORAGE AREAS

A. Affected Facilities subject to Standards of Performance for Existing Nonferrous Metals Industry Sources.

1. Applicability

This Subsection applies to the emission units constructed on or before August 24, 1982, and identified in Attachment "I" as subject to Subsection II.A.

2. Emission Limitations and Standards

a. The Permittee shall not cause to be discharged into the atmosphere from wet scrubbers 3, 6, 9 and 10 emissions that contain particulate matter in excess of 0.05 grams per dry standard cubic meter (g/dscm).

[CD CV-15-02206-PHX-DLR 26.b.i]

b. The Permittee shall not cause to be discharged into the atmosphere from an affected facility opacity exhibiting greater than 20 percent as measured by EPA Reference Method 9.

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

3. Air Pollution Controls Requirements

The Permittee shall, to the extent practicable, operate and maintain *the Ducon wet scrubbers 3, 6, 9 and 10 in accordance with good air pollution control practices for minimizing particulate matter emissions*.

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

4. Monitoring, Reporting and Recordkeeping Requirements

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

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

b. *The Permittee shall install, calibrate*, operate and maintain *continuous monitoring devices to measure the change in gas pressure (accurate to +/- 1 water pressure) across each scrubber and a continuous monitoring device to measure the liquid flow rate (accurate to +/- 5% of design) for the scrubber.*

[CD CV-15-02206-PHX-DLR 26.b.ii, A.A.C. R18-2-331.A.3.c]
[Material permit conditions are indicated by underline and italics]

c. The wet scrubber shall be operated such that the hourly (block) average pressure drop of the gas stream across the scrubber and the hourly (block) average scrubber liquid flow rate is within the range established for each parameter during the most recent performance test. These values shall be recorded and stored in an electronic data storage system that has an associated alarm system that will be triggered when values are outside of

the range established for each parameter. The alarm system shall include visual indicators displayed in a control room that is staffed on a twenty-four (24) hour basis.

[CD CV-15-02206-PHX-DLR 26.b.iii]

d. Each wet scrubber shall be visually inspected at least once per shift to detect any visual signs of operational problems.

[CD CV-15-02206-PHX-DLR 26.b.iv]

e. When either the pressure drop or scrubber liquid flow rates are outside the established range for that parameter, the Permittee shall maintain record of such instances in the maintenance log or other record. Within one (1) hour of the first discovery that a scrubber's flow rate and/or pressure drop reading is outside the established range for that parameter, the Permittee shall initiate investigation. If necessary, the Permittee shall take corrective action as soon as practicable to adjust or repair the wet scrubber to minimize any increased PM emissions. The records shall include the dates, times of occurrence and repair, scrubber liquid flow rates or pressure drop at the time of issue, their cause, and an explanation of the corrective actions taken, if any. The Permittee shall also record any dates, times, and durations when a wet scrubber was not in service or was believed to be malfunctioning.

[CD CV-15-02206-PHX-DLR Section IV Item 26.b.v]

f. The Permittee shall conduct a bi-weekly (once in every two weeks) monitoring of visible emissions from the stacks as per the periodic opacity monitoring requirements specified in Condition I.D of Attachment "B".

[A.A.C. R 18-2-306.A.3.c]

5. Performance Test Requirements

a. The Permittee shall conduct annual performance tests on each wet scrubber for particulate matter in accordance with EPA Reference Method 5. For Method 5, Method 1 shall be used to select the sampling site and the number of traverse sampling points. The sampling time for each run shall be at least 60 minutes and the minimum sampling volume shall be 0.85 dscm (30 dscf), except that smaller sampling times or volumes, when necessitated by process variables or other factors, may be approved by the Director. The probe and filter holder heating systems in the sampling train shall be set to provide a gas temperature no greater than 160°C. (320°F.).

[CD CV-15-02206-PHX-DLR 26.b.i, A.A.C. R18-2-721.H.1 and 2 & 312.B]

b. The Permittee shall use the monitoring devices required in Conditions II.A.4.b to determine the pressure loss of the gas stream through the scrubber and scrubbing liquid flow rate during each particulate matter test run and the average of the three determinations shall be computed to determine the operating parameter for each scrubber.

[A.A.C. R18-2-306.A.3.c and –306.A.4]

6. Permit Shield

Compliance with the conditions of this Subsection shall be deemed compliance with A.A.C. R18-2-721.F, 721.H.1 and CD CV-15-02206-PHX-DLR 26.b.

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

B. Affected facilities Subject to New Source Performance Standards for Metallic Mineral Processing Plants.

1. Applicability

This Subsection applies to the emission units constructed after August 24, 1982, and identified in Attachment "I" as subject to Subsection II.B.

2. Emission Limitations and Standards

a. The Permittee shall not cause to be discharged into the atmosphere from wet scrubbers 1, 2, 4, 5 and 8 emissions that contain particulate matter in excess of 0.05 grams per dry standard cubic meter (g/dscm).

[40 CFR §60.382(a)(1), CD CV-15-02206-PHX-DLR 26.b.i]

b. *The Permittee shall not cause to be discharged into the atmosphere from an affected facility any process fugitive emissions that exhibit greater than 10 percent opacity*.

[40 CFR §60.382(b) and A.A.C. R18-2-331.A.3.f]
[Material permit conditions are indicated by underline and italics]

3. Air Pollution Control Requirements

The Permittee shall, to the extent practicable, maintain and *operate wet scrubbers 1, 2, 4, 5 and 8 in accordance with good air pollution control practices for minimizing particulate matter emissions*.

[40 CFR §60.11(d) and A.A.C. R18-2-331.a.3.e]
[Material permit conditions are indicated by underline and italics]

4. Monitoring, Reporting and Recordkeeping Requirements

a. *The Permittee shall install, calibrate*, operate and maintain *continuous monitoring devices to measure the change in gas pressure (accurate to +/- 1 water pressure) across each scrubber and a continuous monitoring device to measure the liquid flow rate (accurate to +/- 5% of design) for the scrubber*.

[40 CFR §60.384(a), (b), CD CV-15-02206-PHX-DLR 26.b.ii and A.A.C. R18-2-331-A.3.c]
[Material permit conditions are indicated by underline and italics]

b. The wet scrubber shall be operated such that the hourly (block) average pressure drop of the gas stream across the scrubber and the hourly (block) average scrubber liquid flow rate is within the range established for each parameter during the most recent performance test. These values shall be recorded and stored in an electronic data storage system that has an associated alarm system that will be triggered when values are outside of the range established for each parameter. The alarm system shall include visual indicators displayed in a control room that is staffed on a twenty-four (24) hour basis.

[CD CV-15-02206-PHX-DLR 26.b.iii]

c. Each wet scrubber shall be visually inspected at least once per shift to detect any visual signs of operational problems.

[CD CV-15-02206-PHX-DLR 26.b.iv]

d. When either the pressure drop or scrubber liquid flow rates are outside the established range for that parameter, the Permittee shall maintain record of such instances in the maintenance log or other record. Within one (1) hour of the first discovery that a scrubber's flow rate and/or pressure drop reading is outside the established range for that parameter, the Permittee shall initiate investigation. If necessary, the Permittee shall take corrective action as soon as practicable to adjust or repair the wet scrubber to minimize any increased PM emissions. The records shall include the dates, times of occurrence and repair, scrubber liquid flow rates or pressure drop at the time of issue, their cause, and an explanation of the corrective actions taken, if any. The Permittee shall also record any dates, times, and durations when a wet scrubber was not in service or was believed to be malfunctioning.

[CD CV-15-02206-PHX-DLR 26.b.v]

e. 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.

f. The Permittee shall conduct a bi-weekly (once in every two weeks) monitoring of visible emissions from the stacks as per the periodic opacity monitoring requirements specified in Condition I.D of Attachment "B".

[A.A.C. R 18-2-306.A.3.c]

5. Performance Tests

a. The Permittee shall conduct annual performance test for particulate matter on scrubbers 1, 2, 4, 5 and 8. EPA Reference Method 5 or 17 shall be used to conduct this test. 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.

[40 CFR §60.386(b)(1), CD CV-15-02206-PHX-DLR 26.b.i, A.A.C. R18-2-312]

b. The Permittee shall use the monitoring devices required in Conditions II.B.4.a to determine the pressure loss of the gas stream through the scrubber and scrubbing liquid flow rate during each particulate matter test run and the average of the three determinations shall be computed to determine the operating parameters for each scrubber..

[40 CFR §60.386(c) and A.A.C. R18-2-312]

6. Permit Shield

Compliance with the conditions of this Subsection shall be deemed compliance with 40 CFR §60.382(a)(1), 60.382(a)(2), 60.382(b), 60.384(a), 60.384(b), 60.386(b)(1), 60.386(b)(2), and 60.386(c) and CD CV-15-02206-PHX-DLR 26.b.

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

C. Slag Processing Project Recordkeeping, Monitoring, and Reporting

1. For purposes of this Condition, "Slag Processing Project" means the changes authorized by Minor Permit Revision No. 90645. Provisions in Attachments "D" & "E" Section V, Slag Screening & Transport are independent of the "Slag Processing Project" operating scenario.

2. Before beginning actual construction of the Slag Processing Project, the Permittee shall document and maintain a record of the following information:

   a. A description of the Project;

   b. Identification of the emissions unit(s) with emissions of a regulated NSR pollutant that could be affected by the Project;

   c. A description of the applicability test used to determine that the Project is not a major modification for any regulated NSR pollutant, including the baseline actual emissions, the projected actual emissions, the amount of emissions excluded under R18-2-401(23)(b)(iv) of the definition of projected actual emissions, and an explanation for why such amount was excluded; and

   d. Any netting calculations, if applicable.

[A.A.C. R18-2-402.F.1]

3. The Permittee shall monitor the emissions of any regulated NSR pollutant that could increase as a result of the Project and that is emitted by any emissions unit identified in Condition II.C.2.b above; and calculate and maintain a record of the annual emissions, in tons per year on a calendar year basis, for a period of five years following resumption of regular operations after the Project changes, or for a period of 10 years following resumption of regular operations after the Project changes if the Project increases the design capacity or potential to emit of that regulated NSR pollutant at such emissions unit. For purposes of this Condition II.C.3, fugitive emissions (to the extent quantifiable) shall be monitored.

[A.A.C. R18-2-402.F.3]

4. The Permittee shall submit a report to the Director if for a calendar year the annual emissions, in tons per year, from the Project identified in Condition II.C.2 above exceed the sum of the baseline actual emissions, as documented and maintained under Condition II.C.2.c above, by a significant amount for that regulated NSR pollutant, and if the emissions differ from the preconstruction projection as documented and maintained under Condition II.C.2.c above. The Permittee shall submit the report to the Director within 60 days after the end of the calendar year. The report shall contain the following:

a. The name, address, and telephone number of the Permittee;

b. The annual emissions as calculated pursuant to Condition II.C.3 above; and

c. Any other information that the Permittee wishes to include in the report, such as an explanation as to why the emissions differ from the preconstruction projection.

[A.A.C. R18-2-402.F.4]

5. The Permittee shall make the information required to be documented and maintained under Condition II.C.2 and 3 above available for review upon request for inspection by the Department or the general public.

[A.A.C. R18-2-402.F.7]

III. COMPLIANCE ASSURANCE MONITORING (CAM) REQUIREMENTS

A. Applicability

Following emission sources have uncontrolled particulate matter emissions greater than 100 tons per year. These emission sources are controlled by Ducon wet scrubbers and are thus subject to CAM requirements.

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

1. Track Hopper (Controlled by Scrubber #7)

2. #1 conveyor to screens to 3 standard cone crushers to #6 belt conveyor (Controlled by Scrubber #4)

3. #3 belt conveyor to belt conveyor #4 (Controlled by Scrubber #5)

B. Primary Indicators

The primary indicators of scrubber performance shall be as follows:

[40 CFR 64.3]

1. Scrubber liquid flow rate; and

2. Change in pressure of the gas stream through the scrubber.

C. Monitoring Approach

The Permittee shall record on a daily basis the measurements of both the change in the pressure of the gas stream across the scrubbers and the scrubbing liquid flow rate.

[40 CFR 64.3]

D. Excursion Determination

An excursion is defined as:

[40 CFR 64.6]

1. Any liquid flow rate that is outside of the ±30% range of the unit-specific values established during the most recent performance test that demonstrated compliance with the particulate matter emission limit for the each scrubber.

2. Any change in pressure of the gas stream through a scrubber that is outside of the ±30% range of the unit-specific values obtained in the most recent performance test that demonstrated compliance with the particulate matter emission limit for the each scrubber.

3. If an excursion is detected, then the Permittee shall initiate an investigation of the appropriate scrubber(s) within 24 hours of the first discovery of the excursion incident and take corrective action as soon as practicable to adjust or repair the scrubber(s) to minimize possible exceedances of the particulate standard.

E. In addition to above, the Permittee shall comply with all the applicable General Compliance Assurance Monitoring Requirements under Section IV of Attachment "B".

F. Permit Shield

Compliance with the conditions of this Section shall be deemed compliance with 40 CFR Part 64.

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

IV. LIME STORAGE AND HANDLING

A. Applicability

This Subsection applies to the emission units and identified in Attachment "I" as subject to Section IV.

B. Emission Limitations and Standards

1. Particulate Matter

The Permittee shall not cause, allow, or permit the discharge of particulate matter into the atmosphere from any process source in total quantities in excess of the amounts calculated by the following equations:

[A.A.CR18-2-730.A.1]

a. For process sources having a process rate of 30 tons per hour or less, the maximum allowable emission 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

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

b. For process sources having a process weight rate greater than 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 IV.B.1.a above.

2. Opacity

The opacity of emissions from any of the equipment into the atmosphere shall not be greater than 20 percent as measured by EPA Reference Method 9.

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

C. Air Pollution Control

The Permittee shall, to the extent practicable, operate and maintain *the Lime Receiving and Transfer Dust Collector in accordance with good air pollution control practices for minimizing particulate matter emissions*.

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

D. Monitoring, Reporting, and Recordkeeping Requirements

The Permittee shall conduct bi-weekly monitoring of visible emissions from the lime receiving and transfer baghouse, when in operation, as per the periodic opacity monitoring requirements specified in Condition I.D of Attachment "B".

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

E. Permit Shield

Compliance with the conditions of this Section shall be deemed compliance with the following applicable requirements as of the issuance date of this permit: A.A.C. R18-2-702.B and 730.

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

ATTACHMENT "D": SMELTER (WITH 40 CFR 63 SUBPART EEEEEE)

I. APPLICABILITY

A. This Attachment shall be applicable until the effective date the Permittee accepts to incorporate NESHAP Subpart QQQ requirements. The Permittee shall communicate this effective date to the EPA and the Director in writing. After this effective date the Permittee shall comply with the requirements in the Attachment "E".

B. The Permittee shall complete CRP no later than December 1, 2018.

[CD CV-15-02206-PHX-DLR 8.a]

C. The Converter Retrofit Project shall consist of the following improvements:

[CD CV-15-02206-PHX-DLR 6.j]

1. The installation of improved primary and secondary hooding systems,

2. The installation of new tertiary hooding systems

3. The replacement of the five (5) existing Peirce-Smith converters with three (3) new Peirce-Smith converters of increased size (approximately 15 feet by 35 feet); and

4. The increase in the size of ladles used for matte transfer to a minimum of two hundred eighty (280) cubic feet.

II. GENERAL FACILITYWIDE REQUIREMENTS FROM 40 CFR 63 SUBPART EEEEEE

A. 40 CFR 63 Subpart EEEEEE General Requirements

The Permittee shall comply with the requirements of the General Provisions (40 CFR part 63, subpart A) as specified in Table 1 to 40 CFR 63 Subpart EEEEEE.

[40 CFR 63.11150(a)]

B. O & M Requirements

[40 CFR 63.11148(f)]

1. At all times, including periods of startup, shutdown, and malfunction, the Permittee shall to the extent practicable, maintain and operate any affected source, 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.

2. All pollution control equipment shall be installed, maintained, and operated properly. Instructions from the vendor or established maintenance practices that maximize pollution control must be followed. All necessary equipment control and operating devices, such as pressure gauges, amp meters, volt meters, flow rate indicators, temperature gauges, continuous emissions monitor, etc., shall be installed, and operated properly, and easily accessible to compliance inspectors. A copy of all manufacturers' operating instructions for pollution control equipment

and pollution emitting equipment shall be maintained at the facility. These instructions shall be available to all employees who operate the equipment and must be made available to the Director upon request. Maintenance records must be made available to the Director upon request.

3. The Permittee shall document and keep records of the activities performed to assure proper operation and maintenance of the air pollution control equipment and monitoring systems or devices.

4. Except as specified Condition II.B.5, in the event of an emergency situation, the Permittee shall comply with the requirements specified in Conditions. For the purpose of complying with this Condition II.B.4.a through II.B.4.c, an emergency situation is any situation arising from sudden and reasonably unforeseeable events beyond the control of the Permittee that requires immediate corrective action to restore normal operation and that causes the affected source to exceed applicable emission limitation under 40 CFR 63 Subpart EEEEEE due to unavoidable increases in emissions attributable to the emergency. An emergency must not include noncompliance to the extent it is caused by improperly designed equipment, lack of preventive maintenance, careless or improper operation, or operator error.

   a. During the period of the emergency the Permittee shall implement all reasonable steps to minimize levels of emissions that exceeded the emission standards or other applicable requirements in 40 CFR 63 Subpart EEEEEE.

   b. The Permittee shall document through signed contemporaneous logs or other relevant evidence that an emergency occurred and the Permittee can identify the probable cause, the facility was being operated properly at the time the emergency occurred, and the corrective actions taken to minimize emissions as required by Condition II.B.4.a.

   c. The Permittee shall submit a notice of the emergency to the permitting authority within two working days of the time when emission limitations were exceeded due to the emergency (or an alternate timeframe acceptable to the Director). This notice must contain a description of the emergency, any steps taken to mitigate emissions, and corrective actions taken.

5. As an alternative to the requirements in Condition II.B.4, the Permittee shall comply with the startup, shutdown, and malfunction requirements in 40 CFR 63.6(e)(3).

C. Recordkeeping Requirements

[40 CFR 63.11148(g)]

1. The Permittee shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected source subject to 40 CFR 63 Subpart EEEEEE; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative.

2. The Permittee shall maintain a file of all measurements, including continuous monitoring system, monitoring device, and performance testing measurements; all

continuous monitoring system performance evaluations; all continuous monitoring system or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices; and all other information required by this section recorded in a permanent form suitable for inspection. The file must be retained for at least 5 years following the date of such measurements, maintenance, reports.

D. Notification Requirements

The notification of compliance status required by 40 CFR §63.9(h) shall include the following information:

[40 CFR 63.11150(c)]

1. If the Permittee conducts a new performance test to demonstrate initial compliance with the PM emissions limits in 40 CFR §63.11148(a)(1), (a)(3)(ii), and (a)(4)(iv), the notification of compliance status shall include the results of the performance test, including required monitoring data.

2. The notification of compliance status shall include this certification of compliance, signed by a responsible official, for the work practice standards in 40 CFR §63.11148(a)(2), and (a)(4)(iii): "This facility complies with the requirement to vent captured process gases to a gas cleaning system controlling PM and to a sulfuric acid plant in accordance with 40 CFR §63.11148(a)(2) and (a)(4)(iii)."

3. The notification of compliance status shall include this certification of compliance, signed by a responsible official, for the work practice standard in §63.11148(a)(3)(i): "This facility complies with the requirement to operate capture systems to collect gases and fumes released when copper matte or slag is tapped from the smelting vessel in accordance with §63.11148(a)(3)(i)."

4. The notification of compliance status shall include this certification of compliance, signed by a responsible official, for the work practice standard in §63.11148(a)(4): "This facility complies with the requirement to operate capture systems to collect gases and fumes released during batch copper converter operations in accordance with §63.11148(a)(4)."

E. Reporting Requirements

1. The Permittee shall prepare and submit to the Director an excess emissions and monitoring systems performance report and summary report every calendar quarter.

[40 CFR 63.11148(h)]

2. The summary report shall include the following information:

   a. The magnitude of excess emissions computed, any conversion factor(s) used, and the date and time of commencement and completion of each time period of excess emissions. The process operating time during the reporting period.

   b. Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the affected facility. The nature and cause of any malfunction (if known), the corrective action taken

or preventative measures adopted.

c. The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments.

d. When no excess emissions have occurred or the continuous monitoring system(s) have not been inoperative, repaired, or adjusted, such information must be stated in the report.

F. Permit Shield

Compliance with the Conditions under this Subsection shall be deemed compliance with 40 CFR 63.11148(f), (g) and (h), 63.11150(a) and 63.11150(c).

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

III. FACILITYWIDE LIMITATIONS FOR SMELTER

A. Operational Limitations

1. *Unless otherwise specified in this Attachment, the Permittee shall only use natural gas fuel for operation of the flash furnace burners, converters, concentrate dryers, and anode furnaces, except for natural gas curtailment periods when the natural gas is not available. During the curtailment periods, the Permittee shall be allowed to use low sulfur fuel as emergency backup to fire the concentrate dryers and anode furnaces*. For the purpose of this Condition, the curtailment periods shall not include durations when the natural gas market price is considered high for any reason.

[Condition I.E of Operating Permit No. 1000042, A.A.C. R18-2-331.A.3.a]
[Material permit conditions are indicated by italics and underline]

2. The Permittee shall complete CRP no later than December 1, 2018.

[CD CV-15-02206-PHX-DLR 8.a]

3. The Converter Retrofit Project shall constitute of the following improvements:

[CD CV-15-02206-PHX-DLR 6.j]

a. The installation of improved primary and secondary hooding systems,

b. The installation of new tertiary hooding systems, and

c. The replacement of the five (5) existing Peirce-Smith converters with three (3) new Peirce-Smith converters of increased size (approximately 15 feet by 35 feet),

d. The increase in the size of ladles used for matte transfer to a minimum of two hundred eighty (280) cubic feet;

B. Feed Limitations

1. Throughput Restrictions

The Permittee shall limit the maximum feed rate of concentrate to 693,500 tons per year into the flash furnace, calculated as a 365-day rolling sum.

[Condition XVI.B.1 of Permit No. 60647, A.A.C. R18-2-306.01 and A.A.C. R18-2-331.A.3.a]
[Material permit conditions are identified by italics and underline]

2. Monitoring, Recordkeeping, and Reporting Requirements

a. *No later than June 1, 2019, the Permittee shall install, calibrate*, maintain, and operate *a measurement system that will measure and record the weight, or other parameter from which weight can be derived, of the Copper-Bearing Feed charged to the smelting vessel on a daily basis (each 24-hour block encompassing a complete calendar day). The measurement system shall be capable of ascertaining the weight of the Copper-Bearing Feed with an accuracy of +/- two (2) percent. The measurement system shall be calibrated at a minimum once per month, or more frequently if recommended by the manufacturer*.

[CD CV-15-02206-PHX-DLR 24.a and A.A.C. R18-2-331.A.3.c]
[Material permit conditions are identified by italics and underline]

b. At the end of each calendar day, the Permittee shall calculate and record the 2-day average tons of Copper-Bearing Feed charged to the smelting vessel.

[CD CV-15-02206-PHX-DLR 24.c]

c. The Permittee shall log and maintain daily records of the amounts of concentrate feed to the flash furnace. At the end of each day, the Permittee shall update the 365-day rolling total of concentrate feed. These records shall be available to ADEQ upon request.

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

d. The Permittee shall keep a monthly record of the total smelter charge and the weight percent (dry basis) of arsenic, antimony, lead and zinc contained in the charge. The analytical methods and procedures employed to determine the weight of the total smelter charge and the weight percent of arsenic, antimony, lead and zinc shall be approved by the Director and shall be accurate within plus or minus 10 percent.

[40 C.F.R. 60.165(a)]

3. Permit Shield

Compliance with the Conditions under this Subsection shall be deemed compliance with 40 C.F.R. 60.165(a), Condition XVI.B.1 of Permit No. 60647, and CD CV-15-02206-PHX-DLR 6.j, 8a, 24.a, and 24.c.

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

C. Capture Systems Requirements

1. The Permittee shall exhaust the process off gas from each smelting vessel to a control device according to the following requirements:

[40 CFR 63.11148(a)(2)]

a. During periods when copper ore concentrate feed is charged to and smelted to form molten copper matte and slag layers in the smelting vessel, the Permittee shall exhaust the process off gas from the smelting vessel to a gas cleaning system controlling PM and to a sulfuric acid plant prior to discharge to the atmosphere.

b. During periods when no copper ore concentrate feed is charged to the smelting vessel but the smelting vessel remains in operation to temporarily hold molten material in the vessel before resuming copper production, the Permittee shall exhaust the process off gas from the smelting vessel to an electrostatic precipitator or a baghouse prior to discharge to the atmosphere

2. *At all times when copper matte or slag is tapped from the smelting furnace, the Permittee shall operate a capture system that collects the gases and fumes released from the tapping port in use. The design and placement of this capture system shall be such that the tapping port opening, launder, and receiving vessel (e.g., ladle, slag pot) are positioned within the confines or influence of the capture system's ventilation draft during those times when the copper matte or slag is flowing from the tapping port opening.*

[40 CFR 63.11148(a)(3)(i)), CD CV-15-02206-PHX-DLR 19, A.A.C. R18-2-331.A.3.e]
[Material permit conditions are indicated by italics and underline]

3. *The Permittee shall operate a primary capture system that collects the process off gas vented when one or more batch copper converters are Blowing*. The capture system design shall include use of a primary hood that covers the entire mouth of each batch copper converter vessel when the copper converter is positioned for Blowing. The capture system may use multiple intake and duct segments through which the ventilation rates are controlled independently of each other.

[40 CFR 63.11148(a)(4)(i), A.A.C. R18-2-331.A.3.e]
[Material permit conditions are indicated by italics and underline]

4. *The Permittee shall operate a secondary capture system that collects gases and fumes released from the batch copper converter when the converter mouth is rotated out partially or totally from within the confines or influence of the primary capture system's ventilation draft during charging, skimming, pouring, or holding.* The capture system design must use additional hoods (e.g., sliding secondary hoods, air curtain hoods) or other capture devices (e.g., building evacuation systems). The capture system may use multiple intake and duct segments through which the ventilation rates are controlled independently of each other, and individual duct segments may be connected to separate PM control devices.

[40 CFR 63.11148(a)(4)(ii), A.A.C. R18-2-331.A.3.e]
[Material permit conditions are indicated by italics and underline]

5. The Permittee shall exhaust the process off gas captured by the primary capture system that is used to comply with Condition III.C.3 to a gas cleaning system controlling PM and to a sulfuric acid plant prior to discharge to the atmosphere.

[40 CFR 63.11148(a)(4)(iii)]

6. *At all times that a vessel is used for the production of copper matte, blister copper, or refined anode copper, the Permittee shall operate one or more capture systems to collect gases and fumes released from such production and convey each collected gas stream from the primary and secondary ventilation systems to a baghouse or other particulate matter control device*. The Permittee shall at all times, including periods of startup, shutdown, and/or malfunction, implement good air pollution control practices to minimize emissions from control devices, including capture systems and PM control devices.

[CD CV-15-02206-PHX-DLR 7 and A.A.C. R18-2-331.A.3.e]
[Material permit conditions are indicated by italics and underline]

7. At all times material is being processed in the copper converter department, the Permittee shall operate a capture system that:

[CD CV-15-02206-PHX-DLR 8]

a. Collects the process off gas vented from each copper converter;

b. Includes the use of a primary hood that covers the entire mouth of the converter vessel when the copper converter is Blowing; and

c. Includes the use of a secondary hood at all times when each copper converter is Blowing or is engaged in secondary operations. All gases captured by a primary hood shall be routed to the acid plant.

8. All gases captured by the secondary hoods shall be routed to either the acid plant or the secondary baghouse. Upon installation of each improved hooding capture system, all gases captured by an improved secondary hood while that converter is Blowing shall be routed to the acid plant.

[CD CV-15-02206-PHX-DLR 8.c]

9. Upon installation, the tertiary hooding system shall be operated at all times that material is being processed in the copper converter department.

[CD CV-15-02206-PHX-DLR 8.d]

10. The Permittee shall identify monitoring parameters and limits that will ensure, to the maximum extent practicable, that each hooding system is consistently operated in a manner so as to maximize gas capture and minimize fugitive emissions.

[CD CV-15-02206-PHX-DLR 9]

11. No later than December 1, 2019, at all times that any hooding in the improved gas capture system is operational, the Permittee shall continuously comply with the operational parameters and limits in the Operation and Maintenance Plan required pursuant to Attachment "B", Condition III.C.1. Also, no later than December 1, 2019, the operating limits shall be as below unless and until an alternative parameter and/or limit is approved by EPA:

[CD CV-15-02206-PHX-DLR 9.a]

a. Primary Hooding

A minimum air infiltration ratio for a primary hood of 1:1 during all times of converter Blowing at the converter served by that hood, averaged over 24 converter Blowing hours and rolled hourly. The minimum air infiltration ratio shall be calculated by comparing:

(1) The measured volumetric flow rate in the ductwork leaving the primary hood less the volumetric flow rate of tuyere Blowing; and

(2) The measured volumetric flow rate of tuyere Blowing.

b. Secondary Hooding

(1) A minimum exhaust rate of 35,000 SCFM for a secondary hood during all times of converter Blowing at the converter served by that hood, averaged over 24 converter Blowing

hours and rolled hourly.

(2) A minimum exhaust rate of 133,000 SCFM for a secondary hood during all non-Blowing operations (including receiving matte and other charged materials, skimming slag, and casting copper) at the converter served by that hood, averaged over 24 converter non-Blowing operations hours and rolled hourly.

(3) A minimum negative pressure drop across the secondary hood when secondary hood doors are in the closed position equivalent to 0.03 millimeters of mercury (0.007 inches of water).

c. Tertiary Hooding

A minimum exhaust rate of 400,000 actual cubic feet per minute (ACFM) for the tertiary hooding during all times material is being processed in the copper converter department, averaged over 24 hours of converter department material processing and rolled hourly.

12. Capture System Monitoring Requirements

a. *No later than December 1, 2019, the Permittee shall install, calibrate*, maintain, and operate *a monitoring device that continuously records the volumetric flow rate or, upon approval by EPA, other parameter that has a direct relationship to volumetric flow for one or more hoods, at a representative point in the hooding system and in accordance with good engineering practices for each of the primary hoods, each of the secondary hoods, and the tertiary hood*.

[CD CV-15-02206-PHX-DLR 9.b and A.A.C. R18-2-331.A.3.c]
[Material permit conditions are indicated by italics and underline]

(1) Upon installation of each primary hood, the Permittee shall also install, calibrate, maintain, and operate a monitoring device that continuously records the volumetric flow rate of tuyere Blowing at that primary hood.

(2) All monitoring devices shall have an accuracy of plus or minus 10 percent over the normal process operating range and must be calibrated according to manufacturer's instructions.

(3) If the Permittee wishes to monitor and record a parameter other than volumetric flow rate at one or more of the monitoring locations, the Permittee must, no later than June 1, 2019, submit to EPA for approval a detailed proposal that includes the following:

(a) Identification of parameter(s) to be monitored in lieu of volumetric flow rate;

(b) Identification of where in the hooding system such monitor(s) would be placed and how such location will give appropriate and representative measurements in

accordance with good engineering practices;

(c) a detailed explanation, including sample calculations, of how such parameter(s) has a direct relationship to volumetric flow rate in the hooding system and how such parameter(s) will allow the Permittee to have sufficient information to ensure proper operation in accordance with design at all times, including detecting any degraded hooding performance over time (i.e. decreased fan performance, buildup in the ducting, holes in the ducting, etc.); and

(d) Proposed limit(s), including sample calculations, for the selected parameter(s) that would replace a relevant limit set forth in Condition III.C.11 (Default Hooding Operational Parameters and Limits) above and a demonstration of how such limit(s) correlates to equivalent performance and operation of the relevant hooding.

(e) If EPA approves the Permittee's proposal, the proposed limit(s) shall replace the relevant volumetric flow rate limit specified in Condition III.C.11 and shall be enforceable thereunder.

b. No later than December 1, 2019, the Permittee may propose alternative limit(s) to replace a limit set forth in Condition III.C.11 above (or substituted pursuant Condition III.C.12.a(3) above). In any such proposal, the Permittee shall have the burden of demonstrating that each proposed alternative limit(s) will not lead to additional emissions and will not reduce the capture efficiency of the improved gas capture system, as compared to the emissions and efficiencies achieved or achievable by operation of the hooding systems in compliance with the limit to be replaced in Condition III.C.11. Such demonstration shall include a detailed description of the rationale(s) for the proposed alternative limit(s) as required in CD CV-15-02206-PHX-DLR 9.c. If EPA approves the Permittee's proposal, the proposed alternative limit(s) shall be considered to replace the relevant limit in Condition III.C.11 and shall be enforceable thereunder.

[CD CV-15-02206-PHX-DLR 9.c]

13. Permit Shield

Compliance with the Conditions under this Subsection shall be deemed compliance with 40 CFR 63.11148(a)(3) & (a)(4) and CD CV-15-02206-PHX-DLR 7, 8, 8.c, 8.d, 9 and 19.

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

D. PM and Opacity

1. Emission Limits

a. *Upon CRP startup, the Permittee shall not exceed the combined particulate matter emissions limit from the acid plant tail gas, secondary*

hood baghouse, vent gas baghouse and tertiary ventilation system gas streams of 197.3 tons per year (filterable only) on 12-month rolling total basis.

[Condition XVI.C.2.a of SPR 60647, A.A.C. R18-2-306.02.A and A.A.C. R18-2-331.A.3.a]
[Material permit conditions are identified by italics and underline]

b. No later than December 1, 2019, the Permittee shall comply with the following emission limits from any combination of stacks, vents, or other openings on furnaces, reactors, or other types of process vessels used for the production of anode copper from copper sulfide ore concentrates. Such process equipment shall include all processing steps from the copper concentrate dryers through the anode casting department, inclusive of those end points.

[CD CV-15-02206-PHX-DLR 24]

(1) At all times that the average rate of copper-bearing feed into the smelting flash furnace over a 2-day period (48-hour block encompassing 2 complete calendar days) is greater than or equal to twenty-five (25) tons per hour, including periods of startup, shutdown, and malfunction, the Permittee shall not discharge to the atmosphere exhaust gases that contain total PM in excess of 0.6 pounds per ton of Copper-Bearing Feed charged to the smelting vessel on a rolling 2-day average basis (each 48-hour block encompassing 2 complete calendar days) rolled daily (each 24 hours).

(2) At all other times, the Permittee shall not discharge to the atmosphere exhaust gases that contain total PM in excess of fifteen (15) pounds per hour, as determined on a daily average basis (each 24-hour block encompassing a complete calendar day), including periods of startup, shutdown, and malfunction.

c. No later than December 1, 2020, the Permittee may submit to EPA a request for an alternative emissions breakpoint to more closely match the actual emission profile. The proposed breakpoint in any such request shall not be greater than fifty (50) tons per hour, corresponding to an emission rate of thirty (30) pounds per hour as determined on a daily average basis. EPA may grant or deny the request in whole or in part, subject to Dispute Resolution.

[CD CV-15-02206-PHX-DLR 24.e]

d. No later than one hundred eighty (180) days after completion of the Converter Aisle Retrofit Project, the Permittee shall operate the gas capture systems such that any visible emissions exiting the roof of the building housing the copper converter department meet an opacity limit of four (4) percent based on EPA Method 9, including periods of startup, shutdown, and malfunction.

[CD CV-15-02206-PHX-DLR 12]

2. Air Pollution Control Requirements

a. *The Permittee shall operate the Inter-pass Absorption Tower and Final*

Absorption tower in the acid plant to control particulate matter emissions from the flash furnace, converters and converter secondary hood during Blowing operations.

[Condition XVI.C.2.b(1) of SPR 60647 and A.A.C. R18-2-331.A.3.e]
[Material permit conditions are indicated by underline and italics]

b. *The Permittee shall operate* and maintain *a baghouse to minimize particulate emissions from the converter secondary hood capture system*.

. [Condition XVI.C.2.b(2) of SPR 60647 and A.A.C. R18-2-331.A.3.e]
[Material permit conditions are indicated by underline and italics]

c. *Upon startup of CRP the Permittee shall install, operate* and maintain a *vent gas baghouse to minimize particulate emissions from the flash furnace matte tapping and slag skimming operations*.

. [Condition XVI.C.2.b(3) of SPR 60647 and A.A.C. R18-2-331.A.3.d and e]
[Material permit conditions are indicated by underline and italics]

3. Monitoring, Recordkeeping and Reporting Requirements

a. *The Permittee shall calibrate*, maintain, and continuously *operate the Inter-pass Absorption Tower and Final Absorption Tower acid flow meters in accordance with the manufacturer's specifications*. The system shall record block hourly values of the acid flows.

[Condition XVI.C.2.f(1) of SPR 60647 and A.A.C. R18-2-331.A.3.c]
[Material permit conditions are indicated by underline and italics]

b. *The Permittee shall install, calibrate*, maintain, and operate *bag leak detection systems (BLDS) for the secondary hood baghouse and vent gas baghouse in accordance with Section X of this Attachment*.

[Condition XVI.C.2.f(2) of SPR 60647, CD CV-15-02206-PHX-DLR 26.a and A.A.C. R18-2-331.A.3.c]
[Material permit conditions are indicated by underline and italics]

c. *The Permittee shall install, calibrate*, operate and maintain *PM CEMS on the following streams in accordance with the requirements in Condition IX.B of this Attachment*:

(1) R&R Cottrell ESP Replacement Baghouse Gas Stream

(2) Acid Plant Tail Gas Stream

(3) Secondary Hood Baghouse Gas Stream

(4) Tertiary Hooding Gas Stream

(5) Anode Furnaces Baghouse Gas Stream

d. Opacity Monitoring for Buildings

Except as provided in Condition III.D.3.d(3) below, within six (6) months of completion of the initial Fugitive Emissions Study, the Permittee shall install and continuously operate *three (3) long-path optical density/opacity monitors on the outside of the building housing the flash furnace, converters, and anode furnaces*. The optical density/opacity monitors shall be designed and installed to maximally cover areas where fugitive emissions may exit the building, as identified during the initial

Fugitive Emissions Study, and each optical density/opacity monitor shall be calibrated to measure opacity from approximately 0 to 10% over the full range of the instrument.

[CD CV-15-02206-PHX-DLR 23 and A.A.C. R18-2-331.A.3.c]
[Material permit conditions are indicated by underline and italics]

(1) For any instance of measurable opacity greater than 4% over a six (6) minute period exiting the building housing the flash furnace, converters, and anode furnaces, the Permittee shall take one or more corrective actions within thirty (30) minutes of the commencement of the event to abate the opacity, including but not limited to the following:

(a) Increasing secondary and tertiary hood exhaust rates,

(b) Closing primary and secondary hood doors, and/or

(c) Making adjustments to materials handling operations within the building. The Permittee shall document all measures taken to address the opacity event as well as the final resolution of the problem.

(2) If the corrective actions pursued by the Permittee fail to control the opacity event within one (1) hour of the start of the event, the Permittee shall perform a root cause analysis within seventy-two (72) hours after any instance of measurable opacity greater than 4% over a six (6) minute period, which would identify the cause of the visible emissions and 1) propose permanent operational adjustments or other corrective actions to prevent recurrence as a result of the identified cause; and/or 2) provide the EPA with an analysis of why a specific operational process or step leads to fugitive emissions of limited duration and opacity that cannot reasonably be eliminated or sufficiently controlled to prevent visible emissions. the Permittee shall submit to EPA for review and approval the root cause analysis, along with the recommended corrective actions and/or request for approval of a limited duration for allowed visible emissions associated with a particular operational activity, and the Permittee's documentation of all measures taken to address the emissions at the time of the event, as described in Condition III.D.3.d(1). In no case shall such submittal seek allowance of fugitive emissions with opacity of greater than 5% over a fifteen (15) minute period, as measured by an optical density/opacity monitor. Once approved by EPA, any new operational adjustments or other corrective actions shall become permanent and ongoing enforceable requirements of this Consent Decree.

(3) After at least two (2) years of operation of the long-path optical density/opacity monitors, the Permittee may attempt to demonstrate that it is infeasible or overly burdensome in relation to the benefits to continue operating one or more of

the long-path optical density/opacity monitors. As part of such demonstration, the Permittee shall submit to EPA an analysis of operation and maintenance of such monitor to-date, to include a summary of measurements triggering corrective actions, corrective actions taken, and all root cause analyses performed in response to monitor readings. If EPA rejects the Permittee's demonstration that it is infeasible or overly burdensome in relation to the benefits to continue operating one or more of the long-path optical density/optical monitors, such conclusions are subject to Dispute Resolution pursuant to Section XIII of the CD. Operation of a long-path optical density/optical monitor shall be considered infeasible if (a) the monitor cannot be kept in working condition for sufficient periods of time to produce reliable, adequate, or useful measurements; or (b) recurring, chronic, or unusual equipment adjustment, servicing, or replacement needs cannot be resolved through reasonable expenditures of resources. If EPA determines that operation is infeasible or overly burdensome in relation to the benefits, the Permittee shall be entitled to discontinue operation of and remove the long-path optical density/optical monitor.

4. Performance Test Requirements

a. Performance Test for Particulate Matter
[Condition XVI.C.2.c of SPR 60647, A.A.C. R18-2-312 and A.A.C. R18-2-306.A.3.c]

(1) No later than 180 days after CRP startup, the Permittee shall conduct or cause to be conducted, an initial performance test on the acid plant tail gas, secondary hood baghouse, vent gas baghouse and tertiary ventilation system gas streams for particulate matter emissions. Subsequent performance tests shall be conducted annually. EPA Reference Method 5 in 40 CFR 60 Appendix A shall be used to determine particulate matter emissions.

(2) In addition to EPA Reference Method 5 in 40 CFR 60 Appendix A to determine the emissions of PM, the Permittee shall use Reference Method 201 or 201A and Method 202 specified in 40 CFR 51, Appendix M to determine emissions of PM_{10} and $PM_{2.5}$.

b. Performance Test for Roofline Opacity

(1) Within sixty (60) days after completion of the Converter Aisle Retrofit Project, the Permittee shall prepare, and submit to EPA for review and approval a written performance test plan for determining compliance with this opacity standard in Condition III.D.1.d. The test plan shall contain all information required under 40 C.F.R. § 63.1450(c). Within ninety (90) days after approval from EPA, the Permittee shall conduct a performance test in accordance with 40 C.F.R. § 63.1450(c) to determine compliance with this opacity

standard. In addition to viewing the building roof monitor sections, each visible emission observer shall also make note of the opacity of any visible plumes exiting the roofline from the sides or any other outlet. In accordance with 40 C.F.R. § 63.1450(c)(4)(ii), in situations when it is possible for an observer to distinguish two or more visible emission plumes from the building roof monitor sections or roof exhaust fan outlets, the observer must identify, to the extent feasible, the plume having the highest opacity and record his or her opacity reading for that plume as the opacity value for the I5-second interval.

[CD CV-15-02206-PHX-DLR 12.a]

(2) The Permittee shall conduct additional performance tests at least once each three hundred sixty-five (365) day period following the initial performance test. Any credible evidence, including opacity testing performed in accordance with EPA Method 9 (notwithstanding its consistency with Subpart QQQ test procedures), evidence collected by means specified in 40 § C.F.R. 63.1450(c), and evidence collected by means other than those specified in 40 § C.F.R. 63.1450(c), can be used to demonstrate noncompliance with the 4% roofline opacity.

[CD CV-15-02206-PHX-DLR 12.b]

(3) For each performance test conducted to demonstrate compliance with an opacity limit under Condition III.D.1.d, the Permittee shall keep the following records:

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

(a) Dates and time intervals of all opacity observation period segments;

(b) Description of overall smelter operating conditions during each observation period. Identify, if any, the smelter copper production process equipment that was out-of-service during the performance test and explain why this equipment was not in operation;

(c) Name, affiliation, and copy of current visible emission reading certification for each visible emission observer participating in performance test;

(d) Name, title, and affiliation for each indoor process monitor participating in the performance test;

(e) Copies of all visible emission observer opacity field data sheets;

(f) Copies of all indoor process monitor operating log sheets;

(g) Copies of all data summary sheets used for data reduction;

(h) Copy of calculation sheets of the average opacity value

used to demonstrate compliance with the opacity limit; and

(i) Certify in the performance test report that during all observation period segments, the copper converter department capture system was operating at the values or settings established in the capture system operation and maintenance plan.

5. Compliance Requirements

a. Compliance with PM emission limit in Condition III.D.1.a.
[Condition XVI.C.2.d of SPR 60647]

(1) The Permittee shall calculate PM emissions in pounds per hour in the acid plant tail gas, secondary hood baghouse, vent gas baghouse or and tertiary ventilation streams based on the most recent performance test in accordance with Condition III.D.4.a.

(2) The Permittee shall maintain records of hours of operation of the following: acid plant tail gas, secondary hood baghouse, vent gas baghouse and tertiary ventilation streams. If any emission unit associated with a stream operates during a calendar hour, it will constitute an operating hour. If no emission unit associated with a stream operates during a calendar hour, it will not constitute an operating hour.

(3) The Permittee shall calculate and record monthly emissions for the acid plant tail gas, secondary hood baghouse, vent gas baghouse and tertiary ventilation streams for PM based on the hourly emissions calculated in Condition III.D.5.a(1) and the monthly operating hours for each stream recorded in Condition III.D.5.a(2).

(4) No later than the fifth working day of the following month, the Permittee shall calculate and record rolling 12-month total of combined PM emissions from the acid plant tail gas, secondary hood baghouse, vent gas baghouse and tertiary ventilation streams based on the monthly emissions calculated in Condition III.D.5.a(3) to demonstrate compliance with the emission limit in ConditionIII.D.1.a.

b. Filterable + Condensable PM, PM_{10} and $PM_{2.5}$ emissions
[Condition XVI.C.2.e of SPR 60647]

(1) The Permittee shall calculate hourly PM, PM_{10} and $PM_{2.5}$ emissions (Filterable + Condensable) from each stream based on most recent performance test in accordance with Condition III.D.4.a(2).

(2) The Permittee shall calculate and record monthly emissions for the acid plant tail gas, secondary hood baghouse, vent gas

baghouse and tertiary ventilation streams for PM, PM_{10} and $PM_{2.5}$ based on the hourly emissions calculated in Condition III.D.5.b(1) and the monthly operating hours for each stream recorded in Condition III.D.5.a(2).

(3) No later than the fifth working day of the following month, the Permittee shall calculate and record rolling 12-month total of combined PM, PM_{10} and $PM_{2.5}$ emissions from the acid plant tail gas, secondary hood baghouse, vent gas baghouse and tertiary ventilation streams based on the monthly emissions calculated in Condition III.D.5.b(2)

(4) Based on the Filterable + Condensable PM, PM_{10} and $PM_{2.5}$ emissions data for 3 years, the Permittee shall apply for a permit revision no later than 180 days after completion of the third performance test pursuant to Condition III.D.4.a(2) for incorporation of emission limits for Filterable + Condensable PM, PM_{10} and $PM_{2.5}$ emission limits.

c. Compliance with Total PM Limit in Condition III.D.1.b(1)

(1) At the end of each calendar day, the Permittee shall calculate and record the 2-day average tons of Copper-Bearing Feed charged to the smelting vessel.

[CD CV-15-02206-PHX-DLR 24.c]

(2) If the 2-day average tons of Copper-Bearing Feed charged to the smelting vessel is greater than or equal to twenty-five (25) tons per hour, then the Permittee shall calculate and record the 2-day average pounds of total PM per ton of Copper-Bearing Feed charged to the smelting vessel for the preceding 48-hour period.

[CD CV-15-02206-PHX-DLR 24.c]

(3) If the 2-day average tons of Copper-Bearing Feed charged to the smelting vessel is less than twenty-five (25) tons per hour, then the Permittee shall calculate and record the daily average pounds of total PM per hour for the preceding 24-hour period.

[CD CV-15-02206-PHX-DLR 24.c]

(4) Emission Calculation Procedure

[CD CV-15-02206-PHX-DLR 24.b]

(a) PM emissions from the acid plant, Secondary Baghouse, R&R Cottrell ESP Replacement Baghouse, and Anode Furnace Baghouse shall be calculated based on data collected from the PM CEMS.

(b) PM emissions from the Tertiary Hood Exhaust and any other emission point receiving off-gas from process equipment subject to the emissions limits shall be calculated based on data collected from a certified PM CEMS installed to measure such gas stream or, if no

certified PM CEMS exists for a gas stream, engineering estimates based on one or more of the following, as available: stack test data, CPMS data, COMS data, and other process data.

(c) The Permittee shall determine and record the 2-day (each 48- hour block encompassing 2 complete calendar days) or, if necessary, daily (24-hour block encompassing a complete calendar day) value of PM emissions for each of these gas streams.

(d) The sum of those values shall be added to an estimate of 48-hour or, if necessary, daily fugitive PM emissions from all process equipment subject to the emission limits in Condition III.D.1.b(1), to include all fugitive emissions from the building(s) housing the flash furnace, copper converter department, and anode furnace and production operations.

(e) In the event that one or more certified PM CEMS on a relevant gas stream is malfunctioning for a portion or the entirety of any day, the Permittee shall use the eighth highest daily value of PM emissions that has been recorded at that CEMS in the previous six (6) months.

(f) Daily and 48-hour fugitive PM emissions shall be calculated based upon emission factors established during the most recent Fugitive Emissions Study. Prior to completion of the initial Fugitive Emissions Study required under CD, estimates from the 1994/1995 Fugitive Emissions Study shall be used for purposes of this calculation.

d. The Permittee shall maintain records of the calculations of pounds per ton, and pounds per hour rates and all supporting information and data.

[CD CV-15-02206-PHX-DLR 24.d]

6. Permit Shield

Compliance with the Conditions under this Subsection shall be deemed compliance with Conditions XVI.C.2.a, b, c, d, e and f of SPR 60647, and CD CV-15-02206-PHX-DLR 12, 12.b, 23, 24.b, 24.c, 24.d, 24.e and 26.a.

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

E. Sulfur Dioxide (SO_2)

Note: *The Permittee shall comply with the requirements under Attachment "F" in addition to requirements under this Subsection until A.A.C, R18-2-715.I is approved into SIP by EPA. All the requirements from A.A.C. R18-2-B1302 (Limits on SO2 Emissions from the Hayden Smelter) are State Enforceable only until A.A.C. R18-2-B1302 is approved into Arizona SIP by EPA.*

1. Definitions

[A.A.C. R18-2-B1302.B]

a. "Operating day" means any calendar day in which any of the following occurs:

(1) Concentrate is smelted in the smelting furnace;

(2) Copper or sulfur bearing materials are processed in the converters;

(3) Blister or scrap copper is processed in the anode furnaces;

(4) Molten metal, including slag, matte or blister copper, is transferred between vessels; or

(5) Molten metal is cast into anodes or other intermediate or final products.

b. "Out of control period" means the time that begins with the completion of the fifth, consecutive, daily calibration drift check with a calibration drift in excess of two times the allowable limit, or the time corresponding to the completion of the daily calibration drift check preceding the daily calibration drift check that results in a calibration drift in excess of four times the allowable limit, and the time that ends with the completion of the calibration check following corrective action that results in the calibration drifts at both the zero (or low-level) and high level measurement points being within the corresponding allowable calibration drift limit.

c. "Continuous emissions monitoring system" or "CEMS" means the total equipment, required under the emission monitoring provisions in this Chapter, used to sample, condition (if applicable), analyze, and to provide, on a continuous basis, a permanent record of emissions.

2. Emission Limits

a. *The combined SO_2 emissions from exit of the acid plant tail gas, secondary hood baghouse, vent gas baghouse and the tertiary ventilation system shall not exceed 22,000 tons per year on a 365-day rolling total basis*.

[Conditions XVI.C.1.a of Permit 60647, A.A.C. R18-2-306.02.A and A.A.C. R18-2-331.A.3.a]
[Material permit conditions are identified by italics and underline]

b. *No later than July 1, 2018, emissions from the Main Stack shall not exceed 1069.1 pounds per hour on a 14-operating day average unless 1,518 pounds or less is emitted during each hour of the 14-operating day period*.

[A.A.C. R18-2-B1302.C.1 and A.A.C. R18-2-331.A.3.a]
[Material permit conditions are identified by italics and underline]

c. The Permittee shall not cause to be discharged into the atmosphere from any affected unit under 40 CFR 60, subpart P any gases which contain sulfur dioxide in excess of 0.065 percent by volume (the limit set forth in 40 CFR § 60.163(a)) (as in effect on July 1, 2016 and no later editions).

[40 CFR 60.163(a), A.A.C. R18-2-B1302.C.2]

3. Air Pollution Control Requirements

At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, maintain and *operate smelter processes and associated emission control and/or control equipment in a manner consistent with good air pollution control practices for minimizing SO_2 emissions to the levels required Condition III.E.2.b.* Determination of whether acceptable operating and maintenance procedures are being used will be based on all information available to the Director and EPA Region IX, which may include, but is not limited to, monitoring results, review of operating and maintenance procedures and records, and inspection of the relevant equipment.

[A.A.C. R18-2-B1302.D.1 and A.A.C. R18-2-331.A.3.e]
[Material permit conditions are identified by italics and underline]

4. Monitoring Requirements

a. *Except during periods of systems breakdown, repairs, maintenance, out-of-control periods, calibration checks, and zero and span adjustments, the Permittee shall install, calibrate*, maintain, and operate *CEMS for continuously monitoring and recording SO_2 concentrations and stack gas volumetric flow rates at the following locations accordance with the requirements in Condition IX.C of this Attachment.*

[A.A.C. R18-2-1302.E1 and 2]

(1) The exit of the acid plant;

(2) The exit of the secondary hood particulate control device after the High Surface Area (HSA) lime injection system;

(3) The exit of the flash furnace particulate control device after the HSA lime injection system;

(4) The tertiary ventilation system prior to mixing with any other exhaust streams; and

(5) The anode furnace baghouse stack prior to mixing with any other exhaust streams.

b. If the Permittee can demonstrate to the Director that measurement of stack gas volumetric flow rate in the outlet of any particular SO_2 control equipment would yield inaccurate results or would be technologically infeasible, the Director may allow measurement of the flow rate at an alternative sampling point.

[A.A.C. R18-2-1302.E.4]

c. The Permittee may petition the Department to substitute annual stack testing for the tertiary ventilation or the anode furnace baghouse stack CEMS if the Permittee demonstrates, for a period of two years, that either CEMS contribute(s) less than five percent individually of the total sulfur dioxide emissions. The Department must determine the demonstration adequate to approve the petition. Annual stack testing shall use EPA Methods 1, 4, and 6C in 40 CFR 60 Appendix A or an alternate method approved by the Department and EPA Region IX. Annual stack testing

shall commence no later than the one year after the date the continuous emission monitoring system was removed. The Permittee shall submit a test protocol to the Department at least 30 days in advance of testing. The protocol shall provide for three or more 24-hour runs unless the Permittee justifies a different period and the Department approves such different period. Reports of testing shall be submitted to the Department no later than 60 days after testing or 30 days after receipt, whichever is later. The report shall provide an emissions rate, in the form of a pound per hour or pound per unit of production factor that shall be used in the compliance demonstration. Except as provided herein, the Permittee shall otherwise comply with A.A.C. R18-2-312 in conducting such testing.

[A.A.C. R18-2-1302.E.6]

5. Compliance Requirements

a. Compliance with Emission Limit in Condition III.E.2.a

(1) No later than 180 days after CRP startup, the Permittee shall demonstrate compliance with SO_2 emission limits in Condition III.E.2.a in accordance with following:

[Conditions XVI.C.1.a of Permit 60647, A.A.C. R18-2-306.A.3.c]

(a) The Permittee shall calculate and record daily total SO_2 emissions from acid plant tail gas, secondary hood baghouse, vent gas baghouse and the tertiary capture system streams based on CEMS.

(b) At the end of each day, the Permittee shall calculate and record daily and 365-day rolling total of SO_2 emissions from the acid plant tail gas, secondary hood baghouse vent gas baghouse and the tertiary ventilation system streams to demonstrate compliance with the emission limit in Condition III.E.2.a.

b. Compliance with Emission Limit in Condition III.E.2.b

For purposes of determining compliance the Permittee shall calculate emissions for each operating day as follows. The Permittee shall include periods of startup, shutdown, malfunction, or other upset conditions when determining compliance with the emission limit

[A.A.C. R18-2-B1302.F.1 and 4]

(1) Sum the hourly pounds of SO_2 vented to each uncontrolled shutdown ventilation flue and through each monitoring point listed in Condition III.E.4.a for the current operating day and the preceding 13-operating days to calculate the total pounds of SO_2 emissions over the 14-operating day averaging period, as applicable.

(2) Divide the total amount of SO_2 emissions calculated from Condition III.E.5.b(1) by 336 to calculate the 14-operating day average SO_2 emissions.

(3) If the calculation in Condition III.E.5.b(1) exceeds 1069.1 pounds per hour, then the Permittee shall sum the hourly pounds of SO_2 vented to each uncontrolled shutdown ventilation flue and through each monitoring point listed in subsection (E)(1) for each hour of the current operating day and each hour of the preceding 13-operating days to ascertain if any hour exceeded 1,518 pounds per hour.

c. The Permittee shall demonstrate compliance with the limit in Condition III.E.2.c in accordance with the following. The Permittee shall include periods of startup, shutdown, malfunction, or other upset conditions when determining compliance with the emission limit.

[A.A.C. R18-2-B1302.F.4 and 5]

(1) The Permittee shall utilize SO_2 CEMS to determine the SO_2 concentrations on a dry basis. The sampling time for each run shall be 6 hours. Six-hour average sulfur dioxide concentrations shall be calculated and recorded daily for the four consecutive 6-hour periods of each operating day. Each six-hour average shall be determined as the arithmetic mean of the appropriate six contiguous one-hour average sulfur dioxide concentrations provided by the continuous monitoring system The monitoring system drift during the run may not exceed 2 percent of the span value.

[40 CFR 60.165(c) and 60.166(b)(2)]

(2) For the purpose of reports required under 40 CFR §60.7(c), periods of excess emissions that shall be reported are defined as all six-hour periods during which the average emissions of sulfur dioxide, as measured by the CEMS exceed the level of the standard. The Director will not consider emissions in excess of the level of the standard for less than or equal to 1.5 percent of the six-hour periods during the quarter as indicative of a potential violation of 40 CFR §60.11(d) provided the affected facility, including air pollution control equipment, is maintained and operated in a manner consistent with good air pollution control practice for minimizing emissions during these periods. Emissions in excess of the level of the standard during periods of startup, shutdown, and malfunction are not to be included within the 1.5 percent.

[40 CFR 60.165(d)]

6. Recordkeeping Requirements

[A.A.C. R18-2-B1302.G]

a. The Permittee shall maintain a record of each operation and maintenance plan required in Attachment “B”.

b. The Permittee shall maintain the following records for at least five years:

(1) All measurements from the continuous monitoring system, including the date, place, and time of sampling or measurement; parameters sampled or measured; and results.

All measurements will be calculated daily.

(2) All records of quality assurance and quality control activities for emissions measuring systems.

(3) All records of calibration checks, adjustments, maintenance, and repairs conducted on the continuous monitoring systems; including records of all compliance calculations.

(4) All records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of concentrate drying, smelting, converting, anode refining and casting emission units; any malfunction of the associated air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative or not operating correctly.

(5) All records of planned and unplanned shutdown ventilation flue utilization events and calculations used to determine emissions from shutdown ventilation flue utilization events if the Permittee chooses to use the alternative compliance determination method.

(6) All records of major maintenance activities and inspections conducted on emission units, capture system, air pollution control equipment, and CEMS, including those set forth in the operations and maintenance plan.

(7) All records of operating days and production records required for calculations.

(8) All records of fugitive emissions studies and study protocols conducted in accordance with A.A.C. R 18-2, Appendix 14.

(9) Records of reports and notifications required under Condition III.E.7.

7. Reporting Requirements

[A.A.C. R18-2-B1302.H]

a. The Permittee shall notify the Director in writing at least 30 days in advance of the start of relative accuracy test audit (RATA) procedures performed on the continuous monitoring systems.

b. Within 30 days after the end of each calendar quarter, the Permittee shall submit a data assessment report to the Director in accordance with 40 CFR Part 60, Appendix F for the continuous monitoring systems.

c. The Permittee shall submit an excess emissions and monitoring systems performance report or summary report form in accordance with 40 CFR § 60.7(c) to the Director quarterly for the SO2 CEMS. Excess emissions means any 14-operating day average as calculated in ConditionIII.E.5.b in excess of the emission limit in Condition III.E.2.b, any period in which

the capture and control system was operating outside of its parameters specified in the capture system and control device operation and maintenance plan. For any 14-operating day period exceeding 1069.1 pounds per hour that the Permittee claims does not exceed the limit in Condition III.E.2.b because all hours in the operating period are below 1,518 pounds per hour, the Permittee shall submit the CEMS data for each hour during that period. All reports shall be postmarked by the 30th day following the end of each calendar quarter time period.

d. The Permittee shall provide the following to the Director:

(1) The Permittee shall notify the Director of commencement of construction of any equipment necessary to comply with the operational or emission limits.

(2) The Permittee shall submit semiannual progress reports on construction of any such equipment postmarked by July 30 for the preceding January-June period and January 30 for the preceding July-December period.

(3) The Permittee shall submit notification of initial startup of any such equipment within 15 business days of such startup.

8. Permit Shield

Compliance with the Conditions under this Subsection shall be deemed compliance with Conditions XVI.C.1.a and c of Permit 60647, A.A.C. R18-2-B1302, 40 CFR 60.163(a), 60.165 (b), (c) and 60.166(b)(2).

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

F. Lead

***Note**: Until A.A.C. R18-2-B1301 (Limits on lead Emissions from the Hayden Smelter) is approved by EPA, all the requirements from A.A.C. R18-2-B1301 in this Subsection are State Enforceable only.*

1. Applicability

a. The requirements under A.A.C. R18-2-B1301 shall become applicable on the earlier of July 1, 2018 or 180 days after completion of all project improvements authorized by Significant Permit Revision No. 60647.

b. The requirements under A.A.C. R18-2-B1301.01, except otherwise provided, shall become applicable on December 1, 2018.

[A.A.C. R18-2-B1301.01.A.2]

2. Definitions

[A.A.C. R18-2-B1301.B and B1301.01B]

a. "Anode furnace baghouse stack" means the dedicated stack that vents controlled off-gases from the anode furnaces to the Main Stack.

b. "Capture system" means the collection of components used to capture

gases and fumes released from one or more emission units, and to convey the captured gases and fumes to one or more control devices or a stack. A capture system may include, but is not limited to, the following components as applicable to a given capture system design: duct intake devices, hoods, enclosures, ductwork, dampers, manifolds, plenums, and fans.

c. "Control device" means a piece of equipment used to clean and remove pollutants from gases and fumes released from one or more emission units that would otherwise be released to the atmosphere. Control devices may include, but are not limited to, baghouses, Electrostatic Precipitators (ESPs), and sulfuric acid plants.

d. "Main Stack" means the center and annular portions of the 1,000-foot stack, which vents controlled off-gases from the INCO flash furnace, the converters, and anode furnaces and also vents exhaust from the tertiary hoods.

e. "Smelting process-related fugitive lead emissions" means uncaptured and/or uncontrolled lead emissions that are released into the atmosphere from smelting copper in the INCO flash furnace, converters, and anode furnaces.

f. "Lead-bearing fugitive dust" means uncaptured and/or uncontrolled particulate matter containing lead that is entrained in the ambient air and is caused by activities, including, but not limited to, the movement of soil, vehicles, equipment, and wind.

g. "Non-smelting process sources" means sources of leadbearing fugitive dust that are not part of the hot metal process, which includes smelting in the INCO flash furnace, converting, and anode refining and casting. Non-smelting process sources include storage, handling, and unloading of concentrate, uncrushed reverts, crushed reverts, and bedding material; acid plant scrubber blowdown solids; and paved and unpaved roads..

3. Compliance Schedule

[A.A.C. R18-2-B1301.01.E.3]

a. Implementation of chemical dust suppression for unpaved roads -Within 30 days of Administrator approval of application intensity and schedules in Fugitive Dust Plan under CD CV-15-02206-PHX-DLR.

b. Implementation of wind fences for materials piles (uncrushed reverts, reverts crushing and crushed reverts, bedding materials, and concentrate) - Within 120 days of Administrator approval of the Fugitive Dust Plan or the date of completion in the approved Fugitive Dust Plan, whichever is later.

c. Implementation of water sprays for materials piles (uncrushed reverts, reverts crushing and crushed reverts, bedding materials, and concentrate) - Within 120 days of Administrator approval of the Fugitive Dust Plan or the date of completion in the approved Fugitive Dust Plan, whichever is later.

d. Implementation of new primary, secondary, and tertiary hooding systems for converter aisle for purposes of complying with requirements in R18-2-B1301 - July 1, 2018

e. Implementation of new ventilation system for matte tapping and slag skimming for flash furnace for purposes of complying with requirements in R18-2-B1301 - July 1, 2018.

4. Emission Limitation

a. *Upon CRP startup, the Permittee shall not exceed the combined lead emissions limit from the acid plant tail gas, secondary hood baghouse, vent gas baghouse and tertiary ventilation system gas streams of 2.9 tons per year on 12-month rolling total basis*.

[Condition XVI.C.3.a of SPR 60647 and A.A.C. R18-2-331.A.3.a]
[Material permit conditions are identified by italics and underline]

b. No later than July 1, 2018 or 180 days after completion of all project improvements authorized by Significant Permit Revision No. 60647, the Permittee shall not exceed the emissions of lead from the Main Stack 0.683 pound of lead per hour.

[A.A.C. R18-2-B1301.C]

c. Opacity from lead-bearing fugitive dust emissions shall not exceed 20 percent from any part of the facility at any time.

[A.A.C. R18-2-B1301.01.A.7]

5. Air Pollution Control Requirements

a. At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, maintain and operate smelter processes and associated emission capture and/or control equipment in a manner consistent with good air pollution control practices for minimizing lead emissions. Determination of whether acceptable operating and maintenance procedures are being used shall be based on all information available to the Department and EPA Region IX, which may include, but is not limited to, monitoring results, review of operating and maintenance procedures and records, and inspection of the relevant equipment.

[A.A.C. R18-2-B1301.D.1]

b. At all times, the Permittee shall operate and maintain all non-smelting process sources, including all associated air pollution control equipment, control measures, and monitoring equipment, in a manner consistent with good air pollution control practices for minimizing lead-bearing fugitive dust, and in accordance with the fugitive dust plan, and performance and housekeeping requirements. A determination of whether acceptable operating and maintenance procedures are being used shall be based on all available information to the Department and EPA Region IX, which may include, but is not limited to, monitoring results, review of operating and maintenance procedures and records, review of fugitive dust plans, and inspection of the relevant equipment.

[A.A.C. R18-2-B1301.01.C.1]

c. Emissions from the anode furnace baghouse stack shall be routed to the

Main Stack.

[A.A.C. R18-2-B1301.D.3]

6. Performance Test Requirements

a. No later than 180 days after CRP startup, the Permittee shall conduct an initial performance test on the acid plant tail gas, secondary hood baghouse, vent gas baghouse and tertiary ventilation system gas streams for lead emissions.

[Condition XVI.C.3.b of SPR 60647, A.A.C. R18-2-312 and A.A.C. R18-2-306.A.3.c]

b. No later than 180 calendar days after completion of the CRP improvements authorized by Significant Permit Revision No. 60647, the Permittee shall conduct initial performance tests on the following:

[A.A.C. R18-2-B1301.E.1]

(1) The gas stream exiting the anode furnaces baghouse prior to mixing with other gas streams routed to the Main Stack.

(2) The gas stream exiting the acid plant at a location prior to mixing with other gas streams routed to the Main Stack.

(3) The gas stream exiting the secondary baghouse at a location prior to mixing with other gas streams routed to the Main Stack.

(4) The gas stream collected by the tertiary hooding at a location prior to mixing with other gas streams routed to the Main Stack.

(5) The gas stream exiting the vent gas baghouse at a location prior to mixing with other gas streams routed to the Main Stack.

c. The Permittee shall conduct subsequent performance tests on the gas streams specified in Conditions III.F.6.a and III.F.6.b at least annually.

[Permit 60647 Condition XVI.C.3.a, A.A.C. R18-2-312 and A.A.C. R18-2-B1301.E.2]

d. The Performance tests shall be conducted in accordance with 40 CFR 60, Appendix A, Reference Method 29.

[Permit 60647 Condition XVI.C.3.b, A.A.C. R18-2-312 and A.A.C. R18-2-B1301.E.3]

e. At least 30 calendar days prior to conducting a performance test, the Permittee shall submit a test plan, in accordance with A.A.C. R18-2-312(B) and the Arizona Testing Manual, to the Department for approval. The test plan must include the following:

[A.A.C. R18-2-B1301.E.4]

(1) Test duration;

(2) Test location(s);

(3) Test method(s), including those for test method performance audits conducted in accordance with g below; and

(4) Source operation and other parameters that may affect the test result.

f. The Permittee may use alternative or equivalent performance test methods as defined in 40 CFR § 60.2 when approved by the Department and EPA Region IX, as applicable, prior to the test.

[A.A.C. R18-2-B1301.E.5]

g. The Permittee shall include a test method performance audit during every performance test in accordance with 40 CFR § 60.8(g).

[A.A.C. R18-2-B1301.E.6]

7. Compliance Requirements

a. No later than 180 days from CRP startup, the Permittee shall demonstrate compliance with lead emission limits in Condition III.F.4.a above in accordance with following:

[Condition XVI.C.3.c of SPR 60647, A.A.C. R18-2-306.A.3.c]

(1) The Permittee shall calculate lead emissions in pounds per hour in the acid plant tail gas, secondary hood baghouse, vent gas baghouse and tertiary ventilation streams based on the most recent performance test in Condition III.F.6.

(2) The Permittee shall maintain records of hours of operation of the each stream in Condition III.F.6.b. If any emission unit associated with a stream operates during a calendar hour, it will constitute an operating hour. If no emission unit associated with a stream operates during a calendar hour, it will not constitute an operating hour.

(3) The Permittee shall calculate and record monthly lead emissions for the acid plant tail gas, secondary hood baghouse, vent gas baghouse and tertiary ventilation streams based on the hourly emissions calculated in Condition III.F.7.a(1) above and the monthly operating hours for each stream recorded in Condition III.F.7.a(2).

(4) At the end of each month, the Permittee shall calculate and record rolling 12-month total of combined lead emissions from the acid plant tail gas, secondary hood baghouse, vent gas baghouse and tertiary ventilation streams based on the monthly emissions calculated in Condition III.F.7.a(3) above to demonstrate compliance with the emission limit in ConditionIII.F.4.a.

b. For purposes of determining compliance with the Main Stack emission limit in Condition III.F.4.b, the Permittee shall calculate the combined lead emissions in pounds per hour from the gas streams identified in Condition III.F.6.b based on the most recent performance tests conducted in accordance with Condition III.F.6. The Permittee shall include periods of startup, shutdown, malfunction, or other upset conditions when determining compliance with the emission limit.

[A.A.C. R18-2-B1301.F.1 and 3]

c. Opacity Monitoring

(1) In the event ongoing visible emissions at a non-smelting process source covered by the lead fugitive dust plan are observed, Reference Method 9-certified observer, shall promptly evaluate the emissions and conduct a Reference Method 9 in accordance with Condition I.D of Attachment "B".

[A.A.C. R18-2-B1301.01.D.7.b]

(2) A Reference Method 9-certified observer shall conduct a weekly visible emissions survey of all non-smelting process sources covered by the lead fugitive dust plan and perform a Reference Method 9 reading in accordance with Condition X.B.3 of Attachment "B" for any plumes that on an instantaneous basis appear to exceed 15 percent opacity.

[A.A.C. R18-2-B1301.01.D.7.c]

(3) The Permittee shall not allow visible emissions from unpaved roads to exceed 20 percent opacity and shall not allow silt loading equal to or greater than 0.33 oz/ft2. However, if silt loading is equal to or greater than 0.33 oz/ft2, then the Permittee shall allow the average percent silt content to exceed 6 percent. Compliance with these requirements shall be determined by the test methods described in Appendix 15.

[A.A.C. R18-2-B1301.01.D.10]

(4) For any non-smelting process source that produces visible emissions that appear to exceed 15 percent opacity, the Permittee shall perform an analysis of the root cause, and implement a strategy designed to prevent, to the extent feasible, the ongoing recurrence of the source of visible emissions. Within 14 days of completion of its analysis, if appropriate, the Permittee shall modify the fugitive dust plan for any changes identified from the analysis differing from the current provisions of the fugitive dust plan.

[A.A.C. R18-2-B1301.01.D.8.a]

d. At any time that the Permittee becomes aware that provisions of the fugitive dust plan and/or performance and housekeeping provisions required by this Section are not being met, the Permittee shall take prompt action to return to compliance, which may include modifications to monitoring, recordkeeping, and reporting requirements in the fugitive dust plan. This includes, but is not limited to, the actions in A.A.C. R18-2-B1301.01.D.8.b.

[A.A.C. R18-2-B1301.01.D.8.b]

8. Recordkeeping Requirements

The Permittee shall maintain the following records for at least five years and keep on-site for at least two years:

[A.A.C. R18-2-B1301.G and 1301.01.H]

a. All records of major maintenance activities and inspections conducted on emission units, capture systems, monitoring devices, and air pollution control equipment, including those set forth in the operations and maintenance plan.

b. All records of performance tests, test plans, and audits required by Condition III.F.6.

c. All records of compliance calculations required by Conditions III.F.7.a and III.F.7.b.

d. All records of fugitive emission studies and study protocols conducted in accordance with A.A.C. R18-2, Appendix 14.

e. All records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of concentrate drying, smelting, converting, anode refining, and casting emission units; and any malfunction of the associated air pollution control equipment that is inoperative or not operating correctly.

f. All records of reports and notifications required by Condition III.F.9.

g. All records required under A.A.C. R18-2-B1301.01.H.

9. Reporting Requirements

a. The Permittee shall comply with the following requirements:
[A.A.C. R18-2-B1301.H]

(1) Notification of commencement of construction of any equipment necessary to comply with the operational or emission limits.

(2) Semiannual progress reports on construction of any such equipment postmarked by July 30 for the preceding January-June period and January 30 for the preceding July- December period.

(3) Notification of initial startup of any such equipment within 15 business days of such startup.

(4) Whenever the Permittee becomes aware of any exceedance of the emission limit set forth in Condition III.F.4 the Permittee shall notify the Department orally or by electronic or facsimile transmission as soon as practicable, but no later than two business days after the Permittee first knew of the exceedance.

(5) Reports from performance testing conducted pursuant to Condition III.F.6 shall be submitted to the Department within 60 calendar days of completion of the performance test. The reports shall be submitted in accordance with the Arizona Testing Manual and A.A.C. R18-2-312(A).

b. Within 30 days after the end of each calendar-year quarter, the Permittee shall submit a quarterly report to the Department for the preceding quarter that shall include all the reporting requirements specified in A.A.C. R18-2-B1301.01.I.

[A.A.C. R18-2-B1301.01.I]

10. Permit Shield

Compliance with the Conditions under this Subsection shall be deemed compliance with Condition XVI.C.3.a, b and c of SPR 60647; A.A.C. R18-2-B1301 and B1301.01.

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

IV. CONCENTRATE DRYERS/FLASH FURNCE MATTE TAPPING OPERATIONS

A. PM and Opacity

1. Emission Limits

a. The Permittee shall not cause to be discharged to the atmosphere from the dryer vent any gases that contain total PM in excess of 50 mg/dscm (0.022 grains per dry standard cubic foot (gr/dscf)) Emissions in excess of the emission limit during periods of startup, shutdown, and malfunction shall not be considered a violation of the applicable emission limit.

[40 CFR 60.162(a), 40 CFR 63.11148(a)(1) and CD CV-15-02206-PHX-DLR 19]

b. For each new copper concentrate dryer that the Permittee may choose to install, the Permittee shall not cause to be discharged to the atmosphere from the dryer vent any gases that contain total particulate matter in excess of 23 mg/dscm.

[CD CV-15-02206-PHX-DLR 19]

c. Gases discharged from the Vent Gas Baghouse and the tapping emissions capture system shall not contain total particulate matter in excess of 23 mg per dscm..

[40 CFR 63.11148(a)(3)(ii), CD CV-15-02206-PHX-DLR 19]

d. PM Emission Limits Monitored with PM CEMS.

(1) Upon installation and certification of PM CEMS, compliance with the emission limits in Conditions IV.A.1.a, b and c above shall be determined on the basis of an eight (8) hour rolling average limit, including periods of startup, shutdown, and malfunction.

[CD CV-15-02206-PHX-DLR 19a]

(2) If during the first three (3) years of operation of any certified PM CEMS, the Permittee believes that, despite proper design and installation of control equipment and best efforts at operation and maintenance, inherent process variability precludes compliance with a PM emission limit on an 8-hour rolling average basis at one or more of the exhaust streams, at any time after the first three (3) years of operation, the Permittee may submit to EPA a demonstration supporting this conclusion and may request a

longer averaging period, not to exceed 24 hours.
[CD CV-15-02206-PHX-DLR 21]

e. *At all times except for periods of startup, shutdown, and malfunction as defined in 40 CFR §60.2, the Permittee shall not cause to be discharged into the atmosphere from any dryer any visible emissions that exhibit greater than 20 percent opacity*. Opacity readings of portions of plumes, which contain condensed, uncombined water vapor, shall not be used for purposes of determining compliance with the opacity standard.
[40 CFR 60.164(a), A.A.C. R18-2-331.A.3.f]
[Material permit conditions are indicated by italics and underline]

f. The Permittee shall not discharge or cause the discharge of particulate matter into the atmosphere in excess of the hourly rate shown in the following table for the process weight rate identified for such source:
[40 CFR 52.126(b)]

Process Weight Rate	Emission Rate
50	0.36
100	0.55
500	1.53
1,000	2.25
5,000	6.34
10,000	9.73
20,000	14.99
60,000	29.60
80,000	31.19
120,000	33.28
160,000	34.85
200,000	36.11
400,000	40.35
1,000,000	46.72

2. Air Pollution Control Requirements

a. *No later than May 1, 2018, the Permittee shall install and operate a baghouse designed to handle the maximum potential volumetric flow of gas from the copper concentrate dryers and smelting flash furnace matte tapping and slag skimming operations and rated to perform with an outlet loading value between 0.002 grains per standard cubic foot (~4 mg/Nm^3) and 0.005 grains per standard cubic foot (~11 mg/Nm^3).*
[CD CV-15-02206-PHX-DLR 13, A.A.C. R18-2-331.A.3.d and e]
[Material permit conditions are indicated by italics and underline]

b. *Until the vent gas baghouse is installed, the Permittee shall continue to operate the R&R Cottrell ESP in accordance with the manufacturer's recommendations to minimize particulate matter emissions.*
[A.A.C R18-2-306.A.3.c and 331.A.3.e]
[Material permit conditions are indicated by italics and underline]

3. Monitoring, Recordkeeping and Reporting Requirements

a. Opacity Monitoring Requirements

(1) Until installation and startup of the Vent Gas Baghouse, the Permittee shall operate Continuous Opacity Monitoring System (COMS) installed at the outlet of the vent gas electrostatic precipitator (ESP) stream to monitor and record the opacity of gases discharged into the atmosphere from the dryers. The span of this system shall be set at 80 to 100 percent opacity. The COMS shall be installed in accordance with Condition IX.A.

[40 CFR 60.165(b)(1), 40 CFR 63.11148(b)(1)]

(2) After installation and startup of the Vent Gas Baghouse, the Permittee shall operate Continuous Opacity Monitoring System (COMS) installed at the outlet of the vent gas baghouse stream to monitor and record the opacity of gases discharged into the atmosphere from the dryers. The span of this system shall be set at 80 to 100 percent opacity. The COMS shall be installed in accordance with Condition IX.A.

[40 CFR 60.165(b)(1), 40 CFR 63.11148(b)(1)]

(3) Permittee shall evaluate opacity measurements from the vent gas COMS on a 24-hour rolling average excluding periods of startup, shutdown, and malfunction. If the 24-hour rolling average opacity exceeds 15 percent, Permittee shall initiate investigation of the relevant controls or equipment within 24 hours of the first discovery of the high opacity incident and, if necessary, take corrective action as soon as practicable to adjust or repair the controls or equipment to reduce the opacity average to below the 15 percent level.

[40 CFR 63.11148(b)(3), A.A.C. R18-2-306.A.3.c]

(4) Opacity excess emissions are defined as any six-minute period during which the average opacity, as measured by the COMS as in Condition IV.A.3.a(1), exceeds the 20 percent opacity standard, as specified in Condition IV.A.1.e.

[40 CFR 60.165(d)(1) and A.A.C. R18-2-306.A.3.c]

(5) The Permittee shall log in ink or electronic format and maintain a record of 24-hour opacity measurements performed in accordance with Condition IV.A.3.a(3) and any corrective actions taken, if any. A record of corrective actions taken must include the date and time during which the 24-hour rolling average opacity exceeded 15 percent and the date, time and type of the corrective action.

[40 CFR 63.11148(b)(4)]

b. PM Continuous Monitoring System (CEMS) Requirements

(1) No later than May 1, 2018, The Permittee shall install, calibrate, operate and maintain PM CEMS in accordance with

the requirements in Condition IX.B on the gas stream exiting the R&R Cottrell ESP Replacement Baghouse at a location prior to mixing with other gas streams that are routed to the main stack.

[CD CV-15-02206-PHX-DLR 14.e]

(2) Should the Permittee choose to stop routing emissions from one or more copper concentrate dryers or the tapping emissions capture system to the R&R Cottrell ESP (or the R&R Cottrell ESP Replacement Baghouse), no later than the date of rerouting, the Permittee shall install a PM CEMS in accordance with the requirements in Condition IX.B on such gas stream post applicable PM controls, such as the current dryer baghouse, but pre-mixing with any other gas streams.

[CD CV-15-02206-PHX-DLR 20]

4. Compliance Requirements

a. Prior to installation and certification of PM CEMS, compliance with Vent Gas Baghouse PM Emission Limit shall be determined using the test methods in Condition IV.A.5.c.

[CD CV-15-02206-PHX-DLR 19, 20]

b. Upon installation and certification of PM CEMS,

(1) Compliance shall be determined on the basis of an eight (8) hour rolling average limit, including periods of startup, shutdown, and malfunction; or

[CD CV-15-02206-PHX-DLR 19a, 20a]

(2) If PM CEMS certification fails for this gas stream, upon EPA approval, the Permittee shall begin complying with an alternative PM monitoring plan.

[CD CV-15-02206-PHX-DLR 19b, 20b]

c. Within 180 days of issuance of this permit, the Permittee shall conduct a performance test in accordance with the EPA Reference Method 5 to demonstrate compliance with the PM emissions limits in Conditions IV.A.1.a and IV.A.1.c. A minimum of three valid test runs are needed to comprise a PM performance test. The Permittee shall repeat the performance test every 2.5 years.

[40 CFR 63.11148(e)]

5. Testing Requirements

a. The Permittee shall determine compliance with the dryer particulate matter standard of 0.022 gr/dscf in Condition IV.A.1.a, using EPA Reference Method 5 testing annually for the vent gas baghouse exit to determine the particulate matter concentration. The sampling time and sample volume for each run shall be at least 60 minutes and 0.85 dscm (30 dscf).

[40 CFR 60.166(b)(1)]

b. The Permittee shall perform an annual opacity observation of emissions from the flash furnace, converters, and Nos. 1 and 2 fluid bed dryers in

accordance with EPA Reference Method 9 to determine compliance with the visible emission standard of 20 percent opacity.

[40 CFR 60.166(b)(3)]

c. Prior to installation and certification of PM CEMS, the Permittee shall conduct performance test in accordance with 40 C.F.R. § 63.1450(a). The performance test shall be performed at least once each three hundred sixty-five (365) days.

[CD CV-15-02206-PHX-DLR 19, 20]

d. Performance testing, if required, for the limit in Condition IV.A.1.f shall be conducted in accordance with the procedures in 40 C.F.R. § 52.126(b)(5).

[40 CFR 52.126(b)(5)]

6. Permit Shield

Compliance with the Conditions under this Subsection shall be deemed compliance with 40 CFR 52.126(b), 40 CFR 60.162(a), 164(a), 165(b)(1) & (d)(1), and166(b)(1); 40 CFR 63.11148(a)(1), 11148(a)(3)(ii), 11148(b)(1), (3) & (4), 11148(e); and CD CV-15-02206-PHX-DLR 13, 14.e, 19, 20 and 21.

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

B. Sulfur Dioxide (SO_2)

1. Emission Limits

a. Except as provided in Condition IV.B.1.b below, upon installation and operation of the Vent Gas Baghouse, at all times that SO_2 emissions are routed to the baghouse, the Permittee shall inject High-Surface-Area (HSA) Hydrated Lime to reduce SO_2 emissions by at least 50 percent based on a 365-day rolling average, for all SO_2 emissions routed to the Vent Gas Baghouse. Commencing no later than 365 days after the installation and operation of the Vent Gas Baghouse, the Permittee shall demonstrate compliance with the SO_2 reduction requirement in accordance with Condition IV.B.3.

[Condition XVI.C.1.b of Permit 60647 and CD CV-15-02206-PHX-DLR 11.b]

b. If during the first three (3) years after monitoring control efficiency achieved through injection of High-Surface-Area Hydrated Lime, the Permittee believes that despite design, installation, operation, and maintenance of controls to minimize emissions to the greatest extent practicable, it is technically infeasible to achieve a fifty (50) percent control efficiency through injection of High-Surface-Area Hydrated Lime for gases routed to the vent gas baghouse despite design, installation, operation and maintenance of controls to minimize emissions to the greatest extent practicable, the Permittee may submit to EPA a demonstration supporting this conclusion and may request a lower control efficiency limit, not to be less than forty (40) percent control efficiency. The requirements for this application and procedure for revision are set forth in paragraph 11.c of the CD. The Permittee shall, prior to submission of any such demonstration, employ a third-party consultant with experience in similar dry lime scrubbing applications to recommend

equipment and/or operational enhancements to achieve the 50% control efficiency target. EPA may grant or deny the Permittee's request in whole or in part, subject to the dispute resolution provisions of the CD. If EPA approves the Permittee's demonstration, such lower control efficiency limit(s) shall be deemed to have replaced the 50% control efficiency limit(s) during the time during which achievement was of the 50% control efficiency limit was infeasible (including any period of time that occurred prior to submittal of the demonstration, during the pendency of EPA's review of the Permittee's demonstration, and during the pendency of any dispute resolution under the CD.

[CD CV-15-02206-PHX-DLR 11.c]

2. Monitoring, Recordkeeping and Reporting Requirements

a. *Prior to operation of the Vent Gas Baghouse, the Permittee shall install, certify, calibrate, maintain, and operate an SO2 CEMS both upstream of the lime injection point and at the outlet of the Vent Gas Baghouse in accordance with Condition IX.C of this Attachment..*

[CD CV-15-02206-PHX-DLR 11.b, A.A.C. R18-2-331.A.3.c]
[Material permit conditions are indicated by italics and underline]

b. After three (3) years of monitoring in accordance with the requirements of Condition a above, the Permittee may submit to EPA a request for an alternative monitoring plan for one or more control efficiency requirements. Such request shall contain a detailed proposal that describes an alternative monitoring plan and demonstrates how such plan: 1) will ensure continuous compliance with the control efficiency requirement(s); 2) identifies the indicator(s) of performance, measurement techniques, monitoring frequency, and the averaging time for the alternative monitoring procedure as referenced in 40 C.F.R. § 63.8(f)(4); and 3) complies with all relevant EPA regulations and guidance. EPA may grant or deny the request in whole or in part.

[CD CV-15-02206-PHX-DLR 11.d]

3. Compliance Requirements

No later than three-hundred-sixty-five (365) days after installation and operation of the Vent Gas Baghouse, the Permittee shall demonstrate compliance, and thereafter continuously comply, with a control efficiency requirement of at least 50 percent, based on a 365-day rolling average, for all SO2 emissions routed to the Vent Gas Baghouse. Compliance with the 50 percent control efficiency requirement in Condition IV.B.1.a shall be demonstrated by summing the hourly pounds of SO_2 exiting the Vent Gas Baghouse for the current calendar day and the preceding three-hundred-sixty-four (364) calendar days, as measured by the SO_2 CEMS on the outlet of the Vent Gas Baghouse, and then dividing that value by the sum of the hourly pounds of SO_2 routed to the Vent Gas Baghouse for the current calendar day and the preceding three-hundred-sixty-four (364) calendar days, as measured by the SO_2 CEMS upstream of the lime injection point. The value obtained shall then be subtracted from one and the difference multiplied by one hundred to calculate the 365-day rolling SO_2 emission control efficiency achieved as a percentage.

[CD CV-15-02206-PHX-DLR 11.b]

4. Permit Shield

Compliance with the Conditions under this Subsection shall be deemed compliance with Condition XVI.C.1.b of Permit 60647 and CD CV-15-02206-PHX-DLR 11.b, 11.c and 11.d.

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

V. SLAG SCREENING & TRANSPORT

A. Applicability

This Section shall be applicable to the process of screening and transporting slag to the track hopper for reintroduction into the concentrator and loading slag for offsite shipment.

B. Operating Limitation

The amount of slag processed through the grizzly screen and loaded for offsite shipment shall not collectively exceed 1,063,000 tons per year.

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

C. ~~Monitoring,~~ Recordkeeping and ~~Reporting~~ Requirements

The Permittee shall maintain a record of the monthly and 12-month rolling totals of the material processed through the grizzly screen and loaded for offsite shipment.

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

D. Particulate Matter and Opacity

1. Emission Limits and Standards

a. The Permittee shall not discharge or cause the discharge of particulate matter into the atmosphere in excess of the hourly rate shown in the following table for the process weight rate identified for such source:

[40 CFR 52.126(b)]

Process Weight Rate	Emission Rate
50	0.36
100	0.55
500	1.53
1,000	2.25
5,000	6.34
10,000	9.73
20,000	14.99
60,000	29.60
80,000	31.19
120,000	33.28
160,000	34.85
200,000	36.11
400,000	40.35
1,000,000	46.72

b. The opacity of emissions from any of the equipment into the atmosphere

shall not be greater than 20 percent as measured by EPA Reference Method 9.

[A.A.C. R18-2-715.D]

2. Air Pollution Control Requirements

a. The Permittee shall screen slag only within an area protected by a wind fence

[CD CV-15-02206-PHX-DLR B.18, A.A.C. R18-2-606]

b. The Permittee shall wet the surface of all slag to be screened or loaded for offsite shipment with sufficient moisture to minimize emissions to the greatest extent practicable.

[CD CV-15-02206-PHX-DLR B.19, B.27, A.A.C. R18-2-606]

c. The Permittee shall comply with the requirements applicable to slag screening and loose material piles as identified in the Fugitive Dust Plan.

[CD CV-15-02206-PHX-DLR B]

3. Monitoring, Recordkeeping and Reporting Requirements

The Permittee shall conduct visible emissions surveys as required by the Fugitive Dust Plan.

[CD CV-15-02206-PHX-DLR B.29, A.A.C. R18-2-306.A.3.c]

E. Permit Shield

Compliance with the conditions of this Section shall be deemed compliance with 40 C.F.R. § 52.126, A.A.C. R18-2-715 D, and CD CV-15-02206-PHX-DLR B.18, B.19, B.27, and B.29.

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

VI. FLASH FURNACE/CONVERTERS/ACID PLANT

A. Operating Limits

1. Blowing on any converter shall not exceed a maximum rate of 32,000 SCFM, averaged over 5 minutes of converter Blowing and rolled each minute.

[CD CV-15-02206-PHX-DLR 8]

2. No later than May 1, 2018, the Permittee shall permanently cease operation of the five (5) existing converters, and shall complete installation of two (2) of the three (3) new converters.

a. The Permittee shall not have more than one (1) converter Blowing at any given time.

[CD CV-15-02206-PHX-DLR 8.a]

b. Total combined Blowing time at all converters shall not exceed twenty-one (21) hours in any 24-hour period, rolled hourly, unless and until the Permittee accepts 100 ppm SO_2 emission limit from the acid plant on a 365-day rolling basis including periods of startup, shutdown, and malfunction, and as measured and recorded by SO_2 CEMS located on the main stack center.

[CD CV-15-02206-PHX-DLR 8.b]

3. Permit Shield

Compliance with the Conditions under this Subsection shall be deemed compliance with CD CV-15-02206-PHX-DLR 8, 8.a, and 8.b.

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

B. PM and Opacity

1. Emission Limits

a. For the secondary capture system, the Permittee shall not cause to be discharged to the atmosphere any gases that contain total particulate matter in excess of 0.022 grains/dscf).

[40 CFR 63.11148(a)(4)(iv)]

b. The Permittee shall not cause to be discharged from the acid plant that contain non-sulfuric acid PM in excess of 6.2 mg/dscm.

[CD CV-15-02206-PHX-DLR 16]

c. The Permittee shall not cause to be discharged to the atmosphere from the secondary baghouse any gases that contain total PM in excess of 23 mg per dscm.

[CD CV-15-02206-PHX-DLR 17]

d. PM Emission Limits Monitored with PM CEMS.

(1) Upon installation and certification of PM CEMS, compliance with the emission limits in Conditions VI.B.1.b and VI.B.1.c above shall be determined on the basis of an eight (8) hour rolling average limit, including periods of startup, shutdown, and malfunction.

[CD CV-15-02206-PHX-DLR 16.a and 17a]

(2) If during the first three (3) years of operation of any certified PM CEMS, the Permittee believes that, despite proper design and installation of control equipment and best efforts at operation and maintenance, inherent process variability precludes compliance with a PM emission limit on an 8-hour rolling average basis at one or more of the exhaust streams, at any time after the first three (3) years of operation, the Permittee may submit to EPA a demonstration supporting this conclusion and may request a longer averaging period, not to exceed 24 hours.

[CD CV-15-02206-PHX-DLR 21]

e. *At all times except for periods of startup, shutdown, and malfunction as defined in 40 CFR §60.2, the Permittee shall not cause to be discharged into the atmosphere any visible emissions from the acid plant which exhibit greater than 20 percent opacity*. Opacity readings of portions of plumes, which contain condensed, uncombined water vapor, shall not be used for purposes of determining compliance with the opacity standard.

[40 CFR 60.164 (b), A.A.C. R18-2-331.a.3.f]

f. The Permittee shall not discharge or cause the discharge of particulate matter into the atmosphere in excess of the hourly rate shown in the following table for the process weight rate identified for such source:
[40 CFR 52.126(b)]

Process Weight Rate	Emission Rate
50	0.36
100	0.55
500	1.53
1,000	2.25
5,000	6.34
10,000	9.73
20,000	14.99
60,000	29.60
80,000	31.19
120,000	33.28
160,000	34.85
200,000	36.11
400,000	40.35
1,000,000	46.72

2. Air Pollution Control Requirements

a. The Permittee shall route process off-gas from the smelting flash furnace to the acid plant.
[CD CV-15-02206-PHX-DLR 16]

b. All gases captured by a primary hood shall be routed to the acid plant.
[CD CV-15-02206-PHX-DLR 8]

c. *The Permittee shall operate* and maintain *the converter secondary hoods baghouse to minimize particulate emissions from the secondary hoods*.
[A.A.C. R18-2-306.A.3.c, A.A.C. R18-2-331.A.3.e]
[Material permit conditions are indicated by italics and underline]

d. *The Permittee shall operate the Inter-pass Absorption Tower and Final Absorption tower in the acid plant to control particulate matter emissions from the flash furnace, converters and converter secondary hood during Blowing operations*.
[SPR 60647, A.A.C. R18-2-306.A.3.c and A.A.C. R18-2-331.A.3.e]
[Material permit conditions are indicated by underline and italics]

3. Monitoring, Recordkeeping and Reporting Requirements

a. Opacity Monitoring Requirements

(1) The Permittee shall operate Continuous Opacity Monitoring System (COMS) installed at the outlet of Acid Plant Tail Gas stream to monitor and record the opacity of gases. The span of this system shall be set at 80 to 100 percent opacity. The COMS shall be installed in accordance with Condition IX.A.

[Permit 60647 Condition II.D.1.b, CD CV-15-02206-PHX-DLR 19]

(2) Permittee shall evaluate opacity measurements on a 24-hour rolling average excluding periods of startup, shutdown, and malfunction. If the 24-hour rolling average opacity exceeds 15 percent, Permittee shall initiate investigation of the relevant controls or equipment within 24 hours of the first discovery of the high opacity incident and, if necessary, take corrective action as soon as practicable to adjust or repair the controls or equipment to reduce the opacity average to below the 15 percent level.

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

b. PM Continuous Monitoring System (CEMS) Requirements

(1) *The Permittee shall install, calibrate*, operate and maintain *PM CEMS on the gas streams exiting the acid plant and the Secondary Baghouse at a location prior to mixing with other gas streams that are routed to the main stack in accordance with Condition IX.B*.

[CD CV-15-02206-PHX-DLR 14.b and c]

(2) *No later than May 1, 2018, The Permittee shall install, calibrate*, operate and maintain *PM CEMS on the gas stream collected by the tertiary hooding at a location prior to mixing with other gas streams routed to the main stack in accordance with Condition IX.B.*

[CD CV-15-02206-PHX-DLR Item 14.d and A.A.C. R18-2-331.A.3.c]
[Material permit conditions are indicated by underline and italics]

c. Secondary Hood Baghouse Bag Leak Detection System (BLDS) Requirements

The Permittee shall install, calibrate, maintain, and continuously operate *a BLDS on the secondary hood baghouse in accordance with the requirements of Condition X*.

[40 CFR 63.11148(c) and A.A.C. R18-2-331.A.3.c]
[Material permit conditions are indicated by underline and italics]

4. Compliance Requirements

a. Prior to installation and certification of PM CEMS, compliance with PM Emission Limits in Conditions VI.B.1.b and VI.B.1.c shall be determined using the test methods in Condition VI.B.5.

[CD CV-15-02206-PHX-DLR 16 and 17]

b. Upon installation and certification of PM CEMS,

[CD CV-15-02206-PHX-DLR 16 and 17]

(1) Compliance shall be determined on the basis of an eight (8) hour rolling average limit, including periods of startup, shutdown, and malfunction; or

(2) If PM CEMS certification fails for this gas stream, upon EPA approval, the Permittee shall begin complying with an alternative PM monitoring plan.

c. Within 180 days of issuance of this permit, the Permittee shall conduct a performance test in accordance with the EPA Reference Method 5 to demonstrate compliance with the PM emissions limits in Condition VI.B.1.a. A minimum of three valid test runs are needed to comprise a PM performance test. The Permittee shall repeat the performance test every 2.5 years.

[40 CFR 63.11148(e)]

5. Testing Requirements

a. Prior to installation and certification of PM CEMS, the Permittee shall conduct performance test to demonstrate compliance with the total PM Emission Limits in Condition VI.B.1.c in accordance with 40 C.F.R. § 63.1450(a). The performance test shall be performed at least once each three hundred sixty-five (365) days.

[CD CV-15-02206-PHX-DLR 17]

b. Prior to installation and certification of PM CEMS, the Permittee shall conduct performance test for the non-sulfuric acid particulate matter emission limit in Condition VI.B.1.b in accordance with 40 C.F.R. § 63.1450(b). The performance test shall be performed at least once each three hundred sixty-five (365) days.

[CD CV-15-02206-PHX-DLR 16]

c. Performance testing, if required, for the limit in Condition VI.B.1.f shall be conducted in accordance with the procedures in 40 C.F.R. § 52.126(b)(5).

[40 CFR 52.126(b)(5)]

6. Permit Shield

Compliance with the Conditions under this Subsection shall be deemed compliance with Condition II.D.1.b of Permit, 60647, Permit 1000042, 40 CFR 63.11148(a)(4)(iv) and 11148(e), 40 CFR 52.126, 40 CFR 60.164 (b) and CD CV-15-02206-PHX-DLR 8, 14.b, 14.c, 14.d, 16, 17 and 19 .

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

C. Sulfur dioxide SO_2

1. Emission Limits

a. The Permittee shall not cause to be discharged into the atmosphere from smelting furnace, or copper converter any gases which contain sulfur dioxide in excess of 0.065 percent by volume. For gases routed to the acid plant, the limit does not apply during periods of startup, shutdown, or malfunction. For gases routed to the Secondary Baghouse and tertiary hood, the limit shall apply at all times, including periods of startup, shutdown, and malfunction.

[40 CFR 60.163(a), CD CV-15-02206-PHX-DLR 10]

b. If the Permittee elects to accept a limit of 100 ppmv SO_2 from the gas exiting the acid plant on a 365-day rolling average basis, including periods of startup, shutdown, and malfunction, the Permittee shall provide EPA with written notice of the effective date of its election to accept the 100 ppmv SO_2 limit in the next quarterly report following such election.

[CD CV-15-02206-PHX-DLR 8.b]

c. No later than May 1, 2018 at all times that SO_2 emissions are routed to the Secondary Baghouse, the Permittee shall inject High-Surface-Area (HSA) Hydrated Lime to reduce SO_2 emissions by at least 50 percent based on a 365-day rolling average, for all SO_2 emissions routed to the Secondary Baghouse. Commencing no later than May 1, 2019, the Permittee shall demonstrate compliance with the SO_2 reduction requirement in accordance with Condition VI.C.4.d.

[Permit 60647, Cond. XVI.C.1.b, CD CV-15-02206-PHX-DLR 11.a]

d. If during the first three (3) years after monitoring control efficiency achieved through injection of High-Surface-Area Hydrated Lime, the Permittee believes ~~finds~~ that despite design, installation, operation, and maintenance of controls to minimize emissions to the greatest extent practicable, it is technically infeasible to achieve a fifty (50) percent control efficiency through injection of High-Surface-Area Hydrated Lime for gases routed to the vent gas baghouse despite design, installation, operation and maintenance of controls to minimize emissions to the greatest extent practicable, the Permittee may submit to EPA a demonstration supporting this conclusion and may request a lower control efficiency limit, not to be less than forty (40) percent control efficiency. The requirements for this application and procedure for revision are set forth in paragraph 11.c of the CD. The Permittee shall, prior to submission of any such demonstration, employ a third-party consultant with experience in similar dry lime scrubbing applications to recommend equipment and/or operational enhancements to achieve the 50% control efficiency target. EPA may grant or deny the Permittee's request in whole or in part, subject to the dispute resolution provisions of the CD. If EPA approves the Permittee's demonstration, such lower control efficiency limit(s) shall be deemed to have replaced the 50% control efficiency limit(s) during the time during which achievement was of the 50% control efficiency limit was infeasible (including any period of time that occurred prior to submittal of the demonstration, during the pendency of EPA's review of the Permittee's demonstration, and during the pendency of any dispute resolution under the CD.

[CD CV-15-02206-PHX-DLR 11.c]

2. Air Pollution Control Requirements

The Permittee shall operate the double contact sulfuric acid plant to comply with the flash furnace and converters sulfur dioxide standard of 0.065 percent by volume set forth in Condition VI.C.1. *At all times, including periods of startup, shutdown, and malfunction, Permittee shall, to the extent practicable, continue to operate* and maintain *the flash furnace, converters and the double contact acid plant in a manner consistent with good air pollution control practice for minimizing sulfur dioxide emissions.*

[40 CFR 60.11(d) and 60.164(b), A.A.C. R18-2-331.A.3.e]

3. Monitoring, Recordkeeping and Reporting Requirements

a. *The Permittee shall install, certify, calibrate*, maintain, and operate *SO_2 CEMS at the acid plant exhaust stream in accordance with requirements in Condition IX.C of this Attachment.*

[40 CFR 60.165(b) and A.A.C R18-2-331.A.3.c]
[Material Permit Conditions are indicated by italics and underline]

b. *Upon installation of the tertiary hooding system, the Permittee shall install, certify, calibrate*, maintain, and operate *SO_2 CEMS on the tertiary hood exhaust stream (prior to mixing with other gas streams in the stack) in accordance with requirements in Condition IX.C of this Attachment*.

[CD CV-15-02206-PHX-DLR 10.c and A.A.C R18-2-331.A.3.c]
[Material Permit Conditions are indicated by italics and underline]

c. *No later than May 1, 2018, the Permittee shall install, certify, calibrate,* maintain, and operate *SO_2 CEMS both upstream of the lime injection point and at the outlet of the Secondary Baghouse in accordance with requirements in Condition IX.C of this Attachment*.

[CD CV-15-02206-PHX-DLR 11.a and A.A.C R18-2-331.A.3.c]
[Material Permit Conditions are indicated by italics and underline]

d. After three (3) years of monitoring in accordance with the requirements of Condition VI.C.3.c above, the Permittee may submit to EPA a request for an alternative monitoring plan for one or more control efficiency requirements. Such request shall contain a detailed proposal that describes an alternative monitoring plan and demonstrates how such plan: 1) will ensure continuous compliance with the control efficiency requirement(s); 2) identifies the indicator(s) of performance, measurement techniques, monitoring frequency, and the averaging time for the alternative monitoring procedure as referenced in 40 C.F.R. § 63.8(f)(4); and 3) complies with all relevant EPA regulations and guidance. EPA may grant or deny the request in whole or in part.

[CD CV-15-02206-PHX-DLR 11.d]

4. Compliance Requirements

a. Compliance with the NSPS emission limit in Condition VI.C.1.a

(1) The Permittee shall demonstrate compliance with the emission limit in Condition VI.C.1.a by SO2 CEMS to determine the SO_2 concentrations on a dry basis. The sampling time for each run shall be 6 hours. Six-hour average sulfur dioxide concentrations shall be calculated and recorded daily for the four consecutive 6-hour periods of each operating day. Each six-hour average shall be determined as the arithmetic mean of the appropriate six contiguous one-hour average sulfur dioxide concentrations provided by the continuous monitoring system The monitoring system drift during the run may not exceed 2 percent of the span value.

[CD CV-15-02206-PHX-DLR 10.a, 40 CFR 60.165(c) and 60.166(b)(2)]

(2) For the purpose of reports required under §60.7(c), periods of excess emissions that shall be reported are defined as all six-hour periods during which the average emissions of sulfur dioxide, as measured by the CEMS exceed the level of the standard. The Director will not consider emissions in excess of the level of the standard for less than or equal to 1.5 percent of the six-hour periods during the quarter as indicative of a potential violation of §60.11(d) provided the affected facility, including air pollution control equipment, is maintained and operated in a manner consistent with good air pollution control practice for minimizing emissions during these periods. Emissions in excess of the level of the standard during periods of startup, shutdown, and malfunction are not to be included within the 1.5 percent.

[40 CFR 60.165(d)]

b. For gases routed to the Secondary Baghouse, compliance with this limit shall be demonstrated by a three (3) hour rolling average of data recorded by SO_2 CEMS located at the secondary hood baghouse outlet duct before it mixes with other gas streams in the main stack annulus.

[CD CV-15-02206-PHX-DLR 10.b]

c. Beginning no later than ninety (90) days after installation of the tertiary hooding system, compliance with this limit shall be demonstrated by a three (3) hour rolling average of data recorded by SO_2 CEMS located at the tertiary hood exhaust gas stream before it mixes with other gas streams in the main stack annulus.

[CD CV-15-02206-PHX-DLR 10.c]

d. No later than May 1, 2019, the Permittee shall demonstrate compliance with Condition VI.C.1.c, and thereafter continuously comply, with a control efficiency requirement of at least 50 percent for the secondary baghouse HSA lime injection, based on a 365-day rolling average, for all SO_2 emissions routed to the Secondary Baghouse. Compliance shall be demonstrated by summing the hourly pounds of SO_2 exiting the Secondary Baghouse for the current calendar day and the preceding three-hundred-sixty-four (364) calendar days, as measured by the SO_2 CEMS on the outlet of the Secondary Baghouse, and then dividing that value by the sum of the hourly pounds of SO_2 routed to the Secondary Baghouse for the current calendar day and the preceding three-hundred-sixty-four (364) calendar days, as measured by the SO_2 CEMS upstream of the lime injection point. The value obtained shall then be subtracted from one and the difference multiplied by one hundred to calculate the 365-day rolling SO_2 emission control efficiency achieved as a percentage

[CD CV-15-02206-PHX-DLR 11.a]

e. Upon the Permittee's acceptance of 100 ppmv SO_2 emission limit from the gas exiting the acid plant, the Permittee shall demonstrate compliance with this limit on a 365-day rolling average basis, including periods of startup, shutdown, and malfunction, based on the SO_2 CEMS located on the main stack center.

[CD CV-15-02206-PHX-DLR 8.b]

5. Permit Shield

Compliance with the Conditions under this Subsection shall be deemed compliance with on 40 CFR 60.163(a), 60.164(b), 60.165(c) and (d), 60.166(b)(2), Condition XVI.C.1.b of Permit 60647, and CD CV-15-02206-PHX-DLR 8.b, 10.a, 10.b, 10.c, 11.a, 11.c, and 11.d.

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

VII. ANODE FURNACE/ANODE CASTING

A. PM and Opacity

1. Operation Limitation

a. The Permittee may operate any of the three anode furnaces under this section, provided only two furnaces can be in operation at a time.

[Permit 1000042]

b. Operate for purposes of Condition VII.A.1.a means holding or processing metal in the furnace, but does not include curing, preheating or sweating of refractory or transferring of metal from one furnace to another.

[Permit 60647, Condition IX.D.2]

2. Emission Limits

a. The Permittee shall not cause to be discharged into the atmosphere from the stack of the baghouse any gases which contain particulate matter in excess of 0.003 grain per standard cubic foot (gr/scf).

[Permit 54251 and A.A.C R18-2-306.A.2]

b. The Permittee shall not cause, allow or permit to be emitted into the atmosphere any plume or effluent from the stack of anode furnaces bag house, the opacity of which exceeds 20 percent, as determined by Reference Method 9 in 40 CFR 60, Appendix A.

[A.A.C. R18-2-715.D]

c. The Permittee shall not cause, allow or permit to be emitted into the atmosphere any plume or effluent from the anode launder burners and/or the anode ladle burners, the opacity of which exceeds 20 percent, as determined by Reference Method 9 in 40 CFR 60, Appendix A.

[A.A.C. R18-2-702.B.1]

d. The Permittee shall not cause to be discharged to the atmosphere from the anode furnace baghouse any gases that contain total PM in excess of 23 mg per dscm.

[CD CV-15-02206-PHX-DLR 18]

e. PM Emission Limits Monitored with PM CEMS.

(1) Upon installation and certification of PM CEMS, compliance with the emission limits in Conditions VII.A.2.d above shall be determined on the basis of an eight (8) hour rolling average limit, including periods of startup, shutdown, and malfunction.

[CD CV-15-02206-PHX-DLR 18.a]

(2) If during the first three (3) years of operation of any certified PM CEMS, the Permittee believes that, despite proper design and installation of control equipment and best efforts at operation and maintenance, inherent process variability precludes compliance with a PM emission limit on an 8-hour rolling average basis at one or more of the exhaust streams, at any time after the first three (3) years of operation, the Permittee may submit to EPA a demonstration supporting this conclusion and may request a longer averaging period, not to exceed 24 hours.

[CD CV-15-02206-PHX-DLR 21]

f. The Permittee shall not discharge or cause the discharge of particulate matter into the atmosphere in excess of the hourly rate shown in the following table for the process weight rate identified for such source:

[40 CFR 52.126(b)]

Process Weight Rate	Emission Rate
50	0.36
100	0.55
500	1.53
1,000	2.25
5,000	6.34
10,000	9.73
20,000	14.99
60,000	29.60
80,000	31.19
120,000	33.28
160,000	34.85
200,000	36.11
400,000	40.35
1,000,000	46.72

3. Air Pollution Control Requirements

a. At all times that any Anode Furnace is operating, its hood shall be engaged and continuously operating so as to collect and convey process off-gases to the Anode Furnaces Baghouse. "Operating" shall mean: holding or processing metal in the furnace, but does not include, curing, preheating or sweating of refractory, or transferring of metal from one furnace to another.

[CD CV-15-02206-PHX-DLR 18]

b. *The Permittee shall install, operate*, and maintain *a capture system for capturing the emissions from the anode furnaces and ducting them to the anode furnace baghouse*.

[Permit 54251, A.A.C. R18-2-331.A.3.c]
[Material permit conditions are indicated by italics and underline]

c. *At all times when any anode furnace in operation, the Permittee shall operate* and maintain *a baghouse to minimize particulate emissions*.

[Permit 54251, A.A.C. R18-2-331.A.3.c]
[Material permit conditions are indicated by italics and underline]

4. Monitoring, Recordkeeping and Reporting Requirements

a. *The Permittee shall install, calibrate*, operate and maintain *one beta attenuation PM CEMS and one light scatter PM CEMS on the stack exiting the Anode Furnaces Baghouse in accordance with Condition IX.B*.
[CD CV-15-02206-PHX-DLR 14.a]

b. *The Permittee shall install, calibrate,* maintain, and operate *a bag leak detection system (BLDS) for the anode furnace baghouse in a manner consistent with the manufacturer's written specifications and recommendation, and in accordance with Section X of this Attachment*.
[A.A.C. R18-2-306.A.3.c and -331.A.3.c]
[Material permit conditions are indicated by underline and italics]

c. A certified EPA Reference Method 9 observer shall conduct a bi-weekly survey of visible emissions emanating from the stack of the anode furnace baghouse stack as per the periodic opacity monitoring requirements specified in Condition I.D of Attachment "B".
[A.A.C. R18-2-306.A.3.c]

5. Compliance Requirements

a. Prior to installation and certification of PM CEMS, compliance with the Emission Limit shall be determined using the test methods in Condition VII.A.6.
[CD CV-15-02206-PHX-DLR 18]

b. Upon installation and certification of PM CEMS,
[CD CV-15-02206-PHX-DLR 18]

(1) Compliance shall be determined on the basis of an eight (8) hour rolling average limit, including periods of startup, shutdown, and malfunction; or

(2) If PM CEMS certification fails for this gas stream, upon EPA approval, the Permittee shall begin complying with an alternative PM monitoring plan.

6. Testing Requirements

a. Prior to installation and certification of PM CEMS, the Permittee shall conduct performance test for total particulate matter in accordance with 40 C.F.R. § 63.1450(a). The performance test shall be performed at least once each three hundred sixty-five (365) days.
[CD CV-15-02206-PHX-DLR 18]

b. Performance testing, if required, for the limit in Condition VII.A.2.f shall be conducted in accordance with the procedures in 40 C.F.R. § 52.126(b)(5).
[40 CFR 52.126(b)(5)

B. Permit Shield

Compliance with the Conditions under this Section shall be deemed compliance with 40 C.F.R. § 52.126, A.A.C. R18-2-702.B.1, 715. D, Permit 54251, Condition IX.D.2 of Permit 60647, Permit 1000042 and CD CV-15-02206-PHX-DLR 14.a,18, 18.a, and 21. .

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

VIII. COMPLIANCE ASSURANCE MONITORING (CAM) REQUIREMENTS

A. Applicability

1. The Compliance Assurance Monitoring requirements under this Section shall be applicable only till the operation and certification of PM CEMS are established.

2. If at any time, the Permittee is permitted to discontinue use of PM CEMS, the Compliance Assurance Monitoring requirements shall again become applicable.

3. These requirements are applicable to following emission units

   a. Acid Plant Tail Gas

   b. Secondary Hood Baghouse

   c. Vent Gas Baghouse

   d. Anode Furnace Baghouse

B. Acid Plant Tail Gas

1. Primary Indicators

   Circulating acid flow rates of the Interpass Absorption Tower and the Final Absorption Tower.

   [SPR 60647, 40 CFR 64.3(a)(1)]

2. Monitoring Approach

   [SPR 60647, 40 CFR 64.3(b)(4)(iii)]

   a. At the time of annual performance test, the Permittee shall reestablish the average acid flow rates for the Interpass Absorption Tower and the Final Absorption Tower.

   b. During flash furnace and converter operation, the Permittee shall maintain hourly average acid flow rates for the Interpass Absorption Tower and the Final Absorption Tower within ± 30% of the average acid flow rates recorded during the most recent performance tests.

   c. Excursions of hourly average values beyond the established ranges above shall trigger an alarm. The data acquisition system (DAS) shall maintain record of all alarm events.

3. Quality Assurance/Quality Control (QA/QC)

   [40 CFR 64.3(b)(3)]

   The Interpass Absorption Tower and Final Absorption Tower acid flow meters will be calibrated, maintained, and operated in accordance with the manufacturer's

specifications.

4. Excursion Determination

a. Hourly average acid flow rates outside of the ranges above shall be deemed an excursion. If there is an excursion on an hourly basis, the Permittee shall inspect the system for proper operation, and will make adjustments as necessary. Inspection and adjustments will be recorded in the operating log. At least once each operating day, Asarco personnel will review electronic log to ensure proper recording and alarms addressed.
[40 CFR 64.6(c)(2)]

b. The Permittee shall log in ink or electronic format and maintain a record of installation, calibration, maintenance, and operation of the monitoring systems in accordance with Section XIII, Attachment "A" of this permit. In the case of any excursion incident, the record shall include an identification of the date and time of all excursions, their cause, and an explanation of the corrective actions taken, if any.
[A.A.C. R18-2-306.A.3.c and 40 CFR §64.6]

c. An excursion does not constitute a deviation unless either the Permittee fails to initiate the investigation or take corrective action as required.
[A.A.C. R18-2-306.A.2]

C. Secondary Hood Baghouse, Vent Gas Baghouse and Anode Furnace Baghouse

1. Primary Indicators
[40 CFR 64.3(a)(1)]

The alarm on the bag leak detection system shall be the primary indicator of the baghouse performance.

2. Monitoring Approach
[40 CFR 64.3(b)(4)(iii)]

The bag leak detection system signal shall be monitored continuously. The bag leak detection system shall be equipped with an alarm system that will sound automatically when an increase in relative particulate emissions over a preset level is detected. The alarm shall be located where it is easily heard by plant operating personnel and displayed on the operator's control system's computer screen.

3. Quality Assurance/Quality Control (QA/QC)
[40 CFR 64.3(b)(3)]

The bag leak detection system probes will be inspected once a month for dust buildup.

4. Excursion Determination

a. An excursion is defined as an alarm from the bag leak detection system. If an excursion is detected, then the Permittee shall initiate an investigation within 24 hours of the first discovery of the excursion incident and take corrective action as soon as practicable to adjust or repair to minimize possible exceedances of the particulate matter emissions.

[40 CFR 64.6(c)(2)]

b. The Permittee shall log in ink or electronic format and maintain a record of installation, calibration, maintenance, and operation of the monitoring systems in accordance with Section XIII, Attachment "A" of this permit. In the case of any excursion incident, the record shall include an identification of the date and time of all excursions, their cause, and an explanation of the corrective actions taken, if any.
[A.A.C. R18-2-306.A.3.c and 40 CFR §64.6]

c. An excursion does not constitute a deviation unless either the Permittee fails to initiate the investigation or take corrective action as required
[A.A.C. R18-2-306.A.2]

D. In addition to above, the Permittee shall comply with all the General Compliance Assurance Monitoring Requirements under Section IV of Attachment "B".
[40 CFR 64]

IX. CONTINUOUS MONITORING SYSTEMS REQUIREMENTS

A. Requirements for Continuous Opacity Monitoring System (COMS)

1. The Permittee shall operate COMS installed

a. At the outlet of the Vent Gas Baghouse to monitor and record the opacity of gases discharged into the atmosphere from the dryers. The span of this system shall be set at 80 to 100 percent opacity.
[40 CFR 60.165(b)(1)]

b. At the outlet of the acid plant.
[CD CV-15-02206-PHX-DLR 16]

2. The COMS shall meet the following requirements:

a. The COMS shall comply with 40 CFR 60, Appendix B, "Performance Specification 1 - Specification and Test Procedures for Opacity Continuous Emission Monitoring Systems in Stationary Sources":
[40 CFR 60.13(c)]

b. Quality Assurance Requirements:
[40 CFR 60.13, A.A.C. R18-2-331.A.3.c]
[Material permit conditions are indicated by italics and underline]

(1) Calibration checks

The Permittee shall automatically, intrinsic to the opacity monitor, check the zero and upscale (span) calibration drifts at least once daily. For a particular COMS, the acceptable range of zero and upscale calibration materials is as defined in Performance Specification 1 in 40 CFR §60, Appendix B.

(2) Zero and span drift adjustments

(a) The zero and span shall, as a minimum, be adjusted

whenever the 24-hr zero drift or 24-hr span drift exceeds 4% opacity.

(b) The system shall allow for the amount of excess zero and span drift measured at the 24-hour interval checks to be recorded and quantified.

(c) The optical surfaces exposed to the effluent gases shall be cleaned prior to performing the zero and span drift adjustments, except for systems using automatic zero adjustments.

(d) For systems using automatic zero adjustments, the optical surfaces shall be cleaned when the cumulative automatic zero compensation exceeds 4% opacity.

(3) System checks

The Permittee shall, as minimum procedures, apply a method for producing a simulated zero opacity condition and an upscale (span) opacity condition using a certified neutral density filter or other related technique to produce a known obscuration of the light beam. All procedures applied shall provide a system check of the analyzer internal optical surfaces and all electronic circuitry including the lamp and photo detector assembly.

(4) Minimum frequency of operation

Except during periods of system breakdowns, repairs, calibration checks, and zero and span adjustments, the COMS shall be in continuous operation and shall complete a minimum of one cycle of sampling and analyzing for each successive 10-second period and one cycle of data recording for each successive 6-minute period.

(5) Data reduction procedures

(a) The Permittee shall reduce all data from the COMS to 6-minute averages. Six-minute opacity averages shall be calculated from 36 or more data points equally spaced over each 6-minute period.

(b) Data recorded during periods of system breakdowns, repairs, calibration checks, and zero and span adjustments shall not be included in the data averages. An arithmetic or integrated average of all data may be used.

c. The Permittee shall evaluate opacity measurements from the COMS on a 24-hour rolling average excluding periods of startup, shutdown, and malfunction. If the 24-hour rolling average opacity exceeds 15 percent, the Permittee shall initiate investigation of the relevant controls or equipment within 24 hours of the first discovery of the high opacity incident and, if necessary, take corrective action as soon as practicable to

adjust or repair the controls or equipment to reduce the opacity average to below the 15 percent level.

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

d. Permittee shall implement and follow the EPA approved plan detailing the corrective action triggers based on COMS readings on the exhaust stream from the acid plant.

[CD CV-15-02206-PHX-DLR 16]

B. Requirements for PM CEMS

1. The Permittee shall install the following PM CEMS as per the schedule below:

a. Acid Plant PM CEMS - The Permittee shall install, certify, maintain and operate one beta attenuation PM CEMS on the gas stream exiting the acid plant at a location prior to mixing with other gas streams that are routed to the main stack.

[CD CV-15-02206-PHX-DLR 14.b]

b. Secondary Hood Baghouse PM CEMS - The Permittee shall install, certify, maintain and operate one light scatter PM CEMS (in situ or extractive) on the gas stream exiting the Secondary Baghouse at a location prior to mixing with other gas streams in the stack.

[CD CV-15-02206-PHX-DLR 14.c]

c. Tertiary Hooding PM CEMS - No later than May 1, 2018, the Permittee shall install, certify, maintain and operate light scatter PM CEMS (in situ or extractive) on the gas stream collected by the tertiary hooding at a location prior to mixing with other gas streams routed to the main stack.

[CD CV-15-02206-PHX-DLR 14.d]

d. Vent Gas Baghouse PM CEMS -No later than May 1, 2018, the Permittee shall install, certify, maintain and operate one beta attenuation PM CEMS and one light scatter PM CEMS (in situ or extractive) on the gas stream exiting the Vent Gas Baghouse at a location prior to mixing with other gas streams that are routed to the main stack.

[CD CV-15-02206-PHX-DLR 14.e]

e. Anode Furnaces Baghouse PM CEMS - the Permittee shall install, certify, maintain and operate one beta attenuation PM CEMS and one light scatter PM CEMS (in situ or extractive) on the stack exiting the Anode Furnaces Baghouse.

[CD CV-15-02206-PHX-DLR 14.a]

2. *The Permittee shall certify, calibrate*, maintain, and operate *PM CEMS according to EPA Performance Specification 11 in 40 C.F.R. Part 60, Appendix B (PS-11) and the quality assurance requirements of Procedure 2 in 40 C.F.R. Part 60, Appendix F.*

[CD CV-15-02206-PHX-DLR 14 A.A.C. R18-2-331.A.3.c]
[Material permit conditions are indicated by italics and underline]

3. Acid Plant, Secondary Baghouse and Tertiary Hooding PM CEMS requirements

[CD CV-15-02206-PHX-DLR 14.b, c and d]

a. Within 90 days from the date of installation, the Permittee shall conduct PS-11 testing in accordance with the Installation, Certification, and QA/QC Protocol to certify the CEMS. The Permittee shall submit the results of the PS-11 testing to EPA.

b. If the PM CEMS fails to certify, the Permittee shall conduct a second round of PS-11 testing in accordance with the revised Installation, Certification, and QA/QC Protocol within ninety (90) days from the date that EPA approves such revised Protocol.

4. Anode Furnaces Baghouse and Vent Gas Baghouse PM CEMS

[CD CV-15-02206-PHX-DLR 14.b, c and d]

a. Within 90 days from the date of installation, the Permittee shall conduct simultaneous PS-11 testing for both PM CEMS in accordance with the Installation, Certification, and QA/QC Protocol in order to certify both of the PM CEMS. The Permittee shall submit the results of the PS-11 testing for both of the PM CEMS to EPA.

b. If one or both of the PM CEMS fails to certify, the Permittee shall conduct a second round of PS-11 testing for such PM CEMS in accordance with the revised Installation, Certification, and QA/QC Protocol within ninety (90) days from the date that EPA approves such revised Protocol.

c. The Permittee shall submit the results of any second round PS-11 testing for both of the PM CEMS to EPA.

d. Following successful certification of both PM CEMS or completion of the second round of PS-11 testing pursuant to the EPA-approved revised Protocol, the Permittee may discontinue operation of and remove one of the PM CEMS.

e. If both PM CEMS are certified, the Permittee may choose which PM CEMS shall be removed. If only one PM CEMS is certified, the Permittee may remove the PM CEMS that did not certify.

f. If neither PM CEMS is certified, the Permittee shall submit a proposal for EPA review and approval as to which PM CEMS should be removed and which shall remain in place as a CPMS, to be based on an analysis of data collected to-date from each PM CEMS and evaluation as to which PM CEMS will provide more useful data. Upon receiving EPA approval of the Permittee's proposal for PM CEMS removal, the Permittee may remove that PM CEMS.

5. Each PM CEMS shall comprise a continuous particle mass monitor to measure and record PM concentration, directly or indirectly, and gas stream flow rates on an hourly average basis. The Permittee shall maintain, in an electronic database, the hourly average emission values of all certified PM CEMS in milligrams per dry standard cubic meter (mg/dscm) and pounds per hour (lbs/hr).

[CD CV-15-02206-PHX-DLR 14]

6. If certification is unsuccessful for any PM CEMS, the Permittee shall consult with the PM CEMS vendor and EPA and then within sixty (60) days of completion of

the PS-11 testing (including receipt of the results) that was conducted pursuant to the original Installation, Certification, and QA/QC Protocol for that PM CEMS submit a revised Installation, Certification, and QA/QC Protocol for that PM CEMS to EPA for review and approval.

[CD CV-15-02206-PHX-DLR 14]

7. In the event that no PM CEMS is successfully certified on any of the below-specified gas streams, the Permittee shall within ninety days of completion of the second round of PS-11 testing (including receipt of the results) submit an alternative PM monitoring plan for such gas stream(s) for review and approval by EPA that will propose a methodology for using data from the PM CEMS as continuous parametric monitoring systems (CPMS) and stack performance test data to ensure continuous compliance with the relevant PM emission limits. Upon approval by EPA, the Permittee shall continuously operate the PM CEMS as a CPMS consistent with the final PM monitoring plan.

[CD CV-15-02206-PHX-DLR 14]

8 . The Permittee shall use reasonable efforts to keep each PM CEMS running and producing data whenever any gas at that location is being exhausted to the atmosphere. The Permittee shall operate at least one PM CEMS for at least twelve (12) months on each of the exhaust streams specified in Condition IX.B.1 for monitoring of compliance with applicable emission limits.

[CD CV-15-02206-PHX-DLR 15]

a. After at least twelve (12) months of operation, the Permittee may attempt to demonstrate that it is infeasible to continue operating one or more of the PM CEMS. As part of such demonstration, the Permittee shall submit an alternative PM monitoring plan for review and approval by the EPA. The plan shall explain the basis for stopping operation of each PM CEMS and propose an alternative monitoring plan for each affected exhaust stream.

b. Operation of a PM CEMS shall be considered infeasible if

(1) the PM CEMS cannot be kept in working condition for sufficient periods of time to produce reliable, adequate, or useful data consistent with the QA/QC protocol (including, without limitation, PS-11 and Procedure 2); or

(2) Recurring, chronic, or unusual equipment adjustment, servicing, or replacement needs in relation to other types of continuous emission monitors cannot be resolved through reasonable expenditures of resources.

c. If EPA determines that the PM CEMS operation is infeasible, the Permittee shall be entitled to discontinue operation of and remove that PM CEMS. At that point, the Permittee shall comply with the approved alternative PM monitoring plan.

C. Requirements for SO_2 Continuous Emission Monitoring System (CEMS)

1. The SO_2 CEMS shall meet 40 CFR Part 60, Appendix B, "Performance Specification 6 - Specifications and Test Procedures for Continuous Emission Rate Monitoring Systems in Stationary Sources." The CMS shall follow a quality

assurance procedure equivalent to 40 CFR 60 Appendix F. The SO_2 CEMS installed and operated shall meet the quality assurance requirements of 40 CFR 60, Appendix F.

[A.A.C. R18-2-B1302.E.4.b, 40 CFR 60.13(a)]

2. All the stack gas volumetric flow rate monitoring systems shall meet 40 CFR Part 60, Appendix B, "Performance Specification 6- Specifications and Test Procedures for Continuous Emission Rate Monitoring Systems in Stationary Sources".

3. For the purpose of the SO_2 CEMS performance evaluation, the reference method for Relative Accuracy Test procedure under 40 CFR Part 60, Appendix B, Performance Specification 2 shall be Method 6. For the performance evaluation, each concentration measurement shall be of one hour duration. The pollutant gas used to prepare the calibration gas mixtures required under Performance Specification 2 of appendix B, and for calibration checks under §60.13 (d), shall be sulfur dioxide. The span of the SO_2 CEMS shall be set at a sulfur dioxide concentration of 0.20 percent by volume.

[40 CFR 60.165(b)(2)(ii)]

4. Continuous monitoring means the taking and recording of at least one measurement of SO_2 concentration and stack gas flow rate reading from the effluent of each affected stack, outlet, or other approved measurement location in each 15-minute period when the associated process units are operating. Fifteen-minute periods start at the beginning of each clock hour, and run consecutively. All CEMS shall complete at least one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period.

[A.A.C. R18-2-B1302.E.3]

5. The Director shall approve the location of all sampling points for monitoring SO_2 concentration and stack gas volumetric flow rates and the appropriate span values for the monitoring systems. This approval shall be in writing before installation and operation of the measurement instruments.

[A.A.C. R18-2-B1302.E.5.d]

6. The measurement system is subject to the manufacturer's recommended zero adjustment and calibration procedures at least once per operating day unless the manufacturer specifies or recommends calibration at shorter intervals, in which case the Permittee shall follow those specifications or recommendations. The Permittee shall make available a record of these procedures that clearly shows instrument readings before and after zero adjustment and calibration.

[A.A.C. R18-2-B1302.E.5.e]

7. The SO_2 CEMS shall meet the following quality assurance requirements:

   a. Calibration drift checks

      Permittee shall check the zero (or low-level value between 0 and 20% of span value) and span (50 to 100 percent of span value) calibration drifts (CD) at least once daily in accordance with a written procedure prescribed by the manufacturer. The pollutant gas used to prepare the calibration gas mixtures for the calibration drift checks shall be sulfur dioxide.

      [40 CFR 60.13(d)(1) and 165(b)(2)(ii)]

b. Zero and span drift adjustments

(1) The zero and span shall, as a minimum, be adjusted whenever the 24-hr zero drift or 24-hr span drift exceeds 100 ppm.

[40 CFR 60.13(d)(1)]

(2) The SO_2 CEMS shall allow for the amount of excess zero and span drift measured at the 24-hour interval checks to be recorded and quantified. If the data are automatically adjusted to the corrected calibration values (e.g., microprocessor control), Permittee shall program the SO_2 CEMS to record the unadjusted concentration measured in the calibration drift prior to resetting the calibration, if performed, or record the amount of adjustment.

[40 CFR 60.13(d)(1)]

c. The CEMS on the anode furnace baghouse stack and tertiary ventilation system shall complete an initial Relative Accuracy Test Audit (RATA) in accordance with Performance Specification 2. The RATA runs shall be tied to when the anode furnace is in use and, for the tertiary system, when the converters are in operation and/or material is being transferred in the converter aisle. Asarco may petition the Department and EPA Region IX on the criteria for subsequent RATAs for the anode furnace baghouse stack or tertiary ventilation system CEMS. The petition shall include submittal of CEMS data during the year.

[A.A.C. R18-2-B1302.E.5.a]

d. The Permittee shall notify the Director in writing at least 30 days in advance of the start of the RATA performed on the CEMS.

[A.A.C. R18-2-B1302.E.5.c]

e. Minimum frequency of operation

[40 CFR 60.13(e)(2)]

Except during periods of system breakdowns, repairs, calibration checks, and zero and span adjustments, the SO_2 CEMS shall be in continuous operation and shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period.

f. Data reduction procedures

[40 CFR 60.13(h)]

Permittee shall reduce all data from the SO_2 CEMS to 1-hour averages. The 1-hour averages shall be computed from four or more data points equally spaced over each 1-hour period. Data recorded during periods of continuous system breakdowns, repairs, calibration checks, and zero and span adjustments shall not be included in the data averages. An arithmetic or integrated average of all data may be used. The data may be recorded in reduced or non-reduced form (e.g., ppm pollutant and percent O_2 or ng/J of pollutant).

g. Data Substitution

[A.A.C. R18-2-B1302.F.1]

When no valid hour or hours of data have been recorded by a CEMS and the associated process unit is operating, the Permittee shall calculate substitute data for each such period according to the following procedures:

(1) For a missing data period less than or equal to 24 hours, substitute the average of the hourly SO_2 concentrations recorded by the system for the hour before and the hour after the missing data period.

(2) For a missing data period greater than 24 hours, substitute the greater of:

(a) The 90th percentile hourly SO_2 concentrations recorded by the system during the previous 720 quality-assured monitor operating hours.

(b) The average of the hourly SO_2 concentrations recorded by the system for the hour before and the four hours after the missing data period.

h. Excessive audit inaccuracy

If the SO_2 CEMS is out-of-control in terms of the excessive audit inaccuracy as defined in 40 CFR Part 60, Appendix F.5.2.3, the Permittee shall take necessary corrective action to eliminate the problem. Following corrective action, Permittee shall audit the CEMS with a relative accuracy test audit, cylinder gas audit, or relative accuracy audit, to determine if the CEMS is operating within the performance specifications.

[40 CFR Part 60, Appendix F.5.2]

i. Repeated excessive inaccuracy

Whenever excessive inaccuracies as defined in 40 CFR Part 60, Appendix F.5.2.3 occur for two consecutive quarters, Permittee shall revise the written procedures, or modify or replace the SO_2 CEMS to correct the deficiency causing the repeated excessive inaccuracy.

[40 CFR Part 60, Appendix F.5.3]

j. The Permittee shall maintain on hand and ready for immediate installation sufficient spare parts or duplicate systems for the CEMS required by this Section to allow for the replacement within six hours of any monitoring equipment part that fails or malfunctions during operation.

[A.A.C. R18-2-1302.E.5.f]

D. Recordkeeping and Reporting Requirements

1. The Permittee shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility under this Condition; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is in operative.

[40 CFR 60.7(b) and A.A.C. R18-2-306.A.3.c]

2. The Permittee shall maintain a file of all measurements, including continuous

monitoring system, monitoring device, and performance testing measurements; all continuous monitoring system performance evaluations; all continuous monitoring system or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices; and all other information required by this Condition recorded in a permanent form suitable for inspection. The file shall be retained for at least five years following the date of such measurements, maintenance, reports and records.

[40 CFR 60.7(f) and A.A.C. R18-2-306.A.4.b]

3. Semiannual SO_2 excess emissions and monitoring systems performance reports

a. The Permittee shall submit an Excess Emissions and Monitoring Systems Performance (EEMSP) report and/or a summary report form to the Department semiannually, unless the total duration of excess emissions for the reporting period is less than 1 percent of the total operating time for the reporting period and the continuous monitoring system downtime for the reporting period is less than 5 percent of the total operating time for the reporting period, in which case only the summary report form shall be submitted and the excess emissions report need not be submitted unless requested by the Department. All semiannual reports shall be postmarked by the 30th day following the end of each six-month period.

[40 CFR 60.7(c) and (d)]

b. The summary report form submission shall be in the format specified in 40 CFR 60.7(d). Each EEMSP report shall include the following information:

[40 CFR 60.7(d)]

(1) The magnitude of excess emissions computed, any conversion factor(s) used, and the date and time of commencement and completion of each time period of excess emissions. The process operating time during the reporting period.

(2) Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the affected facility. The nature and cause of any malfunction (if known), the corrective action taken or preventative measures adopted.

(3) The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments.

(4) When no excess emissions have occurred or the continuous monitoring system(s) have not been inoperative, repaired, or adjusted, such information shall be stated in the report.

X. REQUIREMENTS FOR BAGHOUSES

A. Monitoring Requirements

The Permittee shall install, calibrate, maintain, and continuously operate *a baghouse leak*

detection system for each baghouse located at the facility to monitor baghouse performance.

[CD CV-15-02206-PHX-DLR 26.a, 40 CFR 63.11148(c)(1), A.A.C. R18-2-331.A.3.c]
[Material permit conditions are indicated by italics and underline]

1. Baghouses must be operated such that no bag leak detection system alarms for more than five (5) percent of the total operating time in any six (6) month period. For purposes of determining compliance with this limit, a bag leak detection system shall be deemed to alarm from the time the alarm sounds until such time as all investigation and corrective actions have been completed such that the baghouse has been restored to performance below the alarm set point. A bag leak detection system shall also be deemed to alarm during all periods that the system was not in service or believed to be malfunctioning.

[CD CV-15-02206-PHX-DLR 26.a.v]

2. Each baghouse leak detection system must include a visual alarm that is displayed in a control room that is permanently staffed, on a twenty-four (24) hour basis.

[CD CV-15-02206-PHX-DLR 26.a.i]

3. The baghouse leak detection systems shall meet the following specifications and requirements:

[40 CFR 63.11148(c)(2), CD CV-15-02206-PHX-DLR 26.a.ii]

   a. Each system must be certified by the manufacturer to be capable of detecting PM emissions at concentrations that can effectively discern any dysfunctional leaks of the baghouse;

   b. Each system sensor must provide output of relative PM loadings.

   c. Each system shall be equipped with an alarm system that will sound automatically when an increase in sensor output over a preset level that is protective of the applicable PM emissions limit is detected, and the alarm must be located where it is easily heard by plant operating personnel.

   d. Each system must be installed downstream of the baghouse;

   e. Each system must be installed, operated, calibrated, and maintained in accordance with the manufacturer's written specifications and recommendations, and the Calibration system must, at a minimum, consist of establishing the relative baseline output level by adjusting the sensitivity of the device and establishing the alarm set points and the alarm delay time.

4. If a bag leak detection system alarm sounds, the Permittee must initiate investigation of the baghouse within one (1) hour of the first discovery of the alarm and, if necessary, take corrective action, in accordance with the written procedures specified in O&M Plan, as soon as practicable to adjust or repair the baghouse to minimize any increased PM emissions. The corrective actions may include, but not limited to

[40 CFR 63.11148(c)(3), CD CV-15-02206-PHX-DLR 26.a.iii]

   a. Inspecting the baghouse for air leaks, torn or broken bags or filter media, or any other condition that may cause an increase in emissions.

b. Sealing off defective bags;

c. Replacing defective bags or otherwise repairing the control device;

d. Sealing off a defective baghouse compartment;

e. Cleaning the bag leak detection system probe, or otherwise repair the bag leak detection system; and

f. Shutting down the process producing the particulate emissions

5. The Permittee shall maintain in spare parts inventory no less than 5% of the total bags used in equipment as backup for timely replacement in case of failure.
[CD CV-15-02206-PHX-DLR 26.a.vi]

B. Inspection of Baghouses

The Permittee shall conduct weekly inspections of baghouses to ensure the equipment is functioning in accordance with the requirements of the Dust Plan.
[CD CV-15-02206-PHX-DLR B28.B.ii]

C. Recordkeeping Requirements

1. The Permittee must log in ink or electronic format and maintain a record of installation, calibration, maintenance, and operation of the bag leak detection systems.
[CD CV-15-02206-PHX-DLR 26.a.iv, 40 CFR 63.11148(c)(4)]

2. If a bag leak detection system alarm sounds, the records must include an identification of the dates, times, and durations of all bag leak detection alarms, their cause, and an explanation of the corrective actions taken, if any and the date on which corrective action was completed.
[CD CV-15-02206-PHX-DLR 26.a.iv, 40 CFR 63.11148(c)(4)]

3. The Permittee shall also record any dates, times, and durations when the bag leak detection system was not in service or believed to be malfunctioning.
[CD CV-15-02206-PHX-DLR 26.a.iv]

XI. CONVERTERS ARSENIC CHARGING RATE MONITORING REQUIREMENTS

A. General Provisions

1. The requirements of this section apply to any copper converter under this permit where the total arsenic charging rate for the copper converter department averaged over a 1-year period is less than 75 kg/hr. At such time that the Permittee becomes aware of the 1-year period average total equal to or greater than 75 kg/hr, the Permittee shall submit an application for permit revision in accordance with Section XIII, Attachment "A".
40 CFR 61.172(a)]

2. Arsenic charging rate means the hourly rate at which arsenic is charged to the copper converters based on the arsenic content of the copper matte and of any lead matte that is charged to the copper converters.
[40 CFR 61.171]

B. Monitoring Requirements

The Permittee shall determine the converter arsenic charging rate as follows:

1. Collect daily grab samples of copper matte charged to the copper converters.

[40 CFR 61.174(f)(1)]

2. Each calendar month, from the daily grab samples collected under Condition XI.B.1 above, put together a composite copper matte sample and a composite lead matte sample. Analyze the composite samples individually using Method 108A, 108B, or 108C to determine the weight percent of inorganic arsenic contained in each sample.

[40 CFR 61.174(f)(2)]

3. Calculate the converter arsenic charging rate once per month using the following equation:

[40 CFR 61.174(f)(3)]

$$Rc = \sum (i=1 \text{ to } n) : \frac{(A_c \cdot W_{ci})}{100\ H_c}$$

R_c= Converter arsenic charging rate (kg/hour or pounds/hour).

A_c= Monthly average weight percent of arsenic in the copper matte charged during the month (%) as determined under Condition IX.B.2 above.

W_{ci}= Total weight of copper matte charged to a copper converter during the month (kg or pound).

H_c= Total number of hours the copper converter department was in operation during the month.

n= Number of copper converters in operation during the month.

4. Determine an annual arsenic charging rate for the copper converter department once per month by computing the arithmetic average of the 12 monthly converter arsenic charging rate values (R_c) for the preceding 12-month period.

[40 CFR 61.174(f)(4)]

C. Recordkeeping and Reporting Requirements

1. The Permittee shall maintain at the source for a period of at least 2 years and make available to the Director upon request the following records:

a. For all converters, a daily record of the amount of copper matte charged to the converters and total hours of operation.

[40 CFR 61.176(c)(1)]

b. For all converters, a monthly record of the weight percent of arsenic contained in the copper matte as determined under Condition XI.B.2.

[40 CFR 61.176(c)(2)]

c. For all converters, the monthly calculations of the average annual arsenic

charging rate for the preceding 12-month period as determined under Condition XI.B.4.

[40 CFR 61.176(c)(3)]

2. The Permittee shall submit annually a written report to the Director that includes the monthly computations of the average annual converter arsenic charging rate as calculated under Condition XI.B.4. The annual report shall be postmarked by the 30th day following the end of each calendar year.

[40 CFR 61.177(f)]

D. Permit Shield

Compliance with the conditions of this Section shall be deemed compliance with 40 CFR 61.171, 40 CFR 61.172(a), 40 CFR 61.174(f), 40 CFR 61.176(c)(1), 40 CFR 61.176(c)(2), 40 CFR 61.176(c)(3), and 40 CFR 61.177(f).

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

XII. BRICK CRUSHER

A. Applicability

This Section shall be applicable to equipment associated with the Brick Crusher identified in the Equipment List as applicable to this Section.

B. Operating Limitation

1. The amount of material processed in the brick crushing plant shall not exceed 42,000 tons per year.

[Condition 8 of Installation Permit No. 1215]

2. The Permittee shall conduct refractory brick crushing operations only within the current Refractory Crushing Area, the Smithco's revert crusher, or in a fully enclosed building whose emissions are vented through a particulate matter control device, such as a baghouse or a scrubber.

[CD CV-15-02206-PHX-DLR B.5.A]

3. The Permittee shall operate a baghouse with the brick crushing plant subject to the requirements of this section with rated efficiency no lower than 99%.

[Installation Permit 1215, Conditions 2 and 3]

4. Monitoring, Recordkeeping and Reporting Requirements

a. The Permittee shall record the date, hours of operation and process weight rate in tons-mass per hour to the brick crushing system.

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

b. The Permittee shall maintain a record of monthly and 12-month rolling total of the material processed in the brick crushing plant.

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

C. Particulate Matter and Opacity

1. Emission Limits and Standards

a. The Permittee shall not discharge or cause the discharge of particulate matter into the atmosphere in excess of the hourly rate shown in the following table for the process weight rate identified for such source:

[40 CFR 52.126(b)]

Process Weight Rate	Emission Rate
50	0.36
100	0.55
500	1.53
1,000	2.25
5,000	6.34
10,000	9.73
20,000	14.99
60,000	29.60
80,000	31.19
120,000	33.28
160,000	34.85
200,000	36.11
400,000	40.35
1,000,000	46.72

b. The opacity of emissions from any of the equipment into the atmosphere shall not be greater than 20 percent as measured by EPA Reference Method 9.

[A.A.C. R18-2-715.D]

2. Air Pollution Control Requirements

a. Brick crushing plant

(1) *The Permittee shall continue to operate* and maintain *the ventilation system and baghouse associated with the brick crushing plant in accordance with good air pollution control practices for minimizing particulate matter emissions to the greatest extent practicable*.

[Conditions 2 and 3 of Permit 1215, CD CV-15-02206-PHX-DLR B.5.B and A.A.C. R18-2-331.A.3.e]
[Material permit conditions are indicated by underline and italics]

(2) Particulates captured in the baghouses shall be handled and disposed in a manner which prevents re-entrainment into the atmosphere.

[Condition 5 of Installation Permit No. 1215]

(3) All conveyor transfer points shall be enclosed.

[Condition 6 of Installation Permit No. 1215]

(4) Spray bars shall be used at every dumping and conveyor transfer point, as necessary to minimize the particulate matter emissions.

[Condition 7 of Installation Permit No. 1215]

(5) The Permittee shall, at all times, comply with the requirements applicable to uncrushed brick handling, brick

crushing operations, and storage piles for uncrushed as well as crushed brick as identified in the fugitive dust plan.
[CD CV-15-02206-PHX-DLR B.3 and 4]

3. Monitoring, Recordkeeping and Reporting Requirements

a. The Permittee shall conduct a bi-weekly (once in every 2 weeks) monitoring of visible emissions from the baghouse and all other affected facilities associated with the brick crushing plant as per the periodic opacity monitoring requirements specified in Condition I.D of Attachment "B".
[A.A.C. R18-2-306.A.3.c]

b. The baseline opacity for the brick crushing plant shall be 5%, established via Method 9 evaluation on March 26, 2003.
[A.A.C. R18-2-306.A.3.c]

(1) If the observer sees visible emissions from the revert crushing plant that on an instantaneous basis appear to exceed the baseline level, then the observer shall if practicable take a six-minute Method 9 observation of the plume.
[A.A.C. R18-2-306.A.3.c]

(2) If the six-minute opacity of the plume exceeds the baseline level but is less than the opacity standard, the Permittee shall initiate corrective action, as necessary, to reduce opacity to or below the baseline level. The Permittee shall make a record of the location, date, and time of the test; the results of the Method 9 observation: and any corrective actions taken.
[A.A.C. R18-2-306.A.3.c]

(3) If the six-minute opacity of the plume exceeds the opacity standard, then the Permittee shall adjust or repair the controls or equipment to reduce opacity to or below the baseline level; and report the event as an excess emission for opacity.
[A.A.C. R18-2-306.A.3.c]

(4) If corrective actions fail to reduce opacity to or below the baseline level, the Permittee shall document all corrective action taken, and re-establish the baseline within 48 hours in accordance with Condition XII.C.3.b(5) below.
[A.A.C. R18-2-306.A.3.c]

(5) If necessitated by the results of the opacity monitoring, the Permittee may reestablish the baseline opacity level. Reestablishment of the baseline shall be performed by conducting 3 certified Method 9 observations, and determining the average of the 3 observations. Within 30 days of reestablishing the baseline opacity, the Permittee shall report the results to the Director. The report shall also contain a description of the need for re-establishing the baseline.
[A.A.C. R18-2-306.A.3.c]

4. Performance Testing Requirements

The Permittee shall determine compliance with the particulate matter standards set forth in ConditionXII.C.1.a by conducting performance tests on the baghouse at least once during the permit term using EPA Reference Method 5 or 17 to determine the particulate matter concentration.

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

D. Permit Shield

Compliance with the conditions of this Section shall be deemed compliance with 40 C.F.R. § 52.126, A.A.C. R18-2-715 D, Conditions 2, 3, 5, 6 and 7 of Installation Permit No. 1215 and CD CV-15-02206-PHX-DLR B.3, B4, B.5.a and B.5.b.

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

XIII. MATERIAL HANDLING FACILITIES

A. Applicability

1. This Section shall be applicable to the equipment identified in the Equipment list as applicable to this Sections, and material handling operations associated with the following activities:

   a. Concentrate storage, handling and unloading operations,

   b. Bedding operations

   c. Furnace and converter silica flux handling and storage operations

   d. Flash furnace feed system

   e. Converter dust handling operations

   f. Acid plant scrubber blowdown drying system

   g. Revert Screens

B. Particulate Matter and Opacity

1. Emission Limits and Standards

   a. The Permittee shall not discharge or cause the discharge of particulate matter into the atmosphere in excess of the hourly rate shown in the following table for the process weight rate identified for such source:

[40 CFR 52.126(b)]

Process Weight Rate	Emission Rate
50	0.36
100	0.55
500	1.53
1,000	2.25
5,000	6.34
10,000	9.73
20,000	14.99
60,000	29.60

80,000	31.19
120,000	33.28
160,000	34.85
200,000	36.11
400,000	40.35
1,000,000	46.72

b. The opacity of emissions from any of the equipment into the atmosphere shall not be greater than 20 percent as measured by EPA Reference Method 9.

[A.A.C. R18-2-715.D]

2. Air Pollution Control Requirements

a. *The Permittee shall continue to operate* and maintain *the silo vent baghouses in accordance with good air pollution control practices for minimizing particulate matter emissions*.

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

b. The Permittee shall, at all times, comply with the requirements applicable to Concentrate Storage, Handling, and Unloading Operations, bedding operations, furnace/converter silica flux handling and storage operations, converter dust handling operations as identified in the fugitive dust plan.

[CD CV-15-02206-PHX-DLR B.6, 7, 8, 9 and 11]

3. Monitoring, Recordkeeping and Reporting Requirements

a. The Permittee shall conduct a bi-weekly (once in every 2 weeks) monitoring of visible emissions from baghouses associated with material storage facilities as per the periodic opacity monitoring requirements specified in Condition I.D of Attachment "B".

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

b. The Permittee shall conduct a bi-weekly (once in every 2 weeks) monitoring of visible emissions from all other affected facilities as per the periodic opacity monitoring requirements specified in Condition I.D of Attachment "B".

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

C. Permit Shield

Compliance with the conditions of this Section shall be deemed compliance with 40 C.F.R. § 52.126, A.A.C. R18-2-715. D, and CD CV-15-02206-PHX-DLR B.6, 7, 8, 9 and 11.

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

XIV. WET GAS CLEANING SYSTEM

A. Applicability

The requirements of this Section are applicable to the following equipment:

1. WGC Thickener

2. WGC Filter Press

3. WGC Filter Cake Dryer

4. WGC Filter Cake Packaging System

B. Particulate Matter and Opacity

1. Emissions Limitations and Standards

a. The Permittee shall not discharge or cause the discharge of particulate matter from the wet gas cleaning system into the atmosphere in excess of the hourly rate shown in the following table for the process weight rate identified for such source:

[40 CFR 52.126(b)]

Process Weight Rate	Emission Rate
50	0.36
100	0.55
500	1.53
1,000	2.25
5,000	6.34
10,000	9.73
20,000	14.99
60,000	29.60
80,000	31.19
120,000	33.28
160,000	34.85
200,000	36.11
400,000	40.35
1,000,000	46.72

b. The Permittee shall not cause, allow or permit to be emitted into the atmosphere any plume or effluent from wet gas cleaning system, the opacity of which exceeds 20 percent, as determined by Reference Method 9 in 40 CFR 60, Appendix A.

[A.A.C. R18-2-715.C]

2. Air Pollution Control Requirements

Emissions from the thickener, dryer and packaging system shall be vented through a packed gas cooling tower to minimize particulate emissions.

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

3. Monitoring, Recordkeeping, and Reporting Requirements

A certified EPA Reference Method 9 observer shall conduct a bi-weekly survey of visible emissions from the Wet Gas Cleaning equipment in accordance with Condition I.D of Attachment "B".

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

C. Permit Shield

Compliance with the terms of this Section shall be deemed compliance with 40 C.F.R. § 52.126 and A.A.C. R18-2-, 715.C.

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

ATTACHMENT "E": SMELTER (WITH 40 CFR 63 SUBPART QQQ)

I. This Attachment shall become applicable upon the effective date that the Permittee accepts all NESHAP Subpart QQQ requirements for the affected facility. The Permittee shall communicate this effective date to the EPA and Director in writing. After this effective date the Permittee shall comply with the requirements of Attachment "E" in lieu of Attachment "D".

II. GENERAL FACILITYWIDE REQUIREMENTS FROM 40 CFR 63 SUBPART QQQ

A. 40 CFR 63 Subpart QQQ General Requirements

In addition to specific requirements in this Attachment, the following general requirements shall be applicable to all National Emission Standards for Hazardous Air Pollutants (NESHAP) 40 CFR Part 63 Subpart QQQ affected sources.

1. The Permittee shall comply with the following general provisions of 40 CFR Part 63, Subpart "A":

   40 CFR 63.1, 63.2, 63.3, 63.4, 63.5, 63.6 (a)-(g), 63.6 (i)-(j), 63.7 (a)(3) and (b)-(h), 63.8 excluding 63.8(a)(4), (c)(4), and (f)(6), 63.9 excluding 63.9(g)(5), 63.10 excluding 63.10(b)(2)(xiii) and (c)(7)-(8), 63.12, and 63.13-63.15.

   [40 CFR 63.1457]

2. The Permittee shall control particulate matter emissions from fugitive dust sources at the primary copper smelter by operating according to a written fugitive dust control plan that has been approved by the Director. For the purposes of complying with this requirement, the Permittee shall use the fugitive dust plan approved by EPA set forth in Attachment "B", Condition III.B .

   [40 CFR 63.1445]

3. The Permittee shall always operate and maintain the affected source, including air pollution control and monitoring equipment, in a manner consistent with good air pollution control practices for minimizing emissions at least to the levels required by 40 CFR 63 Subpart LLL.

   [40 CFR 63.1447(a)]

4. The Permittee shall develop and implement a written startup, shutdown, and malfunction plan according to the provisions in 40 CFR 63.6(e)(3).

   [40 CFR 63.1448(c)]

B. Compliance Requirements

1. The Permittee shall comply with the emission limitations, work practice standards, and operation and maintenance requirements at all times, except during periods of startup, shutdown, and malfunction as defined in 40 CFR 63.2.

   [40 CFR 63.1448(a)]

2. The Permittee shall demonstrate continuous compliance by implementing the fugitive dust control measures specified for the sources in the written fugitive dust control plan specified in Attachment "B", Condition III.B.

   [40 CFR 63.1453(f)]

C. Monitoring Requirements

1. *For each operating limit established under the capture system operation and maintenance plan for the copper converter department, the Permittee shall install*, operate, and maintain *an appropriate monitoring device according the requirements in 40 CFR 63.1452(a) to measure and record the operating limit value or setting at all times the copper converter department capture system is operating during batch copper converter Blowing*. Dampers that are manually set and remain in the same position at all times the capture system is operating are exempted from the requirements under this condition.

[40 CFR 63.1452(a) and A.A.C. R18-2-331.A.3.c]
[Material Permit Condition identified by underline]

2. Except for monitoring malfunctions, associated repairs, and required quality assurance or control activities (including as applicable, calibration checks and required zero and span adjustments), the Permittee shall monitor continuously (or collect data at all required intervals) at all times an affected source is operating.

[40 CFR 63.1452(e)]

3. The Permittee shall 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 or to fulfill a minimum data available requirement, if applicable. The Permittee shall use all the data collected during all other periods in assessing compliance.

[40 CFR 63.1452(f)]

4. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitor to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions.

[40 CFR 63.1452(g)]

D. Recordkeeping Requirements

1. The Permittee shall keep the following records:

[40 CFR 63.1456(a)]

a. A copy of each notification and report submitted to comply with 40 CFR 63, Subpart QQQ, including all documentation supporting any initial notification or notification of compliance status submitted according to the requirements in 40 CFR 63.10(b)(2)(xiv).

[40 CFR 63.1456(a)(1)]

b. The records in 40 CFR 63.6(e)(3)(iii) through (v) related to startup, shutdown, and malfunction.

[40 CFR 63.1456(a)(2)]

c. Records or performance tests and performance evaluations as required in 40 CFR 63.10(b)(2)(viii).

[40 CFR 63.1456(a)(3)]

d. For each monitoring system, the Permittee shall keep records specified below:

[40 CFR 63.1456(a)(4)]

(1) Records described in 40 CFR 63.10(b)(2)(vi) through (xi).

(2) Monitoring data recorded by the monitoring system during a performance evaluation as required in 40 CFR 63.6(h)(7)(i) and (ii).

(3) Previous (i.e., superseded) versions of the performance evaluation plan as required in 40 CFR 63.8(d)(3).

(4) Records of the date and time that each deviation started and stopped, and whether the deviation occurred during a period of startup, shutdown, or malfunction or during another period.

2. Records shall be in a form suitable and readily available for expeditious review, according to 40 CFR 63.10(b)(1).

[40 CFR 63.1456(b)]

3. 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 63.1456(c)]

4. The Permittee shall keep each record on site for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to 40 CFR 63.10(b)(1). The Permittee may keep the records off site for the remaining 3 years.

[40 CFR 63.1456(d)]

E. Notification Requirements

1. The Permittee shall submit all of the notifications in 40 CFR 63.7(b) and (c), 63.8(f)(4), and 63.9(b) through (h) by the specified dates.

[40 CFR 63.1454(a)]

2. The Permittee shall submit a notification of intent to conduct a performance test at least 60 calendar days before the performance test is scheduled to begin as required in 40 CFR 63.7(b)(1).

[40 CFR 63.1454(d)]

F. Reporting Requirements

1. The Permittee shall submit each of the following reports as applicable:

[40 CFR 63.1455(a)]

a. The Permittee shall submit a compliance report semiannually in accordance with Condition VII of Attachment "A.". The report shall contain the information in Condition II.F.2 below.

[40 CFR 63.1455(a)(1) and 1455(b)]

b. The Permittee shall submit an immediate startup, shutdown, and malfunction report if there was a startup, shutdown, or malfunction during the reporting period that is not consistent with the startup, shutdown, and malfunction plan. The Permittee shall report the actions taken for the event by fax or telephone within 2 working days after starting actions

inconsistent with the plan. The Permittee shall submit the information in 40 CFR § 63.10(d)(5)(ii) by letter within 7 working days after the end of the event unless alternate arrangements have been made with the Director.
[40 CFR 63.1455(a)(2)]

2. Each compliance report shall contain the following information in Conditions II.F.2.a through II.F.2.c below and, as applicable, Conditions II.F.2.d through II.F.2.h below.
[40 CFR 63.1455(c)]

a. Company name and address.
[40 CFR 63.1455(c)(1)]

b. Statement by a responsible official, as defined in 40 CFR 63.2, with that official's name, title, and signature, certifying the accuracy and completeness of the content of the report.
[40 CFR 63.1455(c)(2)]

c. Date of report and beginning and ending dates of the reporting period.
[40 CFR 63.1455(c)(3)]

d. If there was a startup, shutdown or malfunction during the reporting period and actions were taken consistent with the startup, shutdown, and malfunction plan, the compliance report shall include the information in 40 CFR 63.10(d)(5)(i).
[40 CFR 63.1455(c)(4)]

e. If there are no deviations from any emission limitations (emission limit, operating limit, opacity limit) that apply to this source and there are no deviations from the requirements for work practice standards in 40 CFR 63, Subpart QQQ, a statement that there were no deviations from the emission limitations, work practice standards, or operation and maintenance requirements during the reporting period.
[40 CFR 63.1455(c)(5)]

f. If there were no periods during which an operating parameter monitoring system was out-of-control as specified in 40 CFR 63.8(c)(7), a statement that there were no periods during which the monitoring system was out-of-control during the reporting period.
[40 CFR 63.1455(c)(6)]

g. For each deviation from an emission limitation (emission limit, operating limit, opacity limit) and for each deviation from the requirements for work practice standards that occurs at an affected source where the Permittee is not using a continuous monitoring system to comply with the emission limitations or work practice standards in Subpart QQQ, the compliance report shall contain the information in Conditions through d above and the information in Conditions II.F.2.g(1) and II.F.2.g(2) below. This includes periods of startup, shutdown, and malfunction.
[40 CFR 63.1455(c)(7)]

(1) The total operating time of each affected source during the reporting period.
[40 CFR 63.1455(c)(7)(i)]

(2) Information on the number, duration, and cause of deviations (including unknown cause, if applicable), as applicable, and the corrective action taken.

[40 CFR 63.1455(c)(7)(ii)]

h. For each deviation from an emission limitation (emission limit, operating limit, opacity limit, and visible emission limit) occurring at an affected source where the Permittee is using an operating parameter monitoring system to comply with the emission limitation in Subpart QQQ, the Permittee shall include the information in Conditions II.F.2.a through II.F.2.d above and the information in Conditions II.F.2.h(1) through II.F.2.h(11) below. This includes periods of startup, shutdown, and malfunction.

[40 CFR 63.1455(c)(8)]

(1) The date and time that each malfunction started and stopped.

[40 CFR 63.1455(c)(8)(i)]

(2) The date and time that each monitoring system was inoperative, except for zero (low-level) and high-level checks.

[40 CFR 63.1455(c)(8)(ii)]

(3) The date, time and duration that each monitoring system was out-of-control, including the information in 40 CFR 63.8(c)(8).

[40 CFR 63.1455(c)(8)(iii)]

(4) The date and time that each deviation started and stopped, and whether each deviation occurred during a period of startup, shutdown, or malfunction or during another period.

[40 CFR 63.1455(c)(8)(iv)]

(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.

[40 CFR 63.1455(c)(8)(v)]

(6) A breakdown of the total duration of the deviations during the reporting period into those that are due to startup, shutdown, control equipment problems, process problems, other known causes, and other unknown causes.

[40 CFR 63.1455(c)(8)(vi)]

(7) A summary of the total duration of monitoring system downtime during the reporting period and the total duration of monitoring system downtime as a percent of the total source operating time during that reporting period.

[40 CFR 63.1455(c)(8)(vii)]

(8) A brief description of the process units.

[40 CFR 63.1455(c)(8)(viii)]

(9) A brief description of the monitoring system.

[40 CFR 63.1455(c)(8)(ix)]

(10) The date of the latest monitoring system certification or audit.
[40 CFR 63.1455(c)(8)(x)]

(11) A description of any changes in continuous monitoring systems, processes, or controls since the last reporting period.
[40 CFR 63.1455(c)(8)(xi)]

3. The Permittee shall report all deviations from the applicable requirements of 40 CFR 63, Subpart QQQ in the semiannual monitoring report required pursuant to Condition II.F.1 above. If the semiannual compliance report includes all required information concerning deviations from any emission limitation (including any operating limit), or work practice requirement in Subpart QQQ, submission of the compliance report is deemed to satisfy the obligation to report the same deviations in the semiannual monitoring report. However, submission of a compliance report does not otherwise affect any obligation the Permittee may have to report deviations from permit requirements to the Director.
[40 CFR 63.1455(d)]

G. Permit Shield

Compliance with the Conditions under this Section shall be deemed compliance with 40 CFR 63.1445(a), 63.1447(a) and (b), 63.1448(a), (c), 63.1452(a), (e), (f) and (g), 63.1453(f), 63.1454(a) and (d), 63.1455(a), (b), (c) and (d), 63.1456(a), (b), (c) and (d), and 63.1457.
[A.A.C. R18-2-325]

III. FACILITYWIDE LIMITATIONS FOR SMELTER

A. Operational Limitations

1. *Unless otherwise specified in this Attachment, the Permittee shall only use natural gas fuel for operation of the flash furnace burners, converters, concentrate dryers, and anode furnaces, except for natural gas curtailment periods when the natural gas is not available. During the curtailment periods, the Permittee shall be allowed to use low sulfur fuel as emergency backup to fire the concentrate dryers and anode furnaces*. For the purpose of this Condition, the curtailment periods shall not include durations when the natural gas market price is considered high for any reason.
[Condition I.E of Operating Permit No. 1000042, A.A.C. R18-2-331.A.3.a]
[Material permit conditions are indicated by italics and underline]

2. Permit Shield

Compliance with the Conditions under this Subsection shall be deemed compliance with Condition I.E of Operating Permit No. 1000042.
[A.A.C. R18-2-325]

B. Feed Limitations

1. Throughput Restrictions

The Permittee shall limit the maximum feed rate of concentrate to 693,500 tons per year into the flash furnace, calculated as a 365-day rolling sum.
[Condition XVI.B.1 of Permit No. 60647, A.A.C. R18-2-306.01 and A.A.C. R18-2-331.A.3.a]

2. Monitoring, Recordkeeping, and Reporting Requirements

a. *No later than June 1, 2019, the Permittee shall install, calibrate*, maintain, and operate *a measurement system that will measure and record the weight, or other parameter from which weight can be derived, of the Copper-Bearing Feed charged to the smelting vessel on a daily basis (each 24-hour block encompassing a complete calendar day). The measurement system shall be capable of ascertaining the weight of the Copper-Bearing Feed with an accuracy of +/- two (2) percent. The measurement system shall be calibrated at a minimum once per month, or more frequently if recommended by the manufacturer*.

[CD CV-15-02206-PHX-DLR 24.a and A.A.C. R18-2-331.A.3.c]
[Material permit conditions are identified by italics and underline]

b. At the end of each calendar day, the Permittee shall calculate and record the 2-day average tons of Copper-Bearing Feed charged to the smelting vessel.

[CD CV-15-02206-PHX-DLR 24.c]

c. The Permittee shall log and maintain daily records of the amounts of concentrate feed to the flash furnace. At the end of each day, the Permittee shall update the 365-day rolling total of concentrate feed. These records shall be available to ADEQ upon request.

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

d. The Permittee shall keep a monthly record of the total smelter charge and the weight percent (dry basis) of arsenic, antimony, lead and zinc contained in the charge. The analytical methods and procedures employed to determine the weight of the total smelter charge and the weight percent of arsenic, antimony, lead and zinc shall be approved by the Director and shall be accurate within plus or minus 10 percent.

[40 C.F.R. 60.165(a)]

3. Permit Shield

Compliance with the Conditions under this Subsection shall be deemed compliance with 40 C.F.R. 60.165(a), Condition XVI.B.1 of Permit No. 60647, and CD CV-15-02206-PHX-DLR 24.a and 24.c.

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

C. Capture Systems Requirements

1. *At all times when copper matte or slag is tapped from the smelting furnace, the Permittee shall operate a capture system that collects the gases and fumes released from the tapping port in use. The design and placement of this capture system shall be such that the tapping port opening, launder, and receiving vessel (e.g., ladle, slag pot) are positioned within the confines or influence of the capture system's ventilation draft during those times when the copper matte or slag is flowing from the tapping port opening.*

[40 CFR 63.1444(b)(2)(i), CD CV-15-02206-PHX-DLR 19, A.A.C. R18-2-331.A.3.e]
[Material permit conditions are indicated by italics and underline]

2. *The Permittee shall operate a capture system that collects the process off gas vented from each batch copper converter. At all times when one or more batch copper converters are Blowing, the Permittee shall operate the capture system according to the written operation and maintenance plan that has been prepared according to the requirements in Condition III.C.2 of Attachment "B".* The capture system design shall include use of a primary hood that covers the entire mouth of the converter vessel when the copper converter is positioned for Blowing. Additional hoods (e.g., secondary hoods) or other capture devices must be included in the capture system design as needed to achieve the opacity limit in Condition III.D.1.d. The capture system design may use multiple intake and duct segments through which the ventilation rates are controlled independently of each other, and individual duct segments may be connected to separate control devices.

[40 CFR 63.1444(d)(1) and (2), A.A.C. R18-2-331.A.3.e]
[Material permit conditions are indicated by italics and underline]

3. *At all times that a vessel is used for the production of copper matte, blister copper, or refined anode copper, the Permittee shall operate one or more capture systems to collect gases and fumes released from such production and convey each collected gas stream from the primary and secondary ventilation systems to a baghouse or other particulate matter control device*. The Permittee shall at all times, including periods of startup, shutdown, and/or malfunction, implement good air pollution control practices to minimize emissions from control devices, including capture systems and PM control devices.

[CD CV-15-02206-PHX-DLR 7 and A.A.C. R18-2-331.A.3.e]
[Material permit conditions are indicated by italics and underline]

4. At all times material is being processed in the copper converter department, the Permittee shall operate a capture system that:

[CD CV-15-02206-PHX-DLR 8]

   a. Collects the process off gas vented from each copper converter;

   b. Includes the use of a primary hood that covers the entire mouth of the converter vessel when the copper converter is Blowing; and

   c. Includes the use of a secondary hood at all times when each copper converter is Blowing or is engaged in secondary operations. All gases captured by a primary hood shall be routed to the acid plant.

5. All gases captured by the secondary hoods shall be routed to either the acid plant or the secondary baghouse. Upon installation of each improved hooding capture system, all gases captured by an improved secondary hood while that converter is Blowing shall be routed to the acid plant.

[CD CV-15-02206-PHX-DLR 8.c]

6. Upon installation, the tertiary hooding system shall be operated at all times that material is being processed in the copper converter department.

[CD CV-15-02206-PHX-DLR 8.d]

7. The Permittee shall identify monitoring parameters and limits that will ensure, to the maximum extent practicable, that each hooding system is consistently operated in a manner so as to maximize gas capture and minimize fugitive emissions.

[CD CV-15-02206-PHX-DLR 9]

8. No later than December 1, 2019, at all times that any hooding in the improved gas capture system is operational, the Permittee shall continuously comply with the operational parameters and limits in the Operation and Maintenance Plan required pursuant to Attachment "B", Condition III.C.1. Also, no later than December 1, 2019, The initial operating limits shall be as below unless and until an alternative parameter and/or limit is approved by EPA:

[CD CV-15-02206-PHX-DLR 9.a]

a. Primary Hooding

A minimum air infiltration ratio for a primary hood of 1:1 during all times of converter Blowing at the converter served by that hood, averaged over 24 converter Blowing hours and rolled hourly. The minimum air infiltration ratio shall be calculated by comparing:

(1) The measured volumetric flow rate in the ductwork leaving the primary hood less the volumetric flow rate of tuyere Blowing; and

(2) The measured volumetric flow rate of tuyere Blowing.

b. Secondary Hooding

(1) A minimum exhaust rate of 35,000 SCFM for a secondary hood during all times of converter Blowing at the converter served by that hood, averaged over 24 converter Blowing hours and rolled hourly.

(2) A minimum exhaust rate of 133,000 SCFM for a secondary hood during all non-Blowing operations (including receiving matte and other charged materials, skimming slag, and casting copper) at the converter served by that hood, averaged over 24 converter non-Blowing operations hours and rolled hourly.

(3) A minimum negative pressure drop across the secondary hood when secondary hood doors are in the closed position equivalent to 0.03 millimeters of mercury (0.007 inches of water).

c. Tertiary Hooding

A minimum exhaust rate of 400,000 actual cubic feet per minute (ACFM) for the tertiary hooding during all times material is being processed in the copper converter department, averaged over 24 hours of converter department material processing and rolled hourly.

9. Capture System Monitoring Requirements

a. *No later than December 1, 2019, the Permittee shall install, calibrate*, maintain, and operate *a monitoring device that continuously records the volumetric flow rate or other parameter that has a direct relationship to volumetric flow rate for one or more hoods, at a representative point in the hooding system and in accordance with good engineering practices*

for each of the primary hoods, each of the secondary hoods, and the tertiary hood.

[CD CV-15-02206-PHX-DLR 9.b and A.A.C. R18-2-331.A.3.c]
[Material permit conditions are indicated by italics and underline]

(1) Upon installation of each primary hood, the Permittee shall also install, calibrate, maintain, and operate a monitoring device that continuously records the volumetric flow rate of tuyere Blowing at that primary hood.

(2) All monitoring devices shall have an accuracy of plus or minus 10 percent over the normal process operating range and must be calibrated according to manufacturer's instructions.

(3) If the Permittee wishes to monitor and record a parameter other than volumetric flow rate at one or more of the monitoring locations, the Permittee must, no later than June 1, 2019, submit to EPA for approval a detailed proposal that includes the following:

(a) Identification of parameter(s) to be monitored in lieu of volumetric flow rate;

(b) Identification of where in the hooding system such monitor(s) would be placed and how such location will give appropriate and representative measurements in accordance with good engineering practices;

(c) a detailed explanation, including sample calculations, of how such parameter(s) has a direct relationship to volumetric flow rate in the hooding system and how such parameter(s) will allow the Permittee to have sufficient information to ensure proper operation in accordance with design at all times, including detecting any degraded hooding performance over time (i.e. decreased fan performance, buildup in the ducting, holes in the ducting, etc.); and

(d) Proposed limit(s), including sample calculations, for the selected parameter(s) that would replace a relevant limit set forth in Condition III.C.8 (Default Hooding Operational Parameters and Limits) above and a demonstration of how such limit(s) correlates to equivalent performance and operation of the relevant hooding.

(e) If EPA approves the Permittee's proposal, the proposed limit(s) shall replace the relevant volumetric flow rate limit specified in Condition III.C.8 and shall be enforceable thereunder.

b. No later than December 1, 2019, the Permittee may propose alternative limit(s) to replace a limit set forth in Condition III.C.8 above (or substituted

pursuant Condition III.C.9.a(3) above). In any such proposal, the Permittee shall have the burden of demonstrating that each proposed alternative limit(s) will not lead to additional emissions and will not reduce the capture efficiency of the improved gas capture system, as compared to the emissions and efficiencies achieved or achievable by operation of the hooding systems in compliance with the limit to be replaced in Condition III.C.8. Such demonstration shall include a detailed description of the rationale(s) for the proposed alternative limit(s) as required in CD CV-15-02206-PHX-DLR 9.c. If EPA approves the Permittee's proposal, the proposed alternative limit(s) shall be considered to replace the relevant limit in Condition III.C.8 and shall be enforceable thereunder.

[CD CV-15-02206-PHX-DLR 9.c]

10. The Permittee shall demonstrate continuous compliance of the copper converter department capture system by meeting the following requirements:

[40 CFR §63.1453(b)]

a. Operate the copper converter department capture system at all times during Blowing at or above the lowest values or settings established for the operating limits and demonstrated to achieve the opacity limit according to the applicable requirements of 40 CFR Subpart 63;

b. Inspect and maintain the copper converter department capture system according to the applicable requirements in 40 CFR §63.1447 and recording all information needed to document conformance with these requirements;

c. Monitor the copper converter department capture system according to the requirements in 40 CFR §63.1452(a) and collecting, reducing, and recording the monitoring data for each of the operating limit parameters according to the applicable requirements of this 40 CFR Subpart 63; and

d. Conduct subsequent performance tests according to the requirements of §63.1450(c) following the initial performance test no less frequently than once per year to demonstrate that the opacity of any visible emissions exiting the roof monitors or roof exhaust fans on the building housing the copper converter department does not exceed 4 percent opacity.

11. Permit Shield

Compliance with the Conditions under this Subsection shall be deemed compliance with 40 CFR 63.1444(d)(1) and (2), 63.1453(b) and CD CV-15-02206-PHX-DLR 7, 8, 8.c, 8.d, 9, 9.a, 9.b, 9.c and 19.

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

D. PM and Opacity

1. Emission Limits

a. *Upon CRP startup, the Permittee shall not exceed the combined particulate matter emissions limit from the acid plant tail gas, secondary hood baghouse, vent gas baghouse and tertiary ventilation system gas streams of 197.3 tons per year (filterable only) on 12-month rolling total*

basis.

[Condition XVI.C.2.a of SPR 60647, A.A.C. R18-2-306.02.A and A.A.C. R18-2-331.A.3.a]
[Material permit conditions are identified by italics and underline]

b. No later than December 1, 2019, the Permittee shall comply with the following emission limits from any combination of stacks, vents, or other openings on furnaces, reactors, or other types of process vessels used for the production of anode copper from copper sulfide ore concentrates. Such process equipment shall include all processing steps from the copper concentrate dryers through the anode casting department, inclusive of those end points.

[CD CV-15-02206-PHX-DLR 24]

(1) At all times that the average rate of copper-bearing feed into the smelting flash furnace over a 2-day period (48-hour block encompassing 2 complete calendar days) is greater than or equal to twenty-five (25) tons per hour, including periods of startup, shutdown, and malfunction, the Permittee shall not discharge to the atmosphere exhaust gases that contain total PM in excess of 0.6 pounds per ton of Copper-Bearing Feed charged to the smelting vessel on a rolling 2-day average basis (each 48-hour block encompassing 2 complete calendar days) rolled daily (each 24 hours).

(2) At all other times, the Permittee shall not discharge to the atmosphere exhaust gases that contain total PM in excess of fifteen (15) pounds per hour, as determined on a daily average basis (each 24-hour block encompassing a complete calendar day), including periods of startup, shutdown, and malfunction.

c. No later than December 1, 2020, the Permittee may submit to EPA a request for an alternative emissions breakpoint to more closely match the actual emission profile. The proposed breakpoint in any such request shall not be greater than fifty (50) tons per hour, corresponding to an emission rate of thirty (30) pounds per hour as determined on a daily average basis. EPA may grant or deny the request in whole or in part, subject to Dispute Resolution under Section XIII of the CD.

[CD CV-15-02206-PHX-DLR 24.e]

d. No later than one hundred eighty (180) days after completion of the Converter Aisle Retrofit Project, the Permittee shall operate the gas capture systems such that any visible emissions exiting the roof of the building housing the copper converter department meet an opacity limit of four (4) percent based on EPA Method 9, including periods of startup, shutdown, and malfunction.

[40 CFR 63.1444(d), CD CV-15-02206-PHX-DLR 12]

2. Air Pollution Control Requirements

a. *The Permittee shall operate the Inter-pass Absorption Tower and Final Absorption tower in the acid plant to control particulate matter emissions from the flash furnace, converters and converter secondary hood during*

Blowing operations.
[Condition XVI.C.2.b(1) of SPR 60647 and A.A.C. R18-2-331.A.3.e]
[Material permit conditions are indicated by underline and italics]

b. *The Permittee shall operate* and maintain *a baghouse to minimize particulate emissions from the converter secondary hood capture system*.
. [Condition XVI.C.2.b(2) of SPR 60647 and A.A.C. R18-2-331.A.3.e]
[Material permit conditions are indicated by underline and italics]

c. *Upon startup of CRP the Permittee shall install, operate* and maintain a *vent gas baghouse to minimize particulate emissions from the flash furnace matte tapping and slag skimming operations*.
. [Condition XVI.C.2.b(3) of SPR 60647 and A.A.C. R18-2-331.A.3.d and e]
[Material permit conditions are indicated by underline and italics]

3. Monitoring, Recordkeeping and Reporting Requirements

a. *The Permittee shall calibrate*, maintain, and continuously *operate the Inter-pass Absorption Tower and Final Absorption Tower acid flow meters in accordance with the manufacturer's specifications*. The system shall record block hourly values of the acid flows.
[Condition XVI.C.2.f(1) of SPR 60647 and A.A.C. R18-2-331.A.3.c]
[Material permit conditions are indicated by underline and italics]

b. *The Permittee shall install, calibrate*, maintain, and operate *bag leak detection systems (BLDS) for the secondary hood baghouse and vent gas baghouse in accordance with Section X of this Attachment*.
[Condition XVI.C.2.f(2) of SPR 60647, CD CV-15-02206-PHX-DLR 26.a and A.A.C. R18-2-331.A.3.c]
[Material permit conditions are indicated by underline and italics]

c. *The Permittee shall install, certify*, operate and maintain *PM CEMS on the following streams in accordance with the requirements in Condition IX.B of this Attachment*:

(1) Vent Gas Baghouse Gas Stream

(2) Acid Plant Tail Gas Stream

(3) Secondary Hood Baghouse Gas Stream

(4) Tertiary Hooding Gas Stream

(5) Anode Furnaces Baghouse Gas Stream

d. Opacity Monitoring for Buildings

Except as provided in III.D.3.d(3) below, within six (6) months of completion of the initial Fugitive Emissions Study, the Permittee shall install and continuously operate *three (3) long-path optical density/opacity monitors on the outside of the building housing the flash furnace, converters, and anode furnaces*. The optical density/opacity monitors shall be designed and installed to maximally cover areas where fugitive emissions may exit the building, as identified during the initial Fugitive Emissions Study, and each optical density/opacity monitor shall be calibrated to measure opacity from approximately 0 to 10% over the

full range of the instrument.

[CD CV-15-02206-PHX-DLR 23 and A.A.C. R18-2-331.A.3.c]
[Material permit conditions are indicated by underline and italics]

(1) For any instance of measurable opacity greater than 4% over a six (6) minute period exiting the building housing the flash furnace, converters, and anode furnaces, the Permittee shall take one or more corrective actions within thirty (30) minutes of the commencement of the event to abate the opacity, including but not limited to the following:

(a) Increasing secondary and tertiary hood exhaust rates,

(b) Closing primary and secondary hood doors, and/or

(c) Making adjustments to materials handling operations within the building. The Permittee shall document all measures taken to address the opacity event as well as the final resolution of the problem.

(2) If the corrective actions pursued by the Permittee fail to control the opacity event within one (1) hour of the start of the event, the Permittee shall perform a root cause analysis within seventy-two (72) hours after any instance of measurable opacity greater than 4% over a six (6) minute period, which would identify the cause of the visible emissions and 1) propose permanent operational adjustments or other corrective actions to prevent recurrence as a result of the identified cause; and/or 2) provide the EPA with an analysis of why a specific operational process or step leads to fugitive emissions of limited duration and opacity that cannot reasonably be eliminated or sufficiently controlled to prevent visible emissions. The Permittee shall submit to EPA for review and approval the root cause analysis, along with the recommended corrective actions and/or request for approval of a limited duration for allowed visible emissions associated with a particular operational activity, and the Permittee's documentation of all measures taken to address the emissions at the time of the event, as described in Condition III.D.3.d(1). In no case shall such submittal seek allowance of fugitive emissions with opacity of greater than 5% over a fifteen (15) minute period, as measured by an optical density/opacity monitor. Once approved by EPA, any new operational adjustments or other corrective actions shall become permanent and ongoing enforceable requirements of this Consent Decree.

(3) After at least two (2) years of operation of the long-path optical density/opacity monitors, the Permittee may attempt to demonstrate that it is infeasible or overly burdensome in relation to the benefits to continue operating one or more of the long-path optical density/opacity monitors. As part of such demonstration, the Permittee shall submit to EPA an

analysis of operation and maintenance of such monitor to-date, to include a summary of measurements triggering corrective actions, corrective actions taken, and all root cause analyses performed in response to monitor readings. If EPA rejects the Permittee's demonstration that it is infeasible or overly burdensome in relation to the benefits to continue operating one or more of the long-path optical density/optical monitors, such conclusions are subject to Dispute Resolution pursuant to Section XIII of the CD. Operation of a long-path optical density/optical monitor shall be considered infeasible if (a) the monitor cannot be kept in working condition for sufficient periods of time to produce reliable, adequate, or useful measurements; or (b) recurring, chronic, or unusual equipment adjustment, servicing, or replacement needs cannot be resolved through reasonable expenditures of resources. If EPA determines that operation is infeasible or overly burdensome in relation to the benefits, the Permittee shall be entitled to discontinue operation of and remove the long-path optical density/optical monitor.

4. Performance Test Requirements

a. Performance Test for Particulate Matter
[Condition XVI.C.2.c of SPR 60647, A.A.C. R18-2-312 and A.A.C. R18-2-306.A.3.c]

(1) No later than 180 days after CRP startup, the Permittee shall conduct or cause to be conducted, an initial performance test on the acid plant tail gas, secondary hood baghouse, vent gas baghouse and tertiary ventilation system gas streams for particulate matter emissions. Subsequent performance tests shall be conducted annually. EPA Reference Method 5 in 40 CFR 60 Appendix A shall be used to determine particulate matter emissions.

(2) In addition to EPA Reference Method 5 in 40 CFR 60 Appendix A to determine the emissions of PM, the Permittee shall use Reference Method 201 or 201A and Method 202 specified in 40 CFR 51, Appendix M to determine emissions of PM_{10} and $PM_{2.5}$.

b. Performance Test for Roofline Opacity

(1) Within sixty (60) days after completion of the Converter Aisle Retrofit Project, the Permittee shall prepare, and submit to EPA for review and approval a written performance test plan for determining compliance with this opacity standard in Condition III.D.1.d. The test plan shall contain all information required under 40 C.F.R. § 63.1450(c). Within ninety (90) days after approval from EPA, the Permittee shall conduct a performance test in accordance with 40 C.F.R. § 63.1450(c) to determine compliance with this opacity standard. In addition to viewing the building roof monitor sections, each visible emission observer shall also make note

of the opacity of any visible plumes exiting the roofline from the sides or any other outlet. In accordance with 40 C.F.R. § 63.1450(c)(4)(ii), in situations when it is possible for an observer to distinguish two or more visible emission plumes from the building roof monitor sections or roof exhaust fan outlets, the observer must identify, to the extent feasible, the plume having the highest opacity and record his or her opacity reading for that plume as the opacity value for the 15-second interval.

[CD CV-15-02206-PHX-DLR 12.a]

(2) The Permittee shall conduct additional performance tests at least once each three hundred sixty-five (365) day period following the initial performance test. Any credible evidence, including opacity testing performed in accordance with EPA Method 9 (notwithstanding its consistency with Subpart QQQ test procedures), evidence collected by means specified in 40 § C.F.R. 63.1450(c), and evidence collected by means other than those specified in 40 § C.F.R. 63.1450(c), can be used to demonstrate noncompliance with the 4% roofline opacity.

[CD CV-15-02206-PHX-DLR 12.b]

(3) For each performance test conducted to demonstrate compliance with an opacity limit under Condition III.D.1.d, the Permittee shall keep the following records:

[40 CFR 63.1456(a)(5)]

(a) Dates and time intervals of all opacity observation period segments;

(b) Description of overall smelter operating conditions during each observation period. Identify, if any, the smelter copper production process equipment that was out-of-service during the performance test and explain why this equipment was not in operation;

(c) Name, affiliation, and copy of current visible emission reading certification for each visible emission observer participating in performance test;

(d) Name, title, and affiliation for each indoor process monitor participating in the performance test;

(e) Copies of all visible emission observer opacity field data sheets;

(f) Copies of all indoor process monitor operating log sheets;

(g) Copies of all data summary sheets used for data reduction;

(h) Copy of calculation sheets of the average opacity value used to demonstrate compliance with the opacity limit; and

(i) Certify in the performance test report that during all observation period segments, the copper converter department capture system was operating at the values or settings established in the capture system operation and maintenance plan.

5. Compliance Requirements

a. Compliance with PM emission limit in Condition III.D.1.a

[Condition XVI.C.2.d of SPR 60647]

(1) The Permittee shall calculate PM emissions in pounds per hour in the acid plant tail gas, secondary hood baghouse, vent gas baghouse or and tertiary ventilation streams based on the most recent performance test in accordance with Condition III.D.4.a.

(2) The Permittee shall maintain records of hours of operation of the following: acid plant tail gas, secondary hood baghouse, vent gas baghouse and tertiary ventilation streams. If any emission unit associated with a stream operates during a calendar hour, it will constitute an operating hour. If no emission unit associated with a stream operates during a calendar hour, it will not constitute an operating hour.

(3) The Permittee shall calculate and record monthly emissions for the acid plant tail gas, secondary hood baghouse, vent gas baghouse and tertiary ventilation streams for PM based on the hourly emissions calculated in Condition III.D.5.a(1) and the monthly operating hours for each stream recorded in Condition III.D.5.a(2).

(4) No later than the fifth working day of the following month, the Permittee shall calculate and record rolling 12-month total of combined PM emissions from the acid plant tail gas, secondary hood baghouse, vent gas baghouse and tertiary ventilation streams based on the monthly emissions calculated in III.D.5.a(3) to demonstrate compliance with the emission limit in Condition III.D.1.a.

b. Filterable + Condensable PM, PM_{10} and $PM_{2.5}$ emissions

[Condition XVI.C.2.e of SPR 60647]

(1) The Permittee shall calculate hourly PM, PM_{10} and $PM_{2.5}$ emissions (Filterable + Condensable) from each stream based on most recent performance test in accordance with Condition.III.D.4.a(2)

(2) The Permittee shall calculate and record monthly emissions for the acid plant tail gas, secondary hood baghouse, vent gas baghouse and tertiary ventilation streams for PM, PM_{10} and $PM_{2.5}$ based on the hourly emissions calculated in Condition III.D.5.b(1) and the monthly operating hours for each stream

recorded in Condition III.D.5.a(2).

(3) No later than the fifth working day of the following month, the Permittee shall calculate and record rolling 12-month total of combined PM, PM_{10} and $PM_{2.5}$ emissions from the acid plant tail gas, secondary hood baghouse, vent gas baghouse and tertiary ventilation streams based on the monthly emissions calculated in Condition III.D.5.b(2)

(4) Based on the Filterable + Condensable PM, PM_{10} and $PM_{2.5}$ emissions data for 3 years, the Permittee shall apply for a permit revision no later than 180 days after completion of the third performance test pursuant to Condition III.D.4.a(2) for incorporation of emission limits for Filterable + Condensable PM, PM_{10} and $PM_{2.5}$ emission limits.

c. Compliance with Total PM Limit in Condition III.D.1.b(1)

(1) At the end of each calendar day, the Permittee shall calculate and record the 2-day average tons of Copper-Bearing Feed charged to the smelting vessel.

[CD CV-15-02206-PHX-DLR 24.c]

(2) If the 2-day average tons of Copper-Bearing Feed charged to the smelting vessel is greater than or equal to twenty-five (25) tons per hour, then the Permittee shall calculate and record the 2-day average pounds of total PM per ton of Copper-Bearing Feed charged to the smelting vessel for the preceding 48-hour period.

[CD CV-15-02206-PHX-DLR 24.c]

(3) If the 2-day average tons of Copper-Bearing Feed charged to the smelting vessel is less than twenty-five (25) tons per hour, then the Permittee shall calculate and record the daily average pounds of total PM per hour for the preceding 24-hour period.

[CD CV-15-02206-PHX-DLR 24.c]

(4) Emission Calculation Procedure

[CD CV-15-02206-PHX-DLR 24.b]

(a) PM emissions from the acid plant, Secondary Hood Baghouse, Vent Gas Baghouse, Tertiary Hood Exhaust, and Anode Furnace Baghouse shall be calculated based on data collected from the PM CEMS.

(b) PM emissions from the Tertiary Hood Exhaust and any other emission point receiving off-gas from process equipment subject to the emissions limits shall be calculated based on data collected from a certified PM CEMS installed to measure such gas stream or, if no certified PM CEMS exists for a gas stream, engineering estimates based on one or more of the following, as available: stack test data, CPMS data, COMS data, and

other process data.

(c) The Permittee shall determine and record the 2-day (each 48- hour block encompassing 2 complete calendar days) or, if necessary, daily (24-hour block encompassing a complete calendar day) value of PM emissions for each of these gas streams.

(d) The sum of those values shall be added to an estimate of 48-hour or, if necessary, daily fugitive PM emissions from all process equipment subject to the emission limits in Condition III.D.1.b(1), to include all fugitive emissions from the building(s) housing the flash furnace, copper converter department, and anode furnace and production operations.

(e) In the event that one or more certified PM CEMS on a relevant gas stream is malfunctioning for a portion or the entirety of any day, the Permittee shall use the eighth highest daily value of PM emissions that has been recorded at that CEMS in the previous six (6) months.

(f) Daily and 48-hour fugitive PM emissions shall be calculated based upon emission factors established during the most recent Fugitive Emissions Study. Prior to completion of the initial Fugitive Emissions Study required under CD, estimates from the 1994/1995 Fugitive Emissions Study shall be used for purposes of this calculation.

d. The Permittee shall maintain records of the calculations of pounds per ton, and pounds per hour rates and all supporting information and data.

[CD CV-15-02206-PHX-DLR 24.d]

6. Permit Shield

Compliance with the Conditions under this Subsection shall be deemed compliance with Conditions XVI.C.2.a, b, c, d, e and f of SPR 60647, 40 CFR 63.1444(d) and 63.1456(a)(5), and CD CV-15-02206-PHX-DLR 12, 12.a, 12.b, 23, 24, 24.b, 24.c, 24.d and 26.a.

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

E. Sulfur Dioxide (SO_2)

Note: *The Permittee shall comply with the requirements under Attachment "F" in addition to requirements under this Subsection until A.A.C, R18-2-715.I is approved into SIP by EPA. All the requirements from A.A.C. R18-2-B1302 (Limits on SO_2 Emissions from the Hayden Smelter) are State Enforceable only until A.A.C. R18-2-B1302 is approved into Arizona SIP by EPA.*

1. Definitions

[A.A.C. R18-2-B1302.B]

a. "Operating day" means any calendar day in which any of the following occurs:

(1) Concentrate is smelted in the smelting furnace;

(2) Copper or sulfur bearing materials are processed in the converters;

(3) Blister or scrap copper is processed in the anode furnaces;

(4) Molten metal, including slag, matte or blister copper, is transferred between vessels; or

(5) Molten metal is cast into anodes or other intermediate or final products.

b. "Out of control period" means the time that begins with the completion of the fifth, consecutive, daily calibration drift check with a calibration drift in excess of two times the allowable limit, or the time corresponding to the completion of the daily calibration drift check preceding the daily calibration drift check that results in a calibration drift in excess of four times the allowable limit, and the time that ends with the completion of the calibration check following corrective action that results in the calibration drifts at both the zero (or low-level) and high level measurement points being within the corresponding allowable calibration drift limit.

c. "Continuous emissions monitoring system" or "CEMS" means the total equipment, required under the emission monitoring provisions in this Chapter, used to sample, condition (if applicable), analyze, and to provide, on a continuous basis, a permanent record of emissions.

2. Emission Limits

a. *The combined SO_2 emissions from exit of the acid plant tail gas, secondary hood baghouse, vent gas baghouse and the tertiary ventilation system shall not exceed 22,000 tons per year on a 365-day rolling total basis*.
[Conditions XVI.C.1.a of Permit 60647, A.A.C. R18-2-306.02.A and A.A.C. R18-2-331.A.3.a]
[Material permit conditions are identified by italics and underline]

b. *No later than July 1, 2018, emissions from the Main Stack shall not exceed 1069.1 pounds per hour on a 14-operating day average unless 1,518 pounds or less is emitted during each hour of the 14-operating day period*.
[A.A.C. R18-2-B1302.C.1 and A.A.C. R18-2-331.A.3.a]
[Material permit conditions are identified by italics and underline]

c. The Permittee shall not cause to be discharged into the atmosphere from any affected unit under 40 CFR 60, subpart P any gases which contain sulfur dioxide in excess of 0.065 percent by volume (the limit set forth in 40 CFR § 60.163(a)) (as in effect on July 1, 2016 and no later editions).
[40 CFR 60.163(a), A.A.C. R18-2-B1302.C.2]

3. Air Pollution Control Requirements

At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, maintain and *operate smelter processes and associated emission control and/or control equipment in a manner consistent with good air pollution control practices for minimizing SO_2 emissions to the levels required Condition III.E.2.b.* Determination of whether acceptable operating and maintenance procedures are being used will be based on all information available to the Director and EPA Region IX, which may include, but is not limited to, monitoring results, review of operating and maintenance procedures and records, and inspection of the relevant equipment.

[A.A.C. R18-2-B1302.D.1 and A.A.C. R18-2-331.A.3.e]
[Material permit conditions are identified by italics and underline]

4. Monitoring Requirements

a. *Except during periods of systems breakdown, repairs, maintenance, out-of-control periods, calibration checks, and zero and span adjustments, the Permittee shall install, calibrate*, maintain, and operate *CEMS for continuously monitoring and recording SO_2 concentrations and stack gas volumetric flow rates at the following locations accordance with the requirements in Condition IX.C of this Attachment.*

[A.A.C. R18-2-1302.E1 and 2]

(1) The exit of the acid plant;

(2) The exit of the secondary hood particulate control device after the High Surface Area (HSA) lime injection system;

(3) The exit of the flash furnace particulate control device after the HSA lime injection system;

(4) The tertiary ventilation system prior to mixing with any other exhaust streams; and

(5) The anode furnace baghouse stack prior to mixing with any other exhaust streams.

b. If the Permittee can demonstrate to the Director that measurement of stack gas volumetric flow rate in the outlet of any particular SO_2 control equipment would yield inaccurate results or would be technologically infeasible, the Director may allow measurement of the flow rate at an alternative sampling point.

[A.A.C. R18-2-1302.E.4]

c. The Permittee may petition the Department to substitute annual stack testing for the tertiary ventilation or the anode furnace baghouse stack SO_2 CEMS if the Permittee demonstrates, for a period of two years, that either CEMS contribute(s) less than five percent individually of the total sulfur dioxide emissions. The Department must determine the demonstration adequate to approve the petition. Annual stack testing shall use EPA Methods 1, 4, and 6C in 40 CFR 60 Appendix A or an alternate method approved by the Department and EPA Region IX. Annual stack testing shall commence no later than the one year after the date the continuous emission monitoring system was removed. The Permittee shall submit a

test protocol to the Department at least 30 days in advance of testing. The protocol shall provide for three or more 24-hour runs unless the Permittee justifies a different period and the Department approves such different period. Reports of testing shall be submitted to the Department no later than 60 days after testing or 30 days after receipt, whichever is later. The report shall provide an emissions rate, in the form of a pound per hour or pound per unit of production factor that shall be used in the compliance demonstration. Except as provided herein, the Permittee shall otherwise comply with A.A.C. R18-2-312 in conducting such testing.

[A.A.C. R18-2-1302.E.6]

5. Compliance Requirements

a. Compliance with Emission Limit in Condition III.E.2.a

(1) No later than 180 days after CRP startup, the Permittee shall demonstrate compliance with SO_2 emission limits in Condition III.E.2.a in accordance with following:

[Conditions XVI.C.1.a of Permit 60647, A.A.C. R18-2-306.A.3.c]

(a) The Permittee shall calculate and record daily total SO_2 emissions from acid plant tail gas, secondary hood baghouse, vent gas baghouse and the tertiary capture system streams based on CEMS.

(b) At the end of each day, the Permittee shall calculate and record daily and 365-day rolling total of SO_2 emissions from the acid plant tail gas, secondary hood baghouse vent gas baghouse and the tertiary ventilation system streams to demonstrate compliance with the emission limit in Condition III.E.2.a.

b. Compliance with Emission Limit in Condition III.E.2.b

For purposes of determining compliance the Permittee shall calculate emissions for each operating day as follows. The Permittee shall include periods of startup, shutdown, malfunction, or other upset conditions when determining compliance with the emission limit

[A.A.C. R18-2-B1302.F.1 and 4]

(1) Sum the hourly pounds of SO_2 vented to each uncontrolled shutdown ventilation flue and through each monitoring point listed in Condition III.E.4.a for the current operating day and the preceding 13-operating days to calculate the total pounds of SO_2 emissions over the 14-operating day averaging period, as applicable.

(2) Divide the total amount of SO_2 emissions calculated from Condition III.E.5.b(1) by 336 to calculate the 14-operating day average SO_2 emissions.

(3) If the calculation in Condition III.E.5.b(1) exceeds 1069.1 pounds per hour, then the Permittee shall sum the hourly

pounds of SO_2 vented to each uncontrolled shutdown ventilation flue and through each monitoring point listed in Condition III.E.4.a for each hour of the current operating day and each hour of the preceding 13-operating days to ascertain if any hour exceeded 1,518 pounds per hour.

c. The Permittee shall demonstrate compliance with the limit in Condition III.E.2.c in accordance with the following. The Permittee shall include periods of startup, shutdown, malfunction, or other upset conditions when determining compliance with the emission limit.

[A.A.C. R18-2-B1302.F.4 and 5]

(1) The Permittee shall utilize SO_2 CEMS to determine the SO_2 concentrations on a dry basis. The sampling time for each run shall be 6 hours. Six-hour average sulfur dioxide concentrations shall be calculated and recorded daily for the four consecutive 6-hour periods of each operating day. Each six-hour average shall be determined as the arithmetic mean of the appropriate six contiguous one-hour average sulfur dioxide concentrations provided by the continuous monitoring system The monitoring system drift during the run may not exceed 2 percent of the span value.

[40 CFR 60.165(c) and 60.166(b)(2)]

(2) For the purpose of reports required under 40 CFR §60.7(c), periods of excess emissions that shall be reported are defined as all six-hour periods during which the average emissions of sulfur dioxide, as measured by the CEMS exceed the level of the standard. The Director will not consider emissions in excess of the level of the standard for less than or equal to 1.5 percent of the six-hour periods during the quarter as indicative of a potential violation of 40 CFR §60.11(d) provided the affected facility, including air pollution control equipment, is maintained and operated in a manner consistent with good air pollution control practice for minimizing emissions during these periods. Emissions in excess of the level of the standard during periods of startup, shutdown, and malfunction are not to be included within the 1.5 percent.

[40 CFR 60.165(d)]

6. Recordkeeping Requirements

[A.A.C. R18-2-B1302.G]

a. The Permittee shall maintain a record of each operation and maintenance plan required in Attachment “B”.

b. The Permittee shall maintain the following records for at least five years:

(1) All measurements from the continuous monitoring system, including the date, place, and time of sampling or measurement; parameters sampled or measured; and results. All measurements will be calculated daily.

(2) All records of quality assurance and quality control activities for emissions measuring systems.

(3) All records of calibration checks, adjustments, maintenance, and repairs conducted on the continuous monitoring systems; including records of all compliance calculations.

(4) All records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of concentrate drying, smelting, converting, anode refining and casting emission units; any malfunction of the associated air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative or not operating correctly.

(5) All records of planned and unplanned shutdown ventilation flue utilization events and calculations used to determine emissions from shutdown ventilation flue utilization events if the Permittee chooses to use the alternative compliance determination method.

(6) All records of major maintenance activities and inspections conducted on emission units, capture system, air pollution control equipment, and CEMS, including those set forth in the operations and maintenance plan.

(7) All records of operating days and production records required for calculations.

(8) All records of fugitive emissions studies and study protocols conducted in accordance with A.A.C. R 18-2, Appendix 14.

(9) Records of reports and notifications required under Condition III.E.7.

7. Reporting Requirements

[A.A.C. R18-2-B1302.H]

a. The Permittee shall notify the Director in writing at least 30 days in advance of the start of relative accuracy test audit (RATA) procedures performed on the continuous monitoring systems.

b. Within 30 days after the end of each calendar quarter, the Permittee shall submit a data assessment report to the Director in accordance with 40 CFR Part 60, Appendix F for the continuous monitoring systems.

c. The Permittee shall submit an excess emissions and monitoring systems performance report or summary report form in accordance with 40 CFR § 60.7(c) to the Director quarterly for the SO_2 CEMS. Excess emissions means any 14-operating day average as calculated in Condition III.E.5.b in excess of the emission limit in Condition III.E.2.b, any period in which the capture and control system was operating outside of its parameters specified in the capture system and control device operation and

maintenance plan. For any 14-operating day period exceeding 1069.1 pounds per hour that the Permittee claims does not exceed the limit in Condition III.E.2.b because all hours in the operating period are below 1,518 pounds per hour, the Permittee shall submit the CEMS data for each hour during that period. All reports shall be postmarked by the 30th day following the end of each calendar quarter time period.

[R18-2-B1302.H.3]

d. The Permittee shall provide the following to the Director:

(1) The Permittee shall notify the Director of commencement of construction of any equipment necessary to comply with the operational or emission limits.

(2) The Permittee shall submit semiannual progress reports on construction of any such equipment postmarked by July 30 for the preceding January-June period and January 30 for the preceding July-December period.

(3) The Permittee shall submit notification of initial startup of any such equipment within 15 business days of such startup.

[A.A.C R18-2-B1302.H.4]

8. Permit Shield

Compliance with the Conditions under this Subsection shall be deemed compliance with Conditions XVI.C.1.a and c of Permit 60647, A.A.C. R18-2-B1302, 40 CFR 60.163(a), 60.165 (b), (c) and 60.166(b)(2).

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

F. Lead

***Note**: Until A.A.C. R18-2-B1301 (Limits on lead Emissions from the Hayden Smelter) is approved by EPA, all the requirements from A.A.C. R18-2-B1301 in this Subsection are State Enforceable only.*

1. Applicability

a. The requirements under A.A.C. R18-2-B1301 shall become applicable on the earlier of July 1, 2018 or 180 days after completion of all project improvements authorized by Significant Permit Revision No. 60647.

b. The requirements under A.A.C. R18-2-B1301.01, except otherwise provided, shall become applicable on December 1, 2018.

[A.A.C. R18-2-B1301.01.A.2]

2. Definitions

[A.A.C. R18-2-B1301.B and B1301.01.B]

a. "Anode furnace baghouse stack" means the dedicated stack that vents controlled off-gases from the anode furnaces to the Main Stack.

b. "Capture system" means the collection of components used to capture gases and fumes released from one or more emission units, and to convey

the captured gases and fumes to one or more control devices or a stack. A capture system may include, but is not limited to, the following components as applicable to a given capture system design: duct intake devices, hoods, enclosures, ductwork, dampers, manifolds, plenums, and fans.

c. "Control device" means a piece of equipment used to clean and remove pollutants from gases and fumes released from one or more emission units that would otherwise be released to the atmosphere. Control devices may include, but are not limited to, baghouses, Electrostatic Precipitators (ESPs), and sulfuric acid plants.

d. "Main Stack" means the center and annular portions of the 1,000-foot stack, which vents controlled off-gases from the INCO flash furnace, the converters, and anode furnaces and also vents exhaust from the tertiary hoods.

e. "Smelting process-related fugitive lead emissions" means uncaptured and/or uncontrolled lead emissions that are released into the atmosphere from smelting copper in the INCO flash furnace, converters, and anode furnaces.

f. "Lead-bearing fugitive dust" means uncaptured and/or uncontrolled particulate matter containing lead that is entrained in the ambient air and is caused by activities, including, but not limited to, the movement of soil, vehicles, equipment, and wind.

g. "Non-smelting process sources" means sources of leadbearing fugitive dust that are not part of the hot metal process, which includes smelting in the INCO flash furnace, converting, and anode refining and casting. Non-smelting process sources include storage, handling, and unloading of concentrate, uncrushed reverts, crushed reverts, and bedding material; acid plant scrubber blowdown solids; and paved and unpaved roads.

3. Compliance Schedule

[A.A.C. R18-2-B1301.01.E.3]

a. Implementation of chemical dust suppression for unpaved roads -Within 30 days of Administrator approval of application intensity and schedules in Fugitive Dust Plan under CD CV-15-02206-PHX-DLR.

b. Implementation of wind fences for materials piles (uncrushed reverts, reverts crushing and crushed reverts, bedding materials, and concentrate) - Within 120 days of Administrator approval of the Fugitive Dust Plan or the date of completion in the approved Fugitive Dust Plan, whichever is later.

c. Implementation of water sprays for materials piles (uncrushed reverts, reverts crushing and crushed reverts, bedding materials, and concentrate) - Within 120 days of Administrator approval of the Fugitive Dust Plan or the date of completion in the approved Fugitive Dust Plan, whichever is later.

d. Implementation of new primary, secondary, and tertiary hooding systems for converter aisle for purposes of complying with requirements in R18-2-B1301 - July 1, 2018

e. Implementation of new ventilation system for matte tapping and slag skimming for flash furnace for purposes of complying with requirements in R18-2-B1301 - July 1, 2018.

4. Emission Limitation

a. *Upon CRP startup, the Permittee shall not exceed the combined lead emissions limit from the acid plant tail gas, secondary hood baghouse, vent gas baghouse and tertiary ventilation system gas streams of 2.9 tons per year on 12-month rolling total basis*.

[Condition XVI.C.3.a of SPR 60647 and A.A.C. R18-2-331.A.3.a]
[Material permit conditions are identified by italics and underline]

b. No later than July 1, 2018 or 180 days after completion of all project improvements authorized by Significant Permit Revision No. 60647, the Permittee shall not exceed 0.683 pounds of lead per hour from the Main Stack.

[A.A.C. R18-2-B1301.C]

c. Opacity from lead-bearing fugitive dust emissions shall not exceed 20 percent from any part of the facility at any time. Opacity shall be determined by using 40 CFR 60, Appendix A, Reference Method 9, except for unpaved roads, in which opacity shall be determined pursuant to R18-2-B1301(D)(10)(c).

[A.A.C. R18-2-B1301.01.D.7]

5. Air Pollution Control Requirements

a. At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, maintain and operate smelter processes and associated emission capture and/or control equipment in a manner consistent with good air pollution control practices for minimizing lead emissions. Determination of whether acceptable operating and maintenance procedures are being used shall be based on all information available to the Department and EPA Region IX, which may include, but is not limited to, monitoring results, review of operating and maintenance procedures and records, and inspection of the relevant equipment.

[A.A.C. R18-2-B1301.D.1]

b. At all times, the Permittee shall operate and maintain all non-smelting process sources, including all associated air pollution control equipment, control measures, and monitoring equipment, in a manner consistent with good air pollution control practices for minimizing lead-bearing fugitive dust, and in accordance with the fugitive dust plan, and performance and housekeeping requirements. A determination of whether acceptable operating and maintenance procedures are being used shall be based on all available information to the Department and EPA Region IX, which may include, but is not limited to, monitoring results, review of operating and maintenance procedures and records, review of fugitive dust plans, and

inspection of the relevant equipment.

[A.A.C. R18-2-B1301.01.C.1]

c. Emissions from the anode furnace baghouse stack shall be routed to the Main Stack.

[A.A.C. R18-2-B1301.D.3]

6. Performance Test Requirements

a. No later than 180 days after CRP startup, the Permittee shall conduct an initial performance test on the acid plant tail gas, secondary hood baghouse, vent gas baghouse and tertiary ventilation system gas streams for lead emissions.

[Condition XVI.C.3.b of SPR 60647, A.A.C. R18-2-312 and A.A.C. R18-2-306.A.3.c]

b. No later than 180 calendar days after completion of the CRP improvements authorized by Significant Permit Revision No. 60647, the Permittee shall conduct initial performance tests on the following:

[A.A.C. R18-2-B1301.E.1]

(1) The gas stream exiting the anode furnaces baghouse prior to mixing with other gas streams routed to the Main Stack.

(2) The gas stream exiting the acid plant at a location prior to mixing with other gas streams routed to the Main Stack.

(3) The gas stream exiting the secondary baghouse at a location prior to mixing with other gas streams routed to the Main Stack.

(4) The gas stream collected by the tertiary hooding at a location prior to mixing with other gas streams routed to the Main Stack.

(5) The gas stream exiting the vent gas baghouse at a location prior to mixing with other gas streams routed to the Main Stack.

c. The Permittee shall conduct subsequent performance tests on the gas streams specified in Conditions III.F.6.a and III.F.6.b at least annually.

[Permit 60647 Condition XVI.C.3.a, A.A.C. R18-2-312 and A.A.C. R18-2-B1301.E.2]

d. The Performance tests shall be conducted in accordance with 40 CFR 60, Appendix A, Reference Method 29.

[Permit 60647 Condition XVI.C.3.b, A.A.C. R18-2-312 and A.A.C. R18-2-B1301.E.3]

e. At least 30 calendar days prior to conducting a performance test, the Permittee shall submit a test plan, in accordance with A.A.C. R18-2-312(B) and the Arizona Testing Manual, to the Department for approval. The test plan must include the following:

[A.A.C. R18-2-B1301.E.4]

(1) Test duration;

(2) Test location(s);

(3) Test method(s), including those for test method performance audits conducted in accordance with g below; and

(4) Source operation and other parameters that may affect the test result.

f. The Permittee may use alternative or equivalent performance test methods as defined in 40 CFR § 60.2 when approved by the Department and EPA Region IX, as applicable, prior to the test.

[A.A.C. R18-2-B1301.E.5]

g. The Permittee shall include a test method performance audit during every performance test in accordance with 40 CFR § 60.8(g).

[A.A.C. R18-2-B1301.E.6]

7. Compliance Requirements

a. No later than 180 days from CRP startup, the Permittee shall demonstrate compliance with lead emission limits in Condition III.F.4.a above in accordance with following:

[Condition XVI.C.3.c of SPR 60647, A.A.C. R18-2-306.A.3.c]

(1) The Permittee shall calculate lead emissions in pounds per hour in the acid plant tail gas, secondary hood baghouse, vent gas baghouse and tertiary ventilation streams based on the most recent performance test in Condition III.F.6.

(2) The Permittee shall maintain records of hours of operation of the each stream in Condition III.F.6.b. If any emission unit associated with a stream operates during a calendar hour, it will constitute an operating hour. If no emission unit associated with a stream operates during a calendar hour, it will not constitute an operating hour.

(3) The Permittee shall calculate and record monthly lead emissions for the acid plant tail gas, secondary hood baghouse, vent gas baghouse and tertiary ventilation streams based on the hourly emissions calculated in Condition III.F.7.a(1) above and the monthly operating hours for each stream recorded in Condition III.F.7.a(2).

(4) At the end of each month, the Permittee shall calculate and record rolling 12-month total of combined lead emissions from the acid plant tail gas, secondary hood baghouse, vent gas baghouse and tertiary ventilation streams based on the monthly emissions calculated in Condition III.F.7.a(3) above to demonstrate compliance with the emission limit in Condition III.F.4.a.

b. For purposes of determining compliance with the Main Stack emission limit in Condition III.F.4.b, the Permittee shall calculate the combined lead

emissions in pounds per hour from the gas streams identified in Condition III.F.6.b based on the most recent performance tests conducted in accordance with Condition III.F.6. The Permittee shall include periods of startup, shutdown, malfunction, or other upset conditions when determining compliance with the emission limit.

[A.A.C. R18-2-B1301.F.1 and 3]

c. Opacity Monitoring Requirements

(1) In the event ongoing visible emissions at a non-smelting process source covered by the lead fugitive dust plan are observed, Reference Method 9-certified observer shall promptly evaluate the emissions and conduct opacity monitoring in accordance with Condition I.D of Attachment "B".

[A.A.C. R18-2-B1301.01.D.7.b]

(2) A Reference Method 9-certified observer shall conduct a weekly visible emissions survey of all non-smelting process sources covered by the lead fugitive dust plan and perform a Reference Method 9 reading in accordance with Condition X.B.3 of Attachment "B" for any plumes that on an instantaneous basis appear to exceed 15 percent opacity.

[A.A.C. R18-2-B1301.01.D.7.c]

(3) The Permittee shall not allow visible emissions from unpaved roads to exceed 20 percent opacity and shall not allow silt loading equal to or greater than 0.33 oz/ft^2. However, if silt loading is equal to or greater than 0.33 oz/ft^2, then the Permittee shall allow the average percent silt content to exceed 6 percent. Compliance with these requirements shall be determined by the test methods described in Appendix 15.

[A.A.C. R18-2-B1301.01.D.10]

(4) For any non-smelting process source that produces visible emissions that appear to exceed 15 percent opacity, the Permittee shall perform an analysis of the root cause, and implement a strategy designed to prevent, to the extent feasible, the ongoing recurrence of the source of visible emissions. Within 14 days of completion of its analysis, if appropriate, the Permittee shall modify the fugitive dust plan for any changes identified from the analysis differing from the current provisions of the fugitive dust plan.

[A.A.C. R18-2-B1301.01.D.8.a]

d. At any time that the Permittee becomes aware that provisions of the fugitive dust plan and/or performance and housekeeping provisions required by this Section are not being met, the Permittee shall take prompt action to return to compliance, which may include modifications to monitoring, recordkeeping, and reporting requirements in the fugitive dust plan. This includes, but is not limited to, the actions in A.A.C. R18-2-B1301.01.D.8.b.

[A.A.C. R18-2-B1301.01.D.8.b]

8. Recordkeeping Requirements

The Permittee shall maintain the following records for at least five years and keep on-site for at least two years:

[A.A.C. R18-2-B1301.G and 1301.01.H]

a. All records of performance tests, test plans, and audits required by Condition III.F.6.

b. All records of major maintenance activities and inspections conducted on emission units, capture systems, monitoring devices, and air pollution control equipment, including those set forth in the operations and maintenance plan.

c. All records of compliance calculations required by Conditions III.F.7.a and b.

d. All records of fugitive emission studies and study protocols conducted in accordance with A.A.C. R18-2, Appendix 14.

e. All records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of concentrate drying, smelting, converting, anode refining, and casting emission units; and any malfunction of the associated air pollution control equipment that is inoperative or not operating correctly.

f. All records of reports and notifications required by Condition III.F.9.

g. All records required under A.A.C. R18-2-B1301.01.H.

9. Reporting Requirements

a. The Permittee shall comply with the following requirements:

[A.A.C. R18-2-B1301.H]

(1) Notification of commencement of construction of any equipment necessary to comply with the operational or emission limits.

(2) Semiannual progress reports on construction of any such equipment postmarked by July 30 for the preceding January-June period and January 30 for the preceding July- December period.

(3) Notification of initial startup of any such equipment within 15 business days of such startup.

(4) Whenever the Permittee becomes aware of any exceedance of the emission limit set forth in Condition III.F.4 the Permittee shall notify the Department orally or by electronic or facsimile transmission as soon as practicable, but no later than two business days after the Permittee first knew of the exceedance.

(5) Reports from performance testing conducted pursuant to Condition III.F.6 shall be submitted to the Department within 60 calendar days of completion of the performance test. The reports shall be submitted in accordance with the Arizona Testing Manual and A.A.C. R18-2-312(A).

b. Within 30 days after the end of each calendar-year quarter, the Permittee shall submit a quarterly report to the Department for the preceding quarter that shall include all the reporting requirements specified in A.A.C. R18-2-B1301.01.I.

[A.A.C. R18-2-B1301.01.I]

10. Permit Shield

Compliance with the Conditions under this Subsection shall be deemed compliance with Condition XVI.C.3.a, b and c of SPR 60647; A.A.C. R18-2-B1301 and B1301.01.

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

IV. CONCENTRATE DRYERS/FLASH FURNACE MATTE TAPPING OPERATIONS

A. PM and Opacity

1. Emission Limits

a. The Permittee shall not cause to be discharged to the atmosphere from the dryer vent any gases that contain total PM in excess of 50 mg/dscm. Emissions in excess of the emission limit during periods of startup, shutdown, and malfunction shall not be considered a violation of the applicable emission limit.

[40 CFR 60.162(a), 40 CFR 63.1444(a)(1) and CD CV-15-02206-PHX-DLR 19]

b. For each new copper concentrate dryer that the Permittee may choose to install, the Permittee shall not cause to be discharged to the atmosphere from the dryer vent any gases that contain total particulate matter in excess of 23 mg/dscm.

[40 CFR 63.1444(a)(2), CD CV-15-02206-PHX-DLR 19]

c. Gases discharged from the Vent Gas Baghouse shall not contain total particulate matter in excess of 23 mg per dscm.

[40 CFR 63.14444(b)(2)(1), CD CV-15-02206-PHX-DLR 19]

d. PM Emission Limits Monitored with PM CEMS.

(1) Upon installation and certification of PM CEMS, compliance with the emission limits in Conditions IV.A.1.a, b and c above shall be determined on the basis of an eight (8) hour rolling average limit, including periods of startup, shutdown, and malfunction.

[CD CV-15-02206-PHX-DLR 19a]

(2) If during the first three (3) years of operation of any certified PM CEMS, the Permittee believes that, despite proper design and installation of control equipment and best efforts at

operation and maintenance, inherent process variability precludes compliance with a PM emission limit on an 8-hour rolling average basis at one or more of the exhaust streams, at any time after the first three (3) years of operation, the Permittee may submit to EPA a demonstration supporting this conclusion and may request a longer averaging period, not to exceed 24 hours.

[CD CV-15-02206-PHX-DLR 21]

e. *At all times except for periods of startup, shutdown, and malfunction as defined in 40 CFR §60.2, the Permittee shall not cause to be discharged into the atmosphere from any dryer any visible emissions that exhibit greater than 20 percent opacity*. Opacity readings of portions of plumes, which contain condensed, uncombined water vapor, shall not be used for purposes of determining compliance with the opacity standard.

[40 CFR 60.164(a), A.A.C. R18-2-331.A.3.f]
[Material permit conditions are indicated by italics and underline]

f. The Permittee shall not discharge or cause the discharge of particulate matter into the atmosphere in excess of the hourly rate shown in the following table for the process weight rate identified for such source:

[40 CFR 52.126(b)]

Process Weight Rate	Emission Rate
50	0.36
100	0.55
500	1.53
1,000	2.25
5,000	6.34
10,000	9.73
20,000	14.99
60,000	29.60
80,000	31.19
120,000	33.28
160,000	34.85
200,000	36.11
400,000	40.35
1,000,000	46.72

2. Air Pollution Control Requirements

The Permittee shall install and operate a baghouse designed to handle the maximum potential volumetric flow of gas from the copper concentrate dryers and smelting flash furnace matte tapping and slag skimming operations and rated to perform with an outlet loading value between 0.002 grains per standard cubic foot (~4 mg/Nm^3) and 0.005 grains per standard cubic foot (~11 mg/Nm^3).

[CD CV-15-02206-PHX-DLR 13, A.A.C. R18-2-331.A.3.d and e]
[Material permit conditions are indicated by italics and underline]

3. Monitoring, Recordkeeping and Reporting Requirements

a. Opacity Monitoring Requirements

(1) The Permittee shall operate Continuous Opacity Monitoring System (COMS) installed at the outlet of the Vent Gas Baghouse stream to monitor and record the opacity of gases discharged into the atmosphere from the dryers. The span of this system shall be set at 80 to 100 percent opacity. The COMS shall be installed in accordance with Condition IX.A.
[40 CFR 60.165(b)(1)]

(2) Permittee shall evaluate opacity measurements from the vent gas baghouse COMS on a 24-hour rolling average excluding periods of startup, shutdown, and malfunction. If the 24-hour rolling average opacity exceeds 15 percent, Permittee shall initiate investigation of the relevant controls or equipment within 24 hours of the first discovery of the high opacity incident and, if necessary, take corrective action as soon as practicable to adjust or repair the controls or equipment to reduce the opacity average to below the 15 percent level.
[Condition II.D.3 of Permit 1000042, A.A.C. R18-2-306.A.3.c]

(3) Opacity excess emissions are defined as any six-minute period during which the average opacity, as measured by the COMS as in Condition IV.A.3.a(1) exceeds the 20 percent opacity standard, as specified in Condition IV.A.1.e.
[40 CFR 60.165(d)(1) and A.A.C. R18-2-306.A.3.c]

b. PM Continuous Monitoring System (CEMS) Requirements

(1) *No later than May 1, 2018, The Permittee shall install, certify*, operate and maintain *PM CEMS in accordance with the requirements in Condition IX.B on the gas stream exiting the Vent Gas Baghouse at a location prior to mixing with other gas streams that are routed to the main stack*.
[CD CV-15-02206-PHX-DLR 14.e]

(2) Should the Permittee choose to stop routing emissions from one or more copper concentrate dryers or the tapping emissions capture system to the Vent Gas Baghouse, no later than the date of rerouting, the Permittee shall install a PM CEMS in accordance with the requirements in Condition IX.B on such gas stream post applicable PM controls, such as the current dryer baghouse, but pre-mixing with any other gas streams.
[CD CV-15-02206-PHX-DLR 20]

4. Compliance Requirements

a. Prior to installation and certification of PM CEMS, compliance with Vent Gas Baghouse PM Emission Limit shall be determined using the test methods in Condition IV.A.5.c.
[40 CFR 63.1453, CD CV-15-02206-PHX-DLR 19, 20]

b. Upon installation and certification of PM CEMS,

(1) Compliance shall be determined on the basis of an eight (8)

hour rolling average limit, including periods of startup, shutdown, and malfunction; or

[CD CV-15-02206-PHX-DLR 19a, 20a]

(2) If PM CEMS certification fails for this gas stream, upon EPA approval, the Permittee shall begin complying with an alternative PM monitoring plan.

[CD CV-15-02206-PHX-DLR 19b, 20b]

5. Testing Requirements

a. The Permittee shall determine compliance with the dryer particulate matter standard of 0.022 gr/dscf in Condition IV.A.1.a, using EPA Reference Method 5 testing annually for the vent gas baghouse exit to determine the particulate matter concentration. The sampling time and sample volume for each run shall be at least 60 minutes and 0.85 dscm (30 dscf).

[40 CFR 60.166(b)(1)]

b. The Permittee shall perform an annual opacity observation of emissions from the flash furnace, converters, and Nos. 1 and 2 fluid bed dryers in accordance with EPA Reference Method 9 to determine compliance with the visible emission standard of 20 percent opacity.

[40 CFR 60.166(b)(3)]

c. Prior to installation and certification of PM CEMS, the Permittee shall conduct performance test in accordance with 40 C.F.R. § 63.1450(a). The performance test shall be performed at least once each three hundred sixty-five (365) days.

[40 CFR 63.1453(a)(1), CD CV-15-02206-PHX-DLR 19, 20]

d. Performance testing, if required, for the limit in Condition IV.A.1.f shall be conducted in accordance with the procedures in 40 C.F.R. § 52.126(b)(5).

[40 CFR 52.126(b)(5)]

6. Permit Shield

Compliance with the Conditions under this Subsection shall be deemed compliance with 40 CFR 52.126(b), 40 CFR 60.162(a), 164(a), 165(b)(1) & (d)(1), and166(b)(1); 40 CFR 63.1444(a)(1) & (2) and 1453; and CD CV-15-02206-PHX-DLR 13, 19, 20 and 21.

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

B. Sulfur Dioxide (SO_2)

1. Emission Limits

a. Except as provided in Condition IV.B.1.b below, upon installation and operation of the Vent Gas Baghouse, at all times that SO_2 emissions are routed to the baghouse, the Permittee shall inject High-Surface-Area (HSA) Hydrated Lime to reduce SO_2 emissions by at least 50 percent based on a 365-day rolling average, for all SO_2 emissions routed to the Vent Gas Baghouse. Commencing no later than 365 days after the installation and operation of the Vent Gas Baghouse, the Permittee shall demonstrate

compliance with the SO_2 reduction requirement in accordance with Condition IV.B.3.

[Condition XVI.C.1.b of Permit 60647 and CD CV-15-02206-PHX-DLR 11.b]

b. If during the first three (3) years after monitoring control efficiency achieved through injection of High-Surface-Area Hydrated Lime, the Permittee believes that despite design, installation, operation, and maintenance of controls to minimize emissions to the greatest extent practicable, ~~finds~~ that it is technically infeasible to achieve a fifty (50) percent control efficiency through injection of High-Surface-Area Hydrated Lime for gases routed to the vent gas baghouse despite design, installation, operation and maintenance of controls to minimize emissions to the greatest extent practicable, the Permittee may submit to EPA a demonstration supporting this conclusion and may request a lower control efficiency limit, not to be less than forty (40) percent control efficiency. The requirements for this application and procedure for revision are set forth in paragraph 11.c of the CD. The Permittee shall, prior to submission of any such demonstration, employ a third-party consultant with experience in similar dry lime scrubbing applications to recommend equipment and/or operational enhancements to achieve the 50% control efficiency target. EPA may grant or deny the Permittee's request in whole or in part, subject to the dispute resolution provisions of the CD. If EPA approves the Permittee's demonstration, such lower control efficiency limit(s) shall be deemed to have replaced the 50% control efficiency limit(s) during the time during which achievement was of the 50% control efficiency limit was infeasible (including any period of time that occurred prior to submittal of the demonstration, during the pendency of EPA's review of the Permittee's demonstration, and during the pendency of any dispute resolution under the CD.

[CD CV-15-02206-PHX-DLR 11.c]

2. Monitoring, Recordkeeping and Reporting Requirements

a. *Prior to operation of the Vent Gas Baghouse, the Permittee shall install, certify, calibrate*, maintain, and operate *an SO_2 CEMS both upstream of the lime injection point and at the outlet of the Vent Gas Baghouse in accordance with Condition IX.C of this Attachment.*

[CD CV-15-02206-PHX-DLR 11.b, A.A.C. R18-2-331.A.3.c]
[Material permit conditions are indicated by italics and underline]

b. After three (3) years of monitoring in accordance with the requirements of Condition a above, the Permittee may submit to EPA a request for an alternative monitoring plan for one or more control efficiency requirements. Such request shall contain a detailed proposal that describes an alternative monitoring plan and demonstrates how such plan: 1) will ensure continuous compliance with the control efficiency requirement(s); 2) identifies the indicator(s) of performance, measurement techniques, monitoring frequency, and the averaging time for the alternative monitoring procedure as referenced in 40 C.F.R. § 63.8(f)(4); and 3) complies with all relevant EPA regulations and guidance. EPA may grant or deny the request in whole or in part.

[CD CV-15-02206-PHX-DLR 11.d]

3. Compliance Requirements

No later than three-hundred-sixty-five (365) days after installation and operation of the Vent Gas Baghouse, the Permittee shall demonstrate compliance, and thereafter continuously comply, with a control efficiency requirement of at least 50 percent, based on a 365-day rolling average, for all SO_2 emissions routed to the Vent Gas Baghouse. Compliance with the 50 percent control efficiency requirement in Condition IV.B.1.a shall be demonstrated by summing the hourly pounds of SO_2 exiting the Vent Gas Baghouse for the current calendar day and the preceding three-hundred-sixty-four (364) calendar days, as measured by the SO_2 CEMS on the outlet of the Vent Gas Baghouse, and then dividing that value by the sum of the hourly pounds of SO_2 routed to the Vent Gas Baghouse for the current calendar day and the preceding three-hundred-sixty-four (364) calendar days, as measured by the SO_2 CEMS upstream of the lime injection point. The value obtained shall then be subtracted from one and the difference multiplied by one hundred to calculate the 365-day rolling SO_2 emission control efficiency achieved as a percentage.

[CD CV-15-02206-PHX-DLR 11.b]

4. Permit Shield

Compliance with the Conditions under this Subsection shall be deemed compliance with Condition XVI.C.1.b of Permit 60647 and CD CV-15-02206-PHX-DLR 11.b, 11.c and 11.d.

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

V. SLAG SCREENING & TRANSPORT

A. Applicability

This Section shall be applicable to the process of screening and transporting slag to the track hopper for reintroduction into the concentrator and loading slag for offsite shipment.

B. Operating Limitation

The amount of slag processed through the grizzly screen and loaded for offsite shipment shall not collectively exceed 1,063,000 tons per year.

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

C. Monitoring, Recordkeeping and Reporting Requirements

The Permittee shall maintain a record of the monthly and 12-month rolling totals of the material processed through the grizzly screen and loaded for offsite shipment.

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

D. Particulate Matter and Opacity

1. Emission Limits and Standards

a. The Permittee shall not discharge or cause the discharge of particulate matter into the atmosphere in excess of the hourly rate shown in the following table for the process weight rate identified for such source:

[40 CFR 52.126(b)]

Process Weight Rate	Emission Rate
50	0.36
100	0.55
500	1.53
1,000	2.25
5,000	6.34
10,000	9.73
20,000	14.99
60,000	29.60
80,000	31.19
120,000	33.28
160,000	34.85
200,000	36.11
400,000	40.35
1,000,000	46.72

b. The opacity of emissions from any of the equipment into the atmosphere shall not be greater than 20 percent as measured by EPA Reference Method 9.

[A.A.C. R18-2-715.D]

2. Air Pollution Control Requirements

a. The Permittee shall screen slag only within an area protected by a wind fence

[CD CV-15-02206-PHX-DLR B.18, A.A.C. R18-2-606]

b. The Permittee shall wet the surface of all slag to be screened or loaded for offsite shipment with sufficient moisture to minimize emissions to the greatest extent practicable.

[CD CV-15-02206-PHX-DLR B.19, B.27, A.A.C. R18-2-606]

c. The Permittee shall comply with the requirements applicable to slag screening and loose material piles as identified in the Fugitive Dust Plan.

[CD CV-15-02206-PHX-DLR B]

3. Monitoring, Recordkeeping and Reporting Requirements

The Permittee shall conduct visible emissions surveys as required by the Fugitive Dust Plan.

[CD CV-15-02206-PHX-DLR B.29, A.A.C. R18-2-306.A.3.c]

E. Permit Shield

Compliance with the conditions of this Section shall be deemed compliance with 40 C.F.R. § 52.126, A.A.C. R18-2-715 D, and CD CV-15-02206-PHX-DLR B.18, B.19, B.27, and B.29.

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

VI. FLASH FURNACE/CONVERTERS/ACID PLANT

A. Operating Limits

1. Blowing on any converter shall not exceed a maximum rate of 32,000 SCFM, averaged over 5 minutes of converter Blowing and rolled each minute.
[CD CV-15-02206-PHX-DLR 8]

2. No later than May 1, 2018, the Permittee shall permanently cease operation of the five (5) existing converters, and shall complete installation of two (2) of the three (3) new converters.

a. The Permittee shall not have more than one (1) converter Blowing at any given time.
[CD CV-15-02206-PHX-DLR 8.a]

b. Total combined Blowing time at all converters shall not exceed twenty-one (21) hours in any 24-hour period, rolled hourly, unless and until the Permittee accepts 100 ppm SO_2 emission limit from the acid plant on a 365-day rolling basis including periods of startup, shutdown, and malfunction, and as measured and recorded by SO_2 CEMS located on the main stack center.
[CD CV-15-02206-PHX-DLR 8.b]

B. PM and Opacity

1. Emission Limits

a. For each smelting furnace and converter primary hood, the Permittee shall not cause to be discharged to the atmosphere any process off-gas that contains non-sulfuric acid particulate matter in excess of 6.2 mg/dscm as measured using the test methods specified in 40 CFR §63.1450(b).
[40 CFR 63.1444(b)(1) & (5) and CD CV-15-02206-PHX-DLR 16]

b. The Permittee shall not cause to be discharged to the atmosphere from the secondary baghouse any gases that contain total PM in excess of 23 mg per dscm.
[40 CFR 63.1444(b)(6) and CD CV-15-02206-PHX-DLR 17]

c. PM Emission Limits Monitored with PM CEMS.

(1) Upon installation and certification of PM CEMS, compliance with the emission limits in Conditions VI.B.1.a and VI.B.1.b above shall be determined on the basis of an eight (8) hour rolling average limit, including periods of startup, shutdown, and malfunction.
[CD CV-15-02206-PHX-DLR 16.a and 17a]

(2) If during the first three (3) years of operation of any certified PM CEMS, the Permittee believes that, despite proper design and installation of control equipment and best efforts at operation and maintenance, inherent process variability precludes compliance with a PM emission limit on an 8-hour rolling average basis at one or more of the exhaust streams, at any time after the first three (3) years of operation, the Permittee may submit to EPA a demonstration supporting this conclusion and may request a longer averaging period, not to exceed 24 hours.

[CD CV-15-02206-PHX-DLR 21]

d. *At all times except for periods of startup, shutdown, and malfunction as defined in 40 CFR §60.2, the Permittee shall not cause to be discharged into the atmosphere any visible emissions from the acid plant which exhibit greater than 20 percent opacity*. Opacity readings of portions of plumes, which contain condensed, uncombined water vapor, shall not be used for purposes of determining compliance with the opacity standard.

[40 CFR 60.164 (b), A.A.C. R18-2-331.a.3.f]
[Material permit conditions are indicated by italics and underline]

e. The Permittee shall not discharge or cause the discharge of particulate matter into the atmosphere in excess of the hourly rate shown in the following table for the process weight rate identified for such source:

[40 CFR 52.126(b)]

Process Weight Rate	Emission Rate
50	0.36
100	0.55
500	1.53
1,000	2.25
5,000	6.34
10,000	9.73
20,000	14.99
60,000	29.60
80,000	31.19
120,000	33.28
160,000	34.85
200,000	36.11
400,000	40.35
1,000,000	46.72

2. Air Pollution Control Requirements

a. The Permittee shall route process off-gas from the smelting flash furnace to the acid plant.

[CD CV-15-02206-PHX-DLR 16]

b. All gases captured by a primary hood shall be routed to the acid plant.

[CD CV-15-02206-PHX-DLR 8]

c. *The Permittee shall operate* and maintain *the converter secondary hoods baghouse to minimize particulate emissions from the secondary hoods*.

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

d. *The Permittee shall operate the Inter-pass Absorption Tower and Final Absorption tower in the acid plant to control particulate matter emissions from the flash furnace, converters and converter secondary hood during Blowing operations*.

[SPR 60647, A.A.C. R18-2-306.A.3.c and A.A.C. R18-2-331.A.3.e]
[Material permit conditions are indicated by underline and italics]

3. Monitoring, Recordkeeping and Reporting Requirements

a. Opacity Monitoring Requirements

(1) The Permittee shall operate Continuous Opacity Monitoring System (COMS) installed at the outlet of Acid Plant Tail Gas stream to monitor and record the opacity of gases. The span of this system shall be set at 80 to 100 percent opacity. The COMS shall be installed in accordance with Condition IX.A.

[Permit 60647, Condition II.D.1.b. CD CV-15-02206-PHX-DLR 16]

(2) The Permittee shall evaluate opacity measurements on a 24-hour rolling average excluding periods of startup, shutdown, and malfunction. If the 24-hour rolling average opacity exceeds 15 percent, Permittee shall initiate investigation of the relevant controls or equipment within 24 hours of the first discovery of the high opacity incident and, if necessary, take corrective action as soon as practicable to adjust or repair the controls or equipment to reduce the opacity average to below the 15 percent level.

[Permit 1000042, A.A.C. R18-2-306.A.3.c]

b. PM Continuous Monitoring System (CEMS) Requirements

(1) *The Permittee shall install, certify*, operate and maintain *PM CEMS on the gas streams exiting the acid plant and the Secondary Hood Baghouse at a location prior to mixing with other gas streams that are routed to the main stack in accordance with Condition IX.B*.

[CD CV-15-02206-PHX-DLR 14.b and c]

(2) *No later than May 1, 2018, The Permittee shall install, certify*, operate and maintain *PM CEMS on the gas stream collected by the tertiary hooding at a location prior to mixing with other gas streams routed to the main stack in accordance with Condition IX.B.*

[CD CV-15-02206-PHX-DLR 14.d]

c. For Inter-pass Absorption Tower and Final Absorption tower in the acid plant to control particulate matter emissions,

(1) The Permittee shall select one or more operating parameters, as appropriate for the control device design that can be used as representative and reliable indicators of the control device operation.

[40 CFR 63.1444(h)(1)]

(2) The Permittee shall at all times monitor each of the selected parameters using an appropriate CPMS. *The Permittee shall install,* operate, and maintain *each CPMS according to the equipment manufacturer's specifications and the following requirements.*

[40 CFR 63.1452(d) A.A.C. R18-2-331.A.3.d]

(a) Locate the sensor(s) used for monitoring in or as close to a position that provides a representative measurement of the parameter being monitored.

(b) Determine the hourly average of all recorded readings.

(c) Conduct calibration and validation checks any time the sensor exceeds the manufacturer's specifications or install a new sensor.

(d) At least monthly, inspect all components for integrity, all electrical connections for continuity, and all mechanical connections for leakage.

(e) Record the results of each inspection, calibration, and validation check.

(3) The Permittee shall maintain the hourly average value for each of the selected parameters at or above the minimum level or at or below the maximum level, as appropriate for the selected parameter, established during the initial or subsequent performance test.

[40 CFR 63.1444(h)(2)]

4. Compliance Requirements

a. Prior to installation and certification of PM CEMS, compliance with PM Emission Limits shall be determined using the test methods in Condition VI.B.5.

[40 CFR 63.1453, CD CV-15-02206-PHX-DLR 16 and 17]

b. Upon installation and certification of PM CEMS,

[CD CV-15-02206-PHX-DLR 16 and 17]

(1) Compliance shall be determined on the basis of an eight (8) hour rolling average limit, including periods of startup, shutdown, and malfunction; or

(2) If PM CEMS certification fails for this gas stream, upon EPA approval, the Permittee shall begin complying with an alternative PM monitoring plan.

c. Compliance Requirements for Inter-pass Absorption Tower and Final Absorption tower

(1) The Permittee shall demonstrate initial compliance by:

[40 CFR 63.1451(g)]

(a) Selecting one or more operating parameters, as appropriate for the control device design that can be used as representative and reliable indicators of the control device operation.

(b) Establishing site-specific operating limits for each of the selected operating parameters based on values measured during the performance test and preparing written documentation according to the requirements in 40 CFR 63.1450(a)(5)(iv).

(c) Including in the notification of compliance status a copy of the written documentation to demonstrate compliance (2) above and certifying in the notification of compliance status that the Permittee shall operate the control device within the established operating limits.

(d) Submitting a notification of compliance status according to the requirements

(2) The Permittee shall demonstrate continuous compliance by:
[40 CFR 63.1453(e)]

(a) Maintaining the hourly average rate at levels no lower than those established during the initial or subsequent performance test;

(b) Inspecting and maintaining each CPMS operated according to 40 CFR §63.1452(d) and recording all information needed to document conformance with these requirements; and

(c) Collecting and reducing monitoring data for selected parameters according to 40 CFR §63.1452(e) and recording all information needed to document conformance with these requirements.

5. Performance Testing Requirements

a. Prior to installation and certification of PM CEMS, the Permittee shall conduct performance test on the secondary hood baghouse for total particulate matter in accordance with 40 C.F.R. § 63.1450(a). The performance test shall be performed at least once each three hundred sixty-five (365) days.
[40 CFR 63.1450(a), 1453(a)(1) and CD CV-15-02206-PHX-DLR 17]

b. Prior to installation and certification of PM CEMS, the Permittee shall conduct performance test on the acid plant tail gas for the non-sulfuric acid particulate matter emissions in accordance with 40 C.F.R. § 63.1450(b). The performance test shall be performed at least once each three hundred sixty-five (365) days.
[40 CFR 63.1450(b), 1453(b)(1) and CD CV-15-02206-PHX-DLR 16]

c. Performance testing, if required, for the limit in Condition VI.B.1.e shall be conducted in accordance with the procedures in 40 C.F.R. § 52.126(b)(5).
[40 CFR 52.126(b)(5)]

6. Permit Shield

Compliance with the Conditions under this Subsection shall be deemed compliance with on Condition Permit II.D.1.b of Permit, 60647, Permit 1000042, 40 CFR 52.126, 40 CFR 63.1444(b)(1),(5) and (6), 1444(h)(1) and (2), 63.1450(a) and (b), 1451(g), 1452(d), 1453(a), (b) and (e), 40 CFR 60.164 (b) and CD CV-15-02206-PHX-DLR 8, 14.b, 14.c, 16, 16.a, 17 and 17.a.

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

C. Sulfur dioxide SO_2

1. Emission Limits

a. The Permittee shall not cause to be discharged into the atmosphere from smelting furnace, or copper converter any gases which contain sulfur dioxide in excess of 0.065 percent by volume. For gases routed to the acid plant, the limit does not apply during periods of startup, shutdown, or malfunction. For gases routed to the Secondary Baghouse and tertiary hood, the limit shall apply at all times, including periods of startup, shutdown, and malfunction.

[40 CFR 60.163(a), CD CV-15-02206-PHX-DLR 10]

b. If the Permittee elects to accept a limit of 100 ppmv SO_2 from the gas exiting the acid plant on a 365-day rolling average basis, including periods of startup, shutdown, and malfunction, the Permittee shall provide EPA with written notice of the effective date of its election to accept the 100 ppmv SO_2 limit in the next quarterly report following such election.

[CD CV-15-02206-PHX-DLR 8.b]

c. No later than May 1, 2018 at all times that SO_2 emissions are routed to the Secondary Baghouse, the Permittee shall inject High-Surface-Area (HSA) Hydrated Lime to reduce SO_2 emissions by at least 50 percent based on a 365-day rolling average, for all SO_2 emissions routed to the Secondary Baghouse. Commencing no later than May 1, 2019, the Permittee shall demonstrate compliance with the SO_2 reduction requirement in accordance with Condition VI.C.4.d.

[Permit 60647, Cond. XVI.C.1.b, CD CV-15-02206-PHX-DLR 11.a]

d. If during the first three (3) years after monitoring control efficiency achieved through injection of High-Surface-Area Hydrated Lime, the Permittee believes that despite design, installation, operation, and maintenance of controls to minimize emissions to the greatest extent practicable, it is technically infeasible to achieve a fifty (50) percent control efficiency through injection of High-Surface-Area Hydrated Lime for gases routed to the vent gas baghouse despite design, installation, operation and maintenance of controls to minimize emissions to the greatest extent practicable, the Permittee may submit to EPA a demonstration supporting this conclusion and may request a lower control efficiency limit, not to be less than forty (40) percent control efficiency. The requirements for this application and procedure for revision are set forth in paragraph 11.c of the CD. The Permittee shall, prior to submission of any such demonstration, employ a third-party consultant with experience in similar dry lime scrubbing applications to recommend

equipment and/or operational enhancements to achieve the 50% control efficiency target. EPA may grant or deny the Permittee's request in whole or in part, subject to the dispute resolution provisions of the CD. If EPA approves the Permittee's demonstration, such lower control efficiency limit(s) shall be deemed to have replaced the 50% control efficiency limit(s) during the time during which achievement was of the 50% control efficiency limit was infeasible (including any period of time that occurred prior to submittal of the demonstration, during the pendency of EPA's review of the Permittee's demonstration, and during the pendency of any dispute resolution under the CD.

[CD CV-15-02206-PHX-DLR 11.c]

2. .Air Pollution Control Requirements

The Permittee shall operate the double contact sulfuric acid plant to comply with the flash furnace and converters sulfur dioxide standard of 0.065 percent by volume set forth in Condition VI.C.1. *At all times, including periods of startup, shutdown, and malfunction, Permittee shall, to the extent practicable, continue to operate* and maintain *the flash furnace, converters and the double contact sulfuric acid plant in a manner consistent with good air pollution control practice for minimizing sulfur dioxide emissions.*

[40 CFR 60.11(d) and 60.164(b), A.A.C. R18-2-331.A.3.e]
[Material Permit Conditions are indicated by italics and underline]

3. Monitoring, Recordkeeping and Reporting Requirements

a. *The Permittee shall install, certify*, maintain, and operate *SO_2 CEMS at the acid plant tail gas stream in accordance with requirements in Condition IX.C of this Attachment*.

[40 CFR 60.165(b) and A.A.C R18-2-331.A.3.c]
[Material Permit Conditions are indicated by italics and underline]

b. *Upon installation of the tertiary hooding system, the Permittee shall install, certify, calibrate*, maintain, and operate *SO_2 CEMS on the tertiary hood exhaust stream (prior to mixing with other gas streams in the stack) in accordance with requirements in Condition IX.C of this Attachment*.

[CD CV-15-02206-PHX-DLR 10.c and A.A.C R18-2-331.A.3.c]
[Material Permit Conditions are indicated by italics and underline]

c. *No later than May 1, 2018, the Permittee shall install, certify, calibrate,* maintain, and operate *SO_2 CEMS both upstream of the lime injection point and at the outlet of the Secondary Hood Baghouse in accordance with requirements in Condition IX.C of this Attachment*.

[CD CV-15-02206-PHX-DLR 11.a and A.A.C R18-2-331.A.3.c]
[Material Permit Conditions are indicated by italics and underline]

d. After three (3) years of monitoring in accordance with the requirements of Condition VI.C.3.c above, the Permittee may submit to EPA a request for an alternative monitoring plan for one or more control efficiency requirements. Such request shall contain a detailed proposal that describes an alternative monitoring plan and demonstrates how such plan: 1) will ensure continuous compliance with the control efficiency requirement(s); 2) identifies the indicator(s) of performance, measurement techniques, monitoring frequency, and the averaging time for the alternative

monitoring procedure as referenced in 40 C.F.R. § 63.8(f)(4); and 3) complies with all relevant EPA regulations and guidance. EPA may grant or deny the request in whole or in part.

[CD CV-15-02206-PHX-DLR 11.d]

4. Compliance Requirements

a. Compliance with the emission limit in Condition VI.C.1.a

(1) The Permittee shall demonstrate compliance with the emission limit in Condition VI.C.1.a by SO_2 CEMS located on the main stack center to determine the SO_2 concentrations on a dry basis. The sampling time for each run shall be 6 hours. Six-hour average sulfur dioxide concentrations shall be calculated and recorded daily for the four consecutive 6-hour periods of each operating day. Each six-hour average shall be determined as the arithmetic mean of the appropriate six contiguous one-hour average sulfur dioxide concentrations provided by the continuous monitoring system. The monitoring system drift during the run may not exceed 2 percent of the span value.

[CD CV-15-02206-PHX-DLR 10.a, 40 CFR 60.165(c) and 60.166(b)(2)]

(2) For the purpose of reports required under §60.7(c), periods of excess emissions that shall be reported are defined as all six-hour periods during which the average emissions of sulfur dioxide, as measured by the CEMS exceed the level of the standard. The Director will not consider emissions in excess of the level of the standard for less than or equal to 1.5 percent of the six-hour periods during the quarter as indicative of a potential violation of §60.11(d) provided the affected facility, including air pollution control equipment, is maintained and operated in a manner consistent with good air pollution control practice for minimizing emissions during these periods. Emissions in excess of the level of the standard during periods of startup, shutdown, and malfunction are not to be included within the 1.5 percent.

[40 CFR 60.165(d)]

b. For gases routed to the Secondary Hood Baghouse, compliance with this limit shall be demonstrated by a three (3) hour rolling average of data recorded by SO_2 CEMS located at the secondary hood baghouse outlet duct before it mixes with other gas streams in the main stack annulus.

[CD CV-15-02206-PHX-DLR 10.b]

c. Beginning no later than ninety (90) days after installation of the tertiary hooding system, compliance with this limit shall be demonstrated by a three (3) hour rolling average of data recorded by SO_2 CEMS located at the tertiary hood exhaust gas stream before it mixes with other gas streams in the main stack annulus.

[CD CV-15-02206-PHX-DLR 10.c]

d. No later than May 1, 2019, the Permittee shall demonstrate compliance

with Condition VI.C.1.c, and thereafter continuously comply, with a control efficiency requirement of at least 50 percent for the secondary hood baghouse HSA lime injection, based on a 365-day rolling average, for all SO_2 emissions routed to the Secondary Hood Baghouse. Compliance shall be demonstrated by summing the hourly pounds of SO_2 exiting the Secondary Hood Baghouse for the current calendar day and the preceding three-hundred-sixty-four (364) calendar days, as measured by the SO_2 CEMS on the outlet of the Secondary Hood Baghouse, and then dividing that value by the sum of the hourly pounds of SO_2 routed to the Secondary Hood Baghouse for the current calendar day and the preceding three-hundred-sixty-four (364) calendar days, as measured by the SO_2 CEMS upstream of the lime injection point. The value obtained shall then be subtracted from one and the difference multiplied by one hundred to calculate the 365-day rolling SO_2 emission control efficiency achieved as a percentage

[CD CV-15-02206-PHX-DLR 11.a]

e. Upon and after the Permittee's acceptance of 100 ppmv SO_2 emission limit from the gas exiting the acid plant, the Permittee shall demonstrate compliance with this limit on a 365-day rolling average basis, including periods of startup, shutdown, and malfunction, based on the SO_2 CEMS located on the acid plant tail gas stream.

[CD CV-15-02206-PHX-DLR 8.b]

5. Permit Shield

Compliance with the Conditions under this Subsection shall be deemed compliance with 40 CFR 60.163(a), 60.164(b), 60.165(c) and (d), 60.166(b)(2), Condition XVI.C.1.b of Permit 60647, and CD CV-15-02206-PHX-DLR 8.b, 10, 10.a, 10.c, 11.a, 11.c and 11.d .

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

VII. ANODE FURNACES/ANODE CASTING

A. PM and Opacity

1. Operation Limitation

a. The Permittee may operate any of the three anode furnaces under this section, provided only two furnaces can be in operation at a time.

[Permit 1000042]

b. Operate for purposes of Condition VII.A.1.a means holding or processing metal in the furnace, but does not include curing, preheating or sweating of refractory or transferring of metal from one furnace to another.

[Permit 60647, Condition IX.D.2]

2. Emission Limits

a. The Permittee shall not cause to be discharged into the atmosphere from the stack of the baghouse any gases which contain particulate matter in excess of 0.003 grain per standard cubic foot (gr/scf).

[Permit 54251]

b. The Permittee shall not cause, allow or permit to be emitted into the atmosphere any plume or effluent from the stack of anode furnaces baghouse, the opacity of which exceeds 20 percent, as determined by Reference Method 9 in 40 CFR 60, Appendix A.

[A.A.C. R18-2-715.D]

c. The Permittee shall not cause, allow or permit to be emitted into the atmosphere any plume or effluent from the anode launder burners and/or the anode ladle burners, the opacity of which exceeds 20 percent, as determined by Reference Method 9 in 40 CFR 60, Appendix A.

[A.A.C. R18-2-702.B.1]

d. The Permittee shall not cause to be discharged to the atmosphere from the anode furnace baghouse any gases that contain total PM in excess of 23 mg per dscm.

[CD CV-15-02206-PHX-DLR 18]

e. PM Emission Limits Monitored with PM CEMS.

(1) Upon installation and certification of PM CEMS, compliance with the emission limits in Conditions VII.A.2.d above shall be determined on the basis of an eight (8) hour rolling average limit, including periods of startup, shutdown, and malfunction.

[CD CV-15-02206-PHX-DLR 18.a]

(2) If during the first three (3) years of operation of any certified PM CEMS, the Permittee believes that, despite proper design and installation of control equipment and best efforts at operation and maintenance, inherent process variability precludes compliance with a PM emission limit on an 8-hour rolling average basis at one or more of the exhaust streams, at any time after the first three (3) years of operation, the Permittee may submit to EPA a demonstration supporting this conclusion and may request a longer averaging period, not to exceed 24 hours.

[CD CV-15-02206-PHX-DLR 21]

f. The Permittee shall not discharge or cause the discharge of particulate matter into the atmosphere in excess of the hourly rate shown in the following table for the process weight rate identified for such source:

[40 CFR 52.126(b)]

Process Weight Rate	Emission Rate
50	0.36
100	0.55
500	1.53
1,000	2.25
5,000	6.34
10,000	9.73
20,000	14.99
60,000	29.60
80,000	31.19

120,000	33.28
160,000	34.85
200,000	36.11
400,000	40.35
1,000,000	46.72

3. Air Pollution Control Requirements

a. At all times that any Anode Furnace is operating, its hood shall be engaged and continuously operating so as to collect and convey process off-gases to the Anode Furnaces Baghouse. "Operating" shall mean: holding or processing metal in the furnace, but does not include, curing, preheating or sweating of refractory, or transferring of metal from one furnace to another.

[CD CV-15-02206-PHX-DLR 18]

b. *The Permittee shall install, operate*, and maintain *a capture system for capturing the emissions from the anode furnaces and ducting them to the anode furnace baghouse.*

[Permit 54251, A.A.C. R18-2-331.A.3.c]
[Material permit conditions are indicated by italics and underline]

c. *At all times when any anode furnace in operation, the Permittee shall operate and maintain a baghouse to minimize particulate emissions*.

[Permit 54251, A.A.C. R18-2-331.A.3.c]
[Material permit conditions are indicated by italics and underline]

4. Monitoring, Recordkeeping and Reporting Requirements

a. *The Permittee shall install, certify*, operate and maintain *one beta attenuation PM CEMS and one light scatter PM CEMS on the stack exiting the Anode Furnaces Baghouse in accordance with Condition IX.B*.

[CD CV-15-02206-PHX-DLR 14.a]

b. *The Permittee shall calibrate*, maintain, and operate *a bag leak detection system (BLDS) for the anode furnace baghouse in a manner consistent with the manufacturer's written specifications and recommendation, and in accordance with Section X of this Attachment.*

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

c. A certified EPA Reference Method 9 observer shall conduct a bi-weekly survey of visible emissions emanating from the stack of the anode furnace baghouse stack as per the periodic opacity monitoring requirements specified in Condition I.D of Attachment "B".

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

5. Compliance Requirements

a. Prior to installation and certification of PM CEMS, compliance with the Emission Limit shall be determined using the test methods in Condition VII.A.6.

[CD CV-15-02206-PHX-DLR 18]

b. Upon installation and certification of PM CEMS,

[CD CV-15-02206-PHX-DLR 18]

(1) compliance shall be determined on the basis of an eight (8) hour rolling average limit, including periods of startup, shutdown, and malfunction; or

(2) If PM CEMS certification fails for this gas stream, upon EPA approval, the Permittee shall begin complying with an alternative PM monitoring plan.

6. Performance Testing Requirements

a. Prior to installation and certification of PM CEMS, the Permittee shall conduct performance test for total particulate matter in accordance with 40 C.F.R. § 63.1450(a). The performance test shall be performed at least once each three hundred sixty-five (365) days.

[CD CV-15-02206-PHX-DLR 18]

b. Performance testing, if required, for the limit in Condition VII.A.2.f shall be conducted in accordance with the procedures in 40 C.F.R. § 52.126(b)(5).

[40 CFR 52.126(b)(5)]

B. Permit Shield

Compliance with the Conditions under this Section shall be deemed compliance with 40 C.F.R. § 52.126, A.A.C. R18-2-702.B.1, 715 D, Permit 54251, Condition IX.D.2 of Permit 60647, Permit 1000042 and CD CV-15-02206-PHX-DLR 14.a, 18 and 21.

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

VIII. COMPLIANCE ASSURANCE MONITORING (CAM) REQUIREMENTS

A. Applicability

1. The Compliance Assurance Monitoring requirements under this Section shall be applicable only till the operation and certification of PM CEMS are established.

2. If at any time, the Permittee is permitted to discontinue use of PM CEMS, the Compliance Assurance Monitoring requirements shall again become applicable.

3. These requirements are applicable to following emission units

a. Acid Plant Tail Gas

b. Secondary Hood Baghouse

c. Vent Gas Baghouse

d. Anode Furnace Baghouse

B. Acid Plant Tail Gas

1. Primary Indicators

Circulating acid flow rates of the Interpass Absorption Tower and the Final Absorption Tower.

[SPR 60647, 40 CFR 64.3(a)(1)]

2. Monitoring Approach

[SPR 60647, 40 CFR 64.3(b)(4)(iii)]

a. At the time of annual performance test, the Permittee shall reestablish the average acid flow rates for the Interpass Absorption Tower and the Final Absorption Tower.

b. During flash furnace and converter operation, the Permittee shall maintain hourly average acid flow rates for the Interpass Absorption Tower and the Final Absorption Tower within ± 30% of the average acid flow rates recorded during the most recent performance tests.

c. Excursions of hourly average values beyond the established ranges above shall trigger an alarm. The data acquisition system (DAS) shall maintain record of all alarm events.

3. Quality Assurance/Quality Control (QA/QC)

[40 CFR 64.3(b)(3)]

The Interpass Absorption Tower and Final Absorption Tower acid flow meters will be calibrated, maintained, and operated in accordance with the manufacturer's specifications.

4. Excursion Determination

a. Hourly average acid flow rates outside of the ranges above shall be deemed an excursion. If there is an excursion on an hourly basis, the Permittee shall inspect the system for proper operation, and will make adjustments as necessary. Inspection and adjustments will be recorded in the operating log. At least once each operating day, Asarco personnel will review electronic log to ensure proper recording and alarms addressed.

[40 CFR 64.6(c)(2)]

b. The Permittee shall log in ink or electronic format and maintain a record of installation, calibration, maintenance, and operation of the monitoring systems in accordance with Section XIII, Attachment "A" of this permit. In the case of any excursion incident, the record shall include an identification of the date and time of all excursions, their cause, and an explanation of the corrective actions taken, if any.

[A.A.C. R18-2-306.A.3.c and 40 CFR §64.6]

c. An excursion does not constitute a deviation unless either the Permittee fails to initiate the investigation or take corrective action as required.

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

C. Secondary Hood Baghouse, Vent Gas Baghouse and Anode Furnace Baghouse

1. Primary Indicators

[40 CFR 64.3(a)(1)]

The alarm on the bag leak detection system shall be the primary indicator of the baghouse performance.

2. Monitoring Approach

[40 CFR 64.3(b)(4)(iii)]

The bag leak detection system signal shall be monitored continuously. The bag leak detection system shall be equipped with an alarm system that will sound automatically when an increase in relative particulate emissions over a preset level is detected. The alarm shall be located where it is easily heard by plant operating personnel and displayed on the operator's control system's computer screen.

3. Quality Assurance/Quality Control (QA/QC)

[40 CFR 64.3(b)(3)]

The bag leak detection system probes will be inspected once a month for dust buildup.

4. Excursion Determination

a. An excursion is defined as an alarm from the bag leak detection system. If an excursion is detected, then the Permittee shall initiate an investigation within 24 hours of the first discovery of the excursion incident and take corrective action as soon as practicable to adjust or repair to minimize possible exceedances of the particulate matter emissions.

[40 CFR 64.6(c)(2)]

b. The Permittee shall log in ink or electronic format and maintain a record of installation, calibration, maintenance, and operation of the monitoring systems in accordance with Section XIII, Attachment "A" of this permit. In the case of any excursion incident, the record shall include an identification of the date and time of all excursions, their cause, and an explanation of the corrective actions taken, if any.

[A.A.C. R18-2-306.A.3.c and 40 CFR §64.6]

c. An excursion does not constitute a deviation unless either the Permittee fails to initiate the investigation or take corrective action as required

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

D. In addition to above, the Permittee shall comply with all the General Compliance Assurance Monitoring Requirements under Section IV of Attachment "B".

[40 CFR 64]

IX. CONTINUOUS MONITORING SYSTEMS REQUIREMENTS

A. Requirements for Continuous Opacity Monitoring System (COMS)

1. The Permittee shall operate COMS installed

a. At the outlet of the Vent Gas Baghouse to monitor and record the opacity of gases discharged into the atmosphere from the dryers. The span of this system shall be set at 80 to 100 percent opacity.

[40 CFR 60.165(b)(1)]

b. At the outlet of the acid plant.

[CD CV-15-02206-PHX-DLR 16]

2. The COMS shall meet the following requirements:

a. The COMS shall comply with 40 CFR 60, Appendix B, "Performance Specification 1 - Specification and Test Procedures for Opacity Continuous Emission Monitoring Systems in Stationary Sources":

[40 CFR 60.13(c)]

b. Quality Assurance Requirements:

[40 CFR 60.13, A.A.C. R18-2-331.A.3.c]
[Material permit conditions are indicated by italics and underline]

(1) Calibration checks

The Permittee shall automatically, intrinsic to the opacity monitor, check the zero and upscale (span) calibration drifts at least once daily. For a particular COMS, the acceptable range of zero and upscale calibration materials is as defined in Performance Specification 1 in 40 CFR §60, Appendix B.

(2) Zero and span drift adjustments

(a) The zero and span shall, as a minimum, be adjusted whenever the 24-hr zero drift or 24-hr span drift exceeds 4% opacity.

(b) The system shall allow for the amount of excess zero and span drift measured at the 24-hour interval checks to be recorded and quantified.

(c) The optical surfaces exposed to the effluent gases shall be cleaned prior to performing the zero and span drift adjustments, except for systems using automatic zero adjustments.

(d) For systems using automatic zero adjustments, the optical surfaces shall be cleaned when the cumulative automatic zero compensation exceeds 4% opacity.

(3) System checks

The Permittee shall, as minimum procedures, apply a method for producing a simulated zero opacity condition and an upscale (span) opacity condition using a certified neutral density filter or other related technique to produce a known obscuration of the light beam. All procedures applied shall provide a system check of the analyzer internal optical surfaces and all electronic circuitry including the lamp and photo detector assembly.

(4) Minimum frequency of operation

Except during periods of system breakdowns, repairs, calibration checks, and zero and span adjustments, the COMS shall be in continuous operation and shall complete a minimum of one cycle of sampling and analyzing for each successive 10-second period and one cycle of data recording for each successive 6-minute period.

(5) Data reduction procedures

(a) The Permittee shall reduce all data from the COMS to 6-minute averages. Six-minute opacity averages shall be calculated from 36 or more data points equally spaced over each 6-minute period.

(b) Data recorded during periods of system breakdowns, repairs, calibration checks, and zero and span adjustments shall not be included in the data averages. An arithmetic or integrated average of all data may be used.

c. The Permittee shall evaluate opacity measurements from the COMS on a 24-hour rolling average excluding periods of startup, shutdown, and malfunction. If the 24-hour rolling average opacity exceeds 15 percent, the Permittee shall initiate investigation of the relevant controls or equipment within 24 hours of the first discovery of the high opacity incident and, if necessary, take corrective action as soon as practicable to adjust or repair the controls or equipment to reduce the opacity average to below the 15 percent level.

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

d. Permittee shall implement and follow the EPA approved plan detailing the corrective action triggers based on COMS readings on the exhaust stream from the acid plant.

[CD CV-15-02206-PHX-DLR 16]

B. Requirements for PM CEMS

1. The Permittee shall install the following PM CEMS as per the schedule below:

a. Acid Plant PM CEMS - The Permittee shall install, certify, maintain and operate one beta attenuation PM CEMS on the gas stream exiting the acid plant at a location prior to mixing with other gas streams that are routed to the main stack.

[CD CV-15-02206-PHX-DLR 14.b]

b. Secondary Hood Baghouse PM CEMS - The Permittee shall install, certify, maintain and operate one light scatter PM CEMS (in situ or extractive) on the gas stream exiting the Secondary Baghouse at a location prior to mixing with other gas streams in the stack.

[CD CV-15-02206-PHX-DLR 14.c]

c. Tertiary Hooding PM CEMS - No later than May 1, 2018, the Permittee shall install, certify, maintain and operate light scatter PM CEMS (in situ or extractive) on the gas stream collected by the tertiary hooding at a

location prior to mixing with other gas streams routed to the main stack.
[CD CV-15-02206-PHX-DLR 14.d]

d. Vent Gas Baghouse PM CEMS -No later than May 1, 2018, the Permittee shall install, certify, maintain and operate one beta attenuation PM CEMS and one light scatter PM CEMS (in situ or extractive) on the gas stream exiting the Vent Gas Baghouse at a location prior to mixing with other gas streams that are routed to the main stack.
[CD CV-15-02206-PHX-DLR 14.e]

e. Anode Furnaces Baghouse PM CEMS - the Permittee shall install, certify, maintain and operate one beta attenuation PM CEMS and one light scatter PM CEMS (in situ or extractive) on the stack exiting the Anode Furnaces Baghouse.
[CD CV-15-02206-PHX-DLR 14.a]

2. *The Permittee shall certify, calibrate,* maintain, and operate *PM CEMS according to EPA Performance Specification 11 in 40 C.F.R. Part 60, Appendix B (PS-11) and the quality assurance requirements of Procedure 2 in 40 C.F.R. Part 60, Appendix F.*
[CD CV-15-02206-PHX-DLR 14 A.A.C. R18-2-331.A.3.c]
[Material permit conditions are indicated by italics and underline]

3. Acid Plant, Secondary Baghouse and Tertiary Hooding PM CEMS requirements
[CD CV-15-02206-PHX-DLR 14.b, c and d]

a. Within 90 days from the date of installation, the Permittee shall conduct PS-11 testing in accordance with the Installation, Certification, and QA/QC Protocol to certify the CEMS. The Permittee shall submit the results of the PS-11 testing to EPA.

b. If the PM CEMS fails to certify, the Permittee shall conduct a second round of PS-11 testing in accordance with the revised Installation, Certification, and QA/QC Protocol within ninety (90) days from the date that EPA approves such revised Protocol.

4. Anode Furnaces Baghouse and Vent Gas Baghouse PM CEMS
[CD CV-15-02206-PHX-DLR 14.b, c and d]

a. Within 90 days from the date of installation, the Permittee shall conduct simultaneous PS-11 testing for both PM CEMS in accordance with the Installation, Certification, and QA/QC Protocol in order to certify both of the PM CEMS. The Permittee shall submit the results of the PS-11 testing for both of the PM CEMS to EPA.

b. If one or both of the PM CEMS fails to certify, the Permittee shall conduct a second round of PS-11 testing for such PM CEMS in accordance with the revised Installation, Certification, and QA/QC Protocol within ninety (90) days from the date that EPA approves such revised Protocol.

c. The Permittee shall submit the results of any second round PS-11 testing for both of the PM CEMS to EPA.

d. Following successful certification of both PM CEMS or completion of the

second round of PS-11 testing pursuant to the EPA-approved revised Protocol, the Permittee may discontinue operation of and remove one of the PM CEMS.

e. If both PM CEMS are certified, the Permittee may choose which PM CEMS shall be removed. If only one PM CEMS is certified, the Permittee may remove the PM CEMS that did not certify.

f. If neither PM CEMS is certified, the Permittee shall submit a proposal for EPA review and approval as to which PM CEMS should be removed and which shall remain in place as a CPMS, to be based on an analysis of data collected to-date from each PM CEMS and evaluation as to which PM CEMS will provide more useful data. Upon receiving EPA approval of the Permittee's proposal for PM CEMS removal, the Permittee may remove that PM CEMS.

5. Each PM CEMS shall comprise a continuous particle mass monitor to measure and record PM concentration, directly or indirectly, and gas stream flow rates on an hourly average basis. The Permittee shall maintain, in an electronic database, the hourly average emission values of all certified PM CEMS in milligrams per dry standard cubic meter (mg/dscm) and pounds per hour (lbs/hr).

[CD CV-15-02206-PHX-DLR 14]

6. If certification is unsuccessful for any PM CEMS, the Permittee shall consult with the PM CEMS vendor and EPA and then within sixty (60) days of completion of the PS-11 testing (including receipt of the results) that was conducted pursuant to the original Installation, Certification, and QA/QC Protocol for that PM CEMS submit a revised Installation, Certification, and QA/QC Protocol for that PM CEMS to EPA for review and approval.

[CD CV-15-02206-PHX-DLR 14]

7. In the event that no PM CEMS is successfully certified on any of the below-specified gas streams, the Permittee shall within ninety days of completion of the second round of PS-11 testing (including receipt of the results) submit an alternative PM monitoring plan for such gas stream(s) for review and approval by EPA that will propose a methodology for using data from the PM CEMS as continuous parametric monitoring systems (CPMS) and stack performance test data to ensure continuous compliance with the relevant PM emission limits. Upon approval by EPA, the Permittee shall continuously operate the PM CEMS as a CPMS consistent with the final PM monitoring plan.

[CD CV-15-02206-PHX-DLR 14]

8 . The Permittee shall use reasonable efforts to keep each PM CEMS running and producing data whenever any gas at that location is being exhausted to the atmosphere. The Permittee shall operate at least one PM CEMS for at least twelve (12) months on each of the exhaust streams specified in Condition IX.B.1 for monitoring of compliance with applicable emission limits.

[CD CV-15-02206-PHX-DLR 15]

a. After at least twelve (12) months of operation, the Permittee may attempt to demonstrate that it is infeasible to continue operating one or more of the PM CEMS. As part of such demonstration, the Permittee shall submit an alternative PM monitoring plan for review and approval by the EPA. The

plan shall explain the basis for stopping operation of each PM CEMS and propose an alternative monitoring plan for each affected exhaust stream.

b. Operation of a PM CEMS shall be considered infeasible if

(1) the PM CEMS cannot be kept in working condition for sufficient periods of time to produce reliable, adequate, or useful data consistent with the QA/QC protocol (including, without limitation, PS-11 and Procedure 2); or

(2) Recurring, chronic, or unusual equipment adjustment, servicing, or replacement needs in relation to other types of continuous emission monitors cannot be resolved through reasonable expenditures of resources.

c. If EPA determines that the PM CEMS operation is infeasible, the Permittee shall be entitled to discontinue operation of and remove that PM CEMS. At that point, the Permittee shall comply with the approved alternative PM monitoring plan.

C. Requirements for SO_2 Continuous Emission Monitoring System (CEMS)

1. The SO_2 CEMS shall meet 40 CFR Part 60, Appendix B, "Performance Specification 6 - Specifications and Test Procedures for Continuous Emission Rate Monitoring Systems in Stationary Sources." The CMS shall follow a quality assurance procedure equivalent to 40 CFR 60 Appendix F. The SO_2 CEMS installed and operated shall meet the quality assurance requirements of 40 CFR 60, Appendix F.

[A.A.C. R18-2-B1302.E.4.b, 40 CFR 60.13(a)]

2. All the stack gas volumetric flow rate monitoring systems shall meet 40 CFR Part 60, Appendix B, “Performance Specification 6- Specifications and Test Procedures for Continuous Emission Rate Monitoring Systems in Stationary Sources”.

3. For the purpose of the SO_2 CEMS performance evaluation, the reference method for Relative Accuracy Test procedure under 40 CFR Part 60, Appendix B, Performance Specification 2 shall be Method 6. For the performance evaluation, each concentration measurement shall be of one hour duration. The pollutant gas used to prepare the calibration gas mixtures required under Performance Specification 2 of appendix B, and for calibration checks under §60.13 (d), shall be sulfur dioxide. The span of the SO_2 CEMS shall be set at a sulfur dioxide concentration of 0.20 percent by volume.

[40 CFR 60.165(b)(2)(ii)]

4. Continuous monitoring means the taking and recording of at least one measurement of SO_2 concentration and stack gas flow rate reading from the effluent of each affected stack, outlet, or other approved measurement location in each 15-minute period when the associated process units are operating. Fifteen-minute periods start at the beginning of each clock hour, and run consecutively. All CEMS shall complete at least one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period.

[A.A.C. R18-2-B1302.E.3]

5. The Director shall approve the location of all sampling points for monitoring SO_2 concentration and stack gas volumetric flow rates and the appropriate span values for the monitoring systems. This approval shall be in writing before installation and operation of the measurement instruments.

[A.A.C. R18-2-B1302.E.5.d]

6. The measurement system is subject to the manufacturer's recommended zero adjustment and calibration procedures at least once per operating day unless the manufacturer specifies or recommends calibration at shorter intervals, in which case the Permittee shall follow those specifications or recommendations. The Permittee shall make available a record of these procedures that clearly shows instrument readings before and after zero adjustment and calibration.

[A.A.C. R18-2-B1302.E.5.e]

7. The SO_2 CEMS shall meet the following quality assurance requirements:

a. Calibration drift checks

Permittee shall check the zero (or low-level value between 0 and 20% of span value) and span (50 to 100 percent of span value) calibration drifts (CD) at least once daily in accordance with a written procedure prescribed by the manufacturer. The pollutant gas used to prepare the calibration gas mixtures for the calibration drift checks shall be sulfur dioxide.

[40 CFR 60.13(d)(1) and 165(b)(2)(ii)]

b. Zero and span drift adjustments

(1) The zero and span shall, as a minimum, be adjusted whenever the 24-hr zero drift or 24-hr span drift exceeds 100 ppm.

[40 CFR 60.13(d)(1)]

(2) The SO_2 CEMS shall allow for the amount of excess zero and span drift measured at the 24-hour interval checks to be recorded and quantified. If the data are automatically adjusted to the corrected calibration values (e.g., microprocessor control), Permittee shall program the SO_2 CEMS to record the unadjusted concentration measured in the calibration drift prior to resetting the calibration, if performed, or record the amount of adjustment.

[40 CFR 60.13(d)(1)]

c. The CEMS on the anode furnace baghouse stack and tertiary ventilation system shall complete an initial Relative Accuracy Test Audit (RATA) in accordance with Performance Specification 2. The RATA runs shall be tied to when the anode furnace is in use and, for the tertiary system, when the converters are in operation and/or material is being transferred in the converter aisle. Asarco may petition the Department and EPA Region IX on the criteria for subsequent RATAs for the anode furnace baghouse stack or tertiary ventilation system CEMS. The petition shall include submittal of CEMS data during the year.

[A.A.C. R18-2-B1302.E.5.a]

d. The Permittee shall notify the Director in writing at least 30 days in advance of the start of the RATA performed on the CEMS.

[A.A.C. R18-2-B1302.E.5.c]

e. Minimum frequency of operation

[40 CFR 60.13(e)(2)]

Except during periods of system breakdowns, repairs, calibration checks, and zero and span adjustments, the SO_2 CEMS shall be in continuous operation and shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period.

f. Data reduction procedures

[40 CFR 60.13(h)]

Permittee shall reduce all data from the SO_2 CEMS to 1-hour averages. The 1-hour averages shall be computed from four or more data points equally spaced over each 1-hour period. Data recorded during periods of continuous system breakdowns, repairs, calibration checks, and zero and span adjustments shall not be included in the data averages. An arithmetic or integrated average of all data may be used. The data may be recorded in reduced or non-reduced form (e.g., ppm pollutant and percent O_2 or ng/J of pollutant).

g. Data Substitution

[A.A.C. R18-2-B1302.F.2]

When no valid hour or hours of data have been recorded by a CEMS and the associated process unit is operating, the Permittee shall calculate substitute data for each such period according to the following procedures:

(1) For a missing data period less than or equal to 24 hours, substitute the average of the hourly SO_2 concentrations recorded by the system for the hour before and the hour after the missing data period.

(2) For a missing data period greater than 24 hours, substitute the greater of:

(a) The 90th percentile hourly SO_2 concentrations recorded by the system during the previous 720 quality-assured monitor operating hours.

(b) The average of the hourly SO_2 concentrations recorded by the system for the hour before and the four hours after the missing data period.

h. Excessive audit inaccuracy

If the SO_2 CEMS is out-of-control in terms of the excessive audit inaccuracy as defined in 40 CFR Part 60, Appendix F.5.2.3, the Permittee shall take necessary corrective action to eliminate the problem. Following corrective action, Permittee shall audit the CEMS with a relative accuracy test audit, cylinder gas audit, or relative accuracy audit, to determine if the

CEMS is operating within the performance specifications.
[40 CFR Part 60, Appendix F.5.2]

i. Repeated excessive inaccuracy

Whenever excessive inaccuracies as defined in 40 CFR Part 60, Appendix F.5.2.3 occur for two consecutive quarters, Permittee shall revise the written procedures, or modify or replace the SO_2 CEMS to correct the deficiency causing the repeated excessive inaccuracy.
[40 CFR Part 60, Appendix F.5.3]

j. The Permittee shall maintain on hand and ready for immediate installation sufficient spare parts or duplicate systems for the CEMS required by this Section to allow for the replacement within six hours of any monitoring equipment part that fails or malfunctions during operation.
[A.A.C. R18-2-1302.E.5.f]

D. Recordkeeping and Reporting Requirements

1. The Permittee shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility under this Condition; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is in operative.
[40 CFR 60.7(b) and A.A.C. R18-2-306.A.3.c]

2. The Permittee shall maintain a file of all measurements, including continuous monitoring system, monitoring device, and performance testing measurements; all continuous monitoring system performance evaluations; all continuous monitoring system or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices; and all other information required by this Condition recorded in a permanent form suitable for inspection. The file shall be retained for at least five years following the date of such measurements, maintenance, reports and records.
[40 CFR 60.7(f) and A.A.C. R18-2-306.A.4.b]

3. Semiannual SO_2 excess emissions and monitoring systems performance reports

a. The Permittee shall submit an Excess Emissions and Monitoring Systems Performance (EEMSP) report and/or a summary report form to the Department semiannually, unless the total duration of excess emissions for the reporting period is less than 1 percent of the total operating time for the reporting period and the continuous monitoring system downtime for the reporting period is less than 5 percent of the total operating time for the reporting period, in which case only the summary report form shall be submitted and the excess emissions report need not be submitted unless requested by the Department. All semiannual reports shall be postmarked by the 30th day following the end of each six-month period.
[40 CFR 60.7(c) and (d)]

b. The summary report form submission shall be in the format specified in 40 CFR 60.7(d). Each EEMSP report shall include the following information:
[40 CFR 60.7(d)]

(1) The magnitude of excess emissions computed, any conversion factor(s) used, and the date and time of commencement and completion of each time period of excess emissions. The process operating time during the reporting period.

(2) Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the affected facility. The nature and cause of any malfunction (if known), the corrective action taken or preventative measures adopted.

(3) The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments.

(4) When no excess emissions have occurred or the continuous monitoring system(s) have not been inoperative, repaired, or adjusted, such information shall be stated in the report.

X. REQUIREMENTS FOR BAGHOUSES

A. Monitoring Requirements

The Permittee shall install, calibrate, maintain, and continuously operate *a baghouse leak detection system for each baghouse located at the facility to monitor baghouse performance.*

[CD CV-15-02206-PHX-DLR 26.a, 40 CFR 63.1444(f)]

1. Baghouses must be operated such that no bag leak detection system alarms for more than five (5) percent of the total operating time in any six (6) month period. For purposes of determining compliance with this limit, a bag leak detection system shall be deemed to alarm from the time the alarm sounds until such time as all investigation and corrective actions have been completed such that the baghouse has been restored to performance below the alarm set point. A bag leak detection system shall also be deemed to alarm during all periods that the system was not in service or believed to be malfunctioning.

[CD CV-15-02206-PHX-DLR 26.a.v]

2. Each baghouse leak detection system must include a visual alarm that is displayed in a control room that is permanently staffed, on a twenty-four (24) hour basis.

[CD CV-15-02206-PHX-DLR 26.a.i]

3. The baghouse leak detection systems shall meet the following specifications and requirements:

[40 CFR 63.1452(b)(1), CD CV-15-02206-PHX-DLR 26.a.ii]

a. Each system must be certified by the manufacturer to be capable of detecting PM emissions at concentrations that can effectively discern any dysfunctional leaks of the baghouse and be capable of detecting emissions of particulate matter at concentrations of 10 milligrams per actual cubic meter (0.0044 grains per actual cubic foot) or less;

b. Each system sensor must provide output of relative PM loadings.

c. Each system must be equipped with an alarm system that will sound automatically when an increase in sensor output over a preset level that is protective of the applicable PM emissions limit is detected, and the alarm must be located where it is easily heard by plant operating personnel

d. Each system must be installed downstream of the baghouse; and

e. Each system must be installed, operated, calibrated, and maintained in accordance with the manufacturer's written specifications and recommendations, and the Calibration system must, at a minimum, consist of establishing the relative baseline output level by adjusting the sensitivity of the device and establishing the alarm set points and the alarm delay time.

f. Each system that works based on the triboelectric effect must be installed, operated, and maintained in a manner consistent with the guidance document "Fabric Filter Bag Leak Detection Guidance," EPA 454-R-98-015, September 1997.

g. Following the initial adjustment, the Permittee shall not adjust the sensitivity or range, averaging period, alarm set points, or alarm delay time, except as detailed in operation and maintenance plan. The Permittee shall not increase the sensitivity by more than 100 percent or decrease the sensitivity by more than 50 percent over a 365-day period unless a responsible official certifies, in writing, that the baghouse has been inspected and found to be in good operating condition.

h. Where multiple detectors are required, the system's instrumentation and alarm may be shared among detectors.

4. If a bag leak detection system alarm sounds, the Permittee must initiate investigation of the baghouse within one (1) hour of the first discovery of the alarm and, if necessary, take corrective action, in accordance with the written procedures specified in O&M Plan, as soon as practicable to adjust or repair the baghouse to minimize any increased PM emissions. The corrective actions may include, but not limited to

[40 CFR 63.1447(b)(4), CD CV-15-02206-PHX-DLR 26.a.iii]

a. Inspecting the baghouse for air leaks, torn or broken bags or filter media, or any other condition that may cause an increase in emissions.

b. Sealing off defective bags;

c. Replacing defective bags or otherwise repairing the control device;

d. Sealing off a defective baghouse compartment;

e. Cleaning the bag leak detection system probe, or otherwise repair the bag leak detection system; and

f. Shutting down the process producing the particulate emissions

5. The Permittee shall maintain in spare parts inventory no less than 5% of the total bags used in equipment as backup for timely replacement in case of failure.
[CD CV-15-02206-PHX-DLR 26.a.vi]

B. Inspection of Baghouses

1. The Permittee shall conduct baghouse inspections at their specified frequencies according to the following requirements:
[40 CFR 63.1452(b)(2)]

a. Monitor the pressure drop across each baghouse cell each day to ensure pressure drop is within the normal operating range identified in the manual.

b. Confirm that dust is being removed from hoppers through weekly visual inspections or other means of ensuring the proper functioning of removal mechanisms.

c. Check the compressed air supply for pulse-jet baghouses each day.

d. Monitor cleaning cycles to ensure proper operation using an appropriate methodology.

e. Check bag cleaning mechanisms for proper functioning through monthly visual inspection or equivalent means.

f. Make monthly visual checks of bag tension on reverse air and shaker-type baghouses to ensure that bags are not kinked (kneed or bent) or laying on their sides. The Permittee does not have to make this check for shaker-type baghouses using self-tensioning (spring-loaded) devices.

g. Confirm the physical integrity of the baghouse through quarterly visual inspections of the baghouse interior for air leaks.

h. Inspect fans for wear, material buildup, and corrosion through quarterly visual inspections, vibration detectors, or equivalent means.

2. The Permittee shall conduct weekly inspections of baghouses to ensure the equipment is functioning in accordance with the requirements of the Dust Plan.
[CD CV-15-02206-PHX-DLR B28.B.ii]

C. Recordkeeping Requirements

1. The Permittee must log in ink or electronic format and maintain a record of installation, Calibration, maintenance, and operation of the bag leak detection systems.
CD CV-15-02206-PHX-DLR 26.a.iv]

2. If a bag leak detection system alarm sounds, the records must include an identification of the dates, times, and durations of all bag leak detection alarms, their cause, and an explanation of the corrective actions taken, if any and the date on which corrective action was completed.

[CD CV-15-02206-PHX-DLR 26.a.iv, 40 CFR 63.1453(c)(2) and 1456(a)(6)]

3. The Permittee shall also record any dates, times, and durations when the bag leak detection system was not in service or believed to be malfunctioning.

[CD CV-15-02206-PHX-DLR 26.a.iv]

4. The Permittee shall maintain records of each inspection required by Condition X.B, recording all information needed to document conformance with these requirements. If the Permittee increases or decreases the sensitivity of the bag leak detection system beyond the limits specified in Condition X.A.3.g, the Permittee must include a copy of the required written certification by a responsible official in the next semiannual compliance report.

[40 CFR 63.1453(c)(3)]

XI. CONVERTERS ARSENIC CHARGING RATE MONITORING REQUIREMENTS

A. General Provisions

1. The requirements of this section apply to any copper converter under this permit where the total arsenic charging rate for the copper converter department averaged over a 1-year period is less than 75 kg/hr. At such time that the Permittee becomes aware of the 1-year period average total equal to or greater than 75 kg/hr, the Permittee shall submit an application for permit revision in accordance with Section XVI, Attachment "A".

40 CFR 61.172(a)]

2. Arsenic charging rate means the hourly rate at which arsenic is charged to the copper converters based on the arsenic content of the copper matte that is charged to the copper converters.

[40 CFR 61.171]

B. Monitoring Requirements

The Permittee shall determine the converter arsenic charging rate as follows:

1. Collect daily grab samples of copper matte charged to the copper converters.

[40 CFR 61.174(f)(1)]

2. Each calendar month, from the daily grab samples collected under Condition XI.B.1 above, put together a composite copper matte sample. Analyze the composite samples individually using Method 108A, 108B, or 108C to determine the weight percent of inorganic arsenic contained in each sample.

[40 CFR 61.174(f)(2)]

3. Calculate the converter arsenic charging rate once per month using the following equation:

[40 CFR 61.174(f)(3)]

$$Rc = \sum_{i=1}^{n} : \frac{(A_c \cdot W_{ci})}{100\ H_c}$$

R_c= Converter arsenic charging rate (kg/hour or pounds/hour).

A_c= Monthly average weight percent of arsenic in the copper matte charged during the month (%) as determined under Condition IX.B.2 above.

W_{ci}= Total weight of copper matte charged to a copper converter during the month (kg or pound).

H_c= Total number of hours the copper converter department was in operation during the month.

n= Number of copper converters in operation during the month.

4. Determine an annual arsenic charging rate for the copper converter department once per month by computing the arithmetic average of the 12 monthly converter arsenic charging rate values (R_c) for the preceding 12-month period.

[40 CFR 61.174(f)(4)]

C. Recordkeeping and Reporting Requirements

1. The Permittee shall maintain at the source for a period of at least 2 years and make available to the Director upon request the following records:

a. For all converters, a daily record of the amount of copper matte charged to the converters and total hours of operation.

[40 CFR 61.176(c)(1)]

b. For all converters, a monthly record of the weight percent of arsenic contained in the copper matte as determined under Condition IX.B.2.

[40 CFR 61.176(c)(2)]

c. For all converters, the monthly calculations of the average annual arsenic charging rate for the preceding 12-month period as determined under Condition XI.B.4.

[40 CFR 61.176(c)(3)]

2. The Permittee shall submit annually a written report to the Director that includes the monthly computations of the average annual converter arsenic charging rate as calculated under Condition X.B.4. The annual report shall be postmarked by the 30th day following the end of each calendar year.

[40 CFR 61.177(f)]

D. Permit Shield

Compliance with the conditions of this Section shall be deemed compliance with 40 CFR 61.171, 40 CFR 61.172(a), 40 CFR 61.174(f), 40 CFR 61.176(c)(1), 40 CFR 61.176(c)(2), 40 CFR 61.176(c)(3), and 40 CFR 61.177(f).

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

XII. BRICK CRUSHER

A. Applicability

This Section shall be applicable to equipment associated with the Brick Crusher identified in the Equipment List as applicable to this Section.

B. Operating Limitation

1. The amount of material processed in the brick crushing plant shall not exceed 42,000 tons per year.

[Condition 8 of Installation Permit No. 1215]

2. The Permittee shall conduct refractory brick crushing operations only within the current Refractory Crushing Area, the Smithco's revert crusher, or in a fully enclosed building whose emissions are vented through a particulate matter control device, such as a baghouse or a scrubber.

[CD CV-15-02206-PHX-DLR B.5.A]

3. The Permittee shall operate a baghouse with the brick crushing plant subject to the requirements of this section with rated efficiency no lower than 99%.

[Installation Permit 1215, Conditions 2 and 3]

4. Monitoring, Recordkeeping and Reporting Requirements

a. The Permittee shall record the date, hours of operation and process weight rate in tons-mass per hour to the brick crushing system.

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

b. The Permittee shall maintain a record of monthly and 12-month rolling total of the material processed in the brick crushing plant.

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

C. Particulate Matter and Opacity

1. Emission Limits and Standards

a. The Permittee shall not discharge or cause the discharge of particulate matter from the brick crusher into the atmosphere in excess of the hourly rate shown in the following table for the process weight rate identified for such source:

[40 CFR 52.126(b)]

Process Weight Rate	Emission Rate
50	0.36
100	0.55
500	1.53
1,000	2.25
5,000	6.34
10,000	9.73
20,000	14.99
60,000	29.60
80,000	31.19
120,000	33.28
160,000	34.85
200,000	36.11
400,000	40.35
1,000,000	46.72

b. The opacity of emissions from any of the equipment into the atmosphere

shall not be greater than 20 percent as measured by EPA Reference Method 9.

[A.A.C. R18-2-715.D]

2. Air Pollution Control Requirements

a. Brick crushing plant

(1) *The Permittee shall continue to operate* and maintain *the ventilation system and baghouse associated with the brick crushing plant in accordance with good air pollution control practices for minimizing particulate matter emissions to the greatest extent practicable*.

[Conditions 2 and 3 of Permit 1215, CD CV-15-02206-PHX-DLR B.5.B and A.A.C. R18-2-331.A.3.e]
[Material permit conditions are indicated by underline and italics]

(2) Particulates captured in the baghouses shall be handled and disposed in a manner which prevents re-entrainment into the atmosphere.

[Condition 5 of Installation Permit No. 1215]

(3) All conveyor transfer points shall be enclosed.

[Condition 6 of Installation Permit No. 1215]

(4) Spray bars shall be used at every dumping and conveyor transfer point, as necessary to minimize the particulate matter emissions.

[Condition 7 of Installation Permit No. 1215]

(5) The Permittee shall, at all times, comply with the requirements applicable to uncrushed brick handling, brick crushing operations, and storage piles for uncrushed as well as crushed brick as identified in the fugitive dust plan.

[CD CV-15-02206-PHX-DLR B.3 and 4]

3. Monitoring, Recordkeeping and Reporting Requirements

a. The Permittee shall conduct a bi-weekly (once in every 2 weeks) monitoring of visible emissions from the baghouse and all other affected facilities associated with the brick crushing plant as per the periodic opacity monitoring requirements specified in Condition I.D of Attachment "B".

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

b. The baseline opacity for the brick crushing plant shall be 5%, established via Method 9 evaluation on March 26, 2003.

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

(1) If the observer sees visible emissions from the revert crushing plant that on an instantaneous basis appear to exceed the baseline level, then the observer shall if practicable take a six-minute Method 9 observation of the plume.

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

(2) If the six-minute opacity of the plume exceeds the baseline level but is less than the opacity standard, the Permittee shall initiate corrective action, as necessary, to reduce opacity to or below the baseline level. The Permittee shall make a record of the location, date, and time of the test; the results of the Method 9 observation: and any corrective actions taken.

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

(3) If the six-minute opacity of the plume exceeds the opacity standard, then the Permittee shall adjust or repair the controls or equipment to reduce opacity to or below the baseline level; and report the event as an excess emission for opacity.

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

(4) If corrective actions fail to reduce opacity to or below the baseline level, the Permittee shall document all corrective action taken, and re-establish the baseline within 48 hours in accordance with Condition XII.C.3.b(5) below.

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

(5) If necessitated by the results of the opacity monitoring, the Permittee may reestablish the baseline opacity level. Reestablishment of the baseline shall be performed by conducting 3 certified Method 9 observations, and determining the average of the 3 observations. Within 30 days of reestablishing the baseline opacity, the Permittee shall report the results to the Director. The report shall also contain a description of the need for re-establishing the baseline.

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

4. Performance Testing Requirements

The Permittee shall determine compliance with the particulate matter standards set forth in Condition XII.C.1.a by conducting performance tests on the baghouse at least once during the permit term using EPA Reference Method 5 or 17 to determine the particulate matter concentration.

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

D. Permit Shield

Compliance with the conditions of this Section shall be deemed compliance with 40 C.F.R. § 52.126, A.A.C. R18-2-715 D, Conditions 2, 3, 5, 6 and 7 of Installation Permit No. 1215 and [CD CV-15-02206-PHX-DLR B.3, B.4 and B.5.b

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

XIII. MATERIAL HANDLING FACILITIES

A. Applicability

1. This Section shall be applicable to the equipment identified in the Equipment list as applicable to this Sections, and material handling operations associated with the following activities:

a. Concentrate storage, handling and unloading operations,

b. Bedding operations

c. Furnace and converter silica flux handling and storage operations

d. Flash furnace feed system

e. Converter dust handling operations

f. Acid plant scrubber blowdown drying system

g. Revert Screens

B. Particulate Matter and Opacity

1. Emission Limits and Standards

a. The Permittee shall not discharge or cause the discharge of particulate matter from any equipment into the atmosphere in excess of the hourly rate shown in the following table for the process weight rate identified for such source:

[40 CFR 52.126(b)]

Process Weight Rate	Emission Rate
50	0.36
100	0.55
500	1.53
1,000	2.25
5,000	6.34
10,000	9.73
20,000	14.99
60,000	29.60
80,000	31.19
120,000	33.28
160,000	34.85
200,000	36.11
400,000	40.35
1,000,000	46.72

b. The opacity of emissions from any of the equipment into the atmosphere shall not be greater than 20 percent as measured by EPA Reference Method 9.

[A.A.C. R18-2-715.D]

2. Air Pollution Control Requirements

a. *The Permittee shall continue to operate* and maintain *the silo vent baghouses in accordance with good air pollution control practices for minimizing particulate matter emissions*.

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

b. The Permittee shall, at all times, comply with the requirements applicable to Concentrate Storage, Handling, and Unloading Operations, bedding

operations, furnace/converter silica flux handling and storage operations, converter dust handling operations as identified in the fugitive dust plan.
[CD CV-15-02206-PHX-DLR B.6, 7, 8, 9 and 11]

3. Monitoring, Recordkeeping and Reporting Requirements

a. The Permittee shall conduct a bi-weekly (once in every 2 weeks) monitoring of visible emissions from silo vent baghouses as per the periodic opacity monitoring requirements specified in Condition I.D of Attachment "B".
[A.A.C. R18-2-306.A.3.c]

b. The Permittee shall conduct a bi-weekly (once in every 2 weeks) monitoring of visible emissions from all other affected facilities as per the periodic opacity monitoring requirements specified in Condition I.D of Attachment "B".
[A.A.C. R18-2-306.A.3.c]

C. Permit Shield

Compliance with the conditions of this Section shall be deemed compliance with 40 C.F.R. § 52.126, A.A.C. R18-2-715. D, and CD CV-15-02206-PHX-DLR B.6, 7, 8, 9 and 11.
[A.A.C. R18-2-325]

XIV. WET GAS CLEANING SYSTEM

A. Applicability

The requirements of this Section are applicable to the following equipment:

1. WGC Thickener
2. WGC Filter Press
3. WGC Filter Cake Dryer
4. WGC Filter Cake Packaging System

B. Particulate Matter and Opacity

1. Emissions Limitations and Standards

a. The Permittee shall not discharge or cause the discharge of particulate matter from the wet gas cleaning system into the atmosphere in excess of the hourly rate shown in the following table for the process weight rate identified for such source:
[40 CFR 52.126(b)]

Process Weight Rate	Emission Rate
50	0.36
100	0.55
500	1.53
1,000	2.25

5,000	6.34
10,000	9.73
20,000	14.99
60,000	29.60
80,000	31.19
120,000	33.28
160,000	34.85
200,000	36.11
400,000	40.35
1,000,000	46.72

b. The Permittee shall not cause, allow or permit to be emitted into the atmosphere any plume or effluent from wet gas cleaning system, the opacity of which exceeds 20 percent, as determined by Reference Method 9 in 40 CFR 60, Appendix A.

[A.A.C. R18-2-715.D]

2. Air Pollution Control Requirements

Emissions from the thickener, dryer and packaging system shall be vented through a packed gas cooling tower to minimize particulate emissions.

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

3. Monitoring, Recordkeeping, and Reporting Requirements

A certified EPA Reference Method 9 observer shall conduct a bi-weekly survey of visible emissions from the Wet Gas Cleaning equipment in accordance with Condition I.D of Attachment "B".

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

C. Permit Shield

Compliance with the terms of this Section shall be deemed compliance with A40 C.F.R. § 52.126, A.C. R18-2- 715.D.

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

ATTACHMENT "F": SULFUR DIOXIDE MULTI POINT ROLL BACK REQUIREMENTS

I. PROCESS SOURCES GOVERNED BY THE MULTI-POINT ROLLBACK RULE

A. General Provisions

1. Applicability

a. The requirements of this Attachment are applicable to total of sulfur dioxide emissions from smelter processing units and sulfur dioxide control and removal equipment, but not to uncaptured fugitive emissions or emissions due solely to the use of fuel for space heating or steam generation.

[A.A.C. R18-2-715.01.A]

b. This Attachment will remain effective as part of the federally approved SIP until EPA approves A.A.C. R18-2-715.I and A.A.C. R18-2-715.01V.

2. Definitions

a. An "operating day", for the purpose of this Section, means any day in which sulfur-containing feed is introduced into the smelting process.

[A.A.C. R18-2-715.01.J]

b. "Compliance period", for the purposes of this section, means the 365 calendar days immediately preceding the end of each day of the month being reported unless that period includes less than 300 operating days. In such case the number of days preceding the last day of the compliance period shall be increased until the compliance period contains 300 operating days.

[A.A.C. R18-2-715.01.J]

B. Emission Limitations and Standards

Except as provided in a consent decree or a delayed compliance order, the Permittee shall comply with the following emission limitations:

1. Annual average sulfur dioxide emissions

Annual average SO_2 emissions, as calculated under Condition I.D.6, shall not exceed 6,882 pounds per hour.

[A.A.C. R18-2-715.F.1.a]

2. Allowable sulfur dioxide emissions profile

The number of three-hour average emissions, as calculated under Condition I.D.6 shall not exceed n cumulative occurrences in excess of E, the emission level, shown in the Table 1 below in any compliance period:

[A.A.C. R18-2-715.F.1.b]

Table 1: Allowable SO_2 emissions profile

Occurrences, n	Emission Level, E (lbs/hr)	Occurrences, n	Emission Level, E (lbs/hr)
0	24,641	180	13,777
1	22,971	245	13,212
2	21,705	330	12,664
4	20,322	435	12,129
7	19,387	560	11,621
12	18,739	710	11,165
20	17,656	890	10,660
32	16,988	1100	10,205
48	16,358	1340	9,748
68	15,808	1610	9,319
94	15,090	1910	8,953
130	14,423	2240	8,556

3. Annual average fugitive sulfur dioxide emissions

   a. Annual average fugitive emissions, as calculated under Condition I.D.7 of this Attachment, shall not exceed 295 pounds per hour.

   [A.A.C. R18-2-715.G]

   b. The above emission limit applies to the total of uncaptured fugitive sulfur dioxide emissions from the smelter processing units and sulfur dioxide control and removal equipment, but not emissions due solely to the use of fuel for space heating or steam generation.

   [A.A.C. R18-2-715.01.T]

C. Air Pollution Control Requirements

The Permittee shall continue to maintain and *operate the following emission control equipment and other relevant facilities with good housekeeping and operational practices to ensure the maximum capture and control of fugitive SO_2 emissions from the converter building, furnace building, and/or anode building*:

[A.A.C. R18-2-306.01.A, -715.02.C, -2-331.A.3.e]
[Material permit conditions are indicated by italics and underline]

1. The vent gas baghouse (after CRP startup)
2. Flue systems;
3. Monsanto sulfuric acid plant;
4. Primary hoods for the converters;
5. Secondary hoods for the converters;
6. Secondary hoods baghouse for the converter building;
7. Furnace ventilation hoods;
8. Furnace wet gas handling system;

9. Tertiary hoods for the converters

D. Monitoring, Recordkeeping and Reporting Requirements

1. Sulfur Balance

As a means of determining total overall emissions, the Permittee shall perform material balances for sulfur in accordance with the procedures prescribed in Section II.

[A.A.C. R18-2-715.01.O]

2. *For purposes of determining compliance with the cumulative occurrence and emission limits contained in Conditions I.B.1 and I.B.2 , the Permittee shall install, calibrate,* maintain, and operate *measurement systems for continuously monitoring sulfur dioxide concentrations and stack gas volumetric flow rates of the following*:

A.A.C. R18-2-715.01.K, K.1 and K.2, A.A.C. R18-2-306.A.3.c, A.A.C. R-18-2-331.A.3.c]
[Material permit conditions are indicated by italics and underline]

a. *Converter secondary hoods and slag return hoods ventilation gas streams reporting to the annulus of the one-thousand-foot stack;*

b. *Flash furnace slag skimming and matte tapping hoods to the annulus of the one-thousand-foot stack;*

c. *Acid plant tail gas stream to the center of the one-thousand-foot stack; and*

d. *Tertiary ventilation system gas stream to the annulus of the one-thousand-foot stack.*

3. For purposes above, continuous monitoring means the taking and recording of at least one measurement of sulfur dioxide concentration and stack gas flow rate reading from the effluent of each affected stack, outlet or other approved measurement location in each 15-minute period. Fifteen-minute periods start at the beginning of each clock hour, and run consecutively. An hour of smelter emissions is continuously monitored if the emissions from all monitored stacks, outlets, or other approved measurement locations are measured for at least 45 minutes of any hour.

[A.A.C. R18-2-715.01.K.4]

4. The Permittee shall measure at least 95 percent of the hours during which emissions occurred in any month.

[A.A.C. R18-2-715.01.L]

5. The Permittee shall demonstrate that the continuous monitoring system meets all of the following requirements:

a. The sulfur dioxide continuous emission monitoring system installed and operated under this Section meets the requirements of 40 CFR §60, Appendix B, Performance Specification 6.

[A.A.C. R18-2-715.01.K.5.a]

b. The sulfur dioxide continuous emission monitoring system installed and operated under this Section meets the quality assurance requirements of

40 CFR 60, Appendix F.

[A.A.C. R18-2-715.01.K.5.b]

c. The Permittee shall notify the Director in writing at least 30 days in advance of the start of relative accuracy test audit (RATA) procedures performed on the continuous monitoring system.

[A.A.C. R18-2-715.01.K.5.c]

d. The Director shall approve the location of all sampling points for monitoring sulfur dioxide concentrations and stack gas volumetric flow rates in writing before installation and operation of measurement instruments.

[A.A.C. R18-2-715.01.K.5.d]

e. The measurement systems in use shall be subject to the manufacturer's recommended zero adjustment and calibration procedures at least once per 24-hour operating period unless the manufacturer specifies or recommends calibration at shorter intervals, in which case specifications or recommendations shall be followed. Records of these procedures shall be made available which clearly show instrument readings before and after zero adjustment and calibration.

[A.A.C. R18-2-715.01.K.5.e]

f. The Permittee shall maintain on hand and ready for immediate installation sufficient spare parts or duplicate systems for the continuous monitoring equipment required by this subsection to allow for the replacement within six hours of any monitoring equipment part which fails or malfunctions during operation.

[A.A.C. R18-2-715.01.N]

6. For purposes of determining compliance with the cumulative occurrence and emission limits contained in Conditions I.B.1 and I.B.2 of this Attachment, the annual average emissions and three-hour emissions shall be determined as follows:

a. The Permittee shall, at the end of each day, calculate annual average SO_2 emissions by averaging the SO_2 emissions for all hours measured during the compliance period, as defined in Condition I.A.2.b, ending on that day.

[A.A.C. R18-2-715.01.C.1]

b. The Permittee shall, at the end of each clock hour, calculate three-hour SO_2 emissions averages by averaging the hourly SO_2 emissions for the preceding three consecutive hours whenever each such hour was measured in accordance with the requirements under Condition I.D.2.

[A.A.C. R18-2-715.01.C.2]

c. The cumulative occurrence and emission level shall be determined using the sum total of sulfur dioxide emissions from the smelter processing units and sulfur dioxide control and removal equipment. The captured fugitive emissions shall be included as part of the total plant emissions, but not the uncaptured fugitive emissions and those emissions due solely to the use of fuel for space heating or steam generation.

[A.A.C. R18-2-715.01.A]

d. Periods of malfunction, startup, shutdown or other upset conditions shall be included in the determination.

[A.A.C. R18-2-715.01.B]

7. For purposes of determining compliance with the annual average fugitive emissions limit contained in Condition I.B.3, the Permittee shall calculate the annual average fugitive emissions at the end of the last day of each month by averaging the monthly emissions for the previous 12-month period ending that day. To determine monthly fugitive emissions, the Permittee shall perform material balances for sulfur in accordance with Section II of this Attachment.

[A.A.C. R18-2-715.01.T.1]

8. Violation Determination

For purposes of this Section, the following scenarios shall be considered violations of the cumulative occurrence and/or emission limits contained in Condition I.B:

a. An annual emissions average in excess of the allowable annual average emission limit in Condition I.B.1 shall be considered a violation if either:

(1) The annual average is greater than the annual average computed for the preceding day; or

[A.A.C. R18-2-715.01.C.1.a]

(2) The annual averages computed for the five preceding days all exceed the allowable annual average emission limit.

[A.A.C. R18-2-715.01.C.1.b]

b. A three-hour emissions average in excess of an emission level (E) will be considered to violate the associated cumulative occurrence limit (n) listed in Condition I.B.2, Table 1 of this Section if:

[A.A.C. R18-2-715.01.E]

(1) The number of all three-hour emissions averages calculated during the compliance period in excess of that emission level exceeds the cumulative occurrence limit associated with the emission level; and

(2) The average was calculated during the last operating day of the compliance period being reported.

c. A three-hour emissions average only violates the cumulative occurrence limit (n) of an emission level (E) on the day containing the last hour in the average.

[A.A.C. R18-2-715.01.F]

d. Multiple violations of a cumulative occurrence limit by different three-hour emissions averages containing any common hour constitute a single violation.

[A.A.C. R18-2-715.01.I]

e. Multiple violations of the same cumulative occurrence limit on the same day and violations of different cumulative occurrence limits on the same day constitutes a single violation.

[A.A.C. R18-2-715.01.G]

f. The violation of any cumulative occurrence limit and an annual average emission limit on the same day constitutes only a single violation.

[A.A.C. R18-2-715.01.H]

g. An annual emissions average in excess of the allowable annual average emission limit for uncaptured fugitives in Condition I.B.3 shall be considered a violation if the fugitive annual average computed at the end of each month exceeds the allowable annual average emission limit.

[A.A.C. R18-2-715.01.T.2]

h. Failure to measure any 12 consecutive hours of emissions in accordance Condition I.D.3 shall constitute a violation.

[A.A.C. R18-2-715.01.M]

9. Recordkeeping and Reporting Requirements

a. The Permittee shall maintain a record of all average hourly emissions measurements and calculated average monthly emissions required by this Section in accordance with the requirements specified in Section XIII of Attachment "A" of this permit.

[A.A.C. R18-2-715.01.P]

b. All of the following measurement results and calculated average monthly emissions shall be expressed as pounds per hour of sulfur dioxide and shall be summarized monthly and submitted to the Director within 20 days after the end of each month:

[A.A.C. R18-2-715.01.P]

(1) For all periods described in Condition I.D.6.a and I.D.6.b, the annual average emissions as calculated at the end of each day of the month;

(2) The total number of hourly periods during the month in which measurements were not taken and the reason for loss of measurement for each period;

(3) The number of three-hour emissions averages that exceeded each of the applicable emissions levels listed in Condition I.B.2 for the compliance periods ending on each day of the month being reported;

(4) The date on which a cumulative occurrence limit listed in Condition I.B.2 was exceeded if the exceedance occurred during the month being reported.

(5) For all periods described in Condition I.D.7, the annual average emissions as calculated at the end of the last day of

each month.

10. Emergency Shutdown Bypass Monitoring and Reporting Requirements

The Permittee shall install instrumentation to monitor each point in the facility where a means exists to bypass the sulfur removal equipment, to detect and record all periods that the bypass is in operation. The Permittee shall report to the Director, not later than the 15th day of each month, the recorded information required by this Section, including an explanation for the necessity of the use of the bypass.

[A.A.C. R18-2-715.01.Q]

E. Permit Shield

Compliance with the conditions of this Section shall be deemed compliance with A.A.C. R18-2-715.F.1, 715.G, 715.I, 715.01.A, 715.01.B, 715.01.C, 715.01.E, 715.01.F, 715.01.G, 715.01.H, 715.01.I, 715.01.J, 715.01.K, 715.01.L, 715.01.M, 715.01.N, 715.01.O, 715.01.P, 715.01.Q, 715.01.T, 715.01.V, 715.02.C and 1302.A.2

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

II. SULFUR BALANCE PROGRAM

Procedures for Utilizing the Sulfur Balance Method for Determining Sulfur Emissions

A. Determination of sulfur emissions for the smelter as a whole shall be subject to the following conditions:

1. The emissions sum shall apply to all process sulfur emitted into the ambient air from smelter processing units and sulfur control and removal equipment associated with the smelting process. The total monthly amount of sulfur emissions is equal to the weight of the total sulfur introduced into the smelting process in any calendar month minus the weight of all the sulfur removed from the smelting process streams in that month in any physical form. Removed sulfur shall include, but not be limited to, sulfur contained in slag, anodes, sulfuric acid, flue dust, precipitator dust, WPT filter cake, cone settler overflow (CSO), reverts and miscellaneous byproducts. All unaccounted for sulfur, including fugitive sulfur emissions, shall be considered as emissions to the ambient air.

2. Material balances for sulfur described in Condition II.A.1 above shall be obtained in accordance with the procedures listed in this Appendix which are equivalent to Appendix 8 to A.A.C. Title 18, Chapter 2.

3. Average daily emissions shall be determined by dividing the total monthly emissions by the number of operating days in the particular month.

B. Calculating input sulfur

Total sulfur input is the sum of the product of the weight of each sulfur bearing material introduced into the smelting process as calculated in Condition II.B.1 multiplied by the fraction of sulfur contained in that material as calculated in Condition II.B.2 plus the amount of sulfur contained in fuel utilized in the smelting process as calculated in Condition II.B.3.

1. Material weight

All sulfur bearing materials, other than fuels, introduced into the smelting process shall be weighed. Such weighing shall be subject to the following conditions:

a. Weight shall be determined on a belt scale, rail or truck scales, or other weighing device.

b. Weight shall be determined within an accuracy of ±5 percent.

c. All devices or scales used for weighing are to be calibrated to manufacturer's specifications. Scales shall be calibrated at least quarterly.

d. Sulfur bearing materials subject to being weighed shall include, but not be limited to, concentrate, reverts which are not part of the internal circulating load, precipitates and miscellaneous outside products. Materials such as limestone and silica flux which are mixed with a charge of sulfur bearing materials shall be weighed and reported.

2. Sulfur content

The sulfur content of all sulfur bearing materials introduced into the smelting process shall be calculated using the following steps:

a. Sampling – The procedure to be followed in sampling is dependent upon the input vehicles for the sulfur bearing material.

(1) Railcar – The Permittee shall collect a 5 to 15 pound sample from each railcar. Samples are to be taken from one to six points using an auger method, pipe method, or other equivalent method approved by the Director and the EPA Administrator. Samples shall be combined into lots from railcars delivering material from the same source.

(2) Truck – The Permittee shall collect a 5 to 15 pound sample from each truckload. Samples are to be taken from one to six points using an auger method, pipe method, or other equivalent method approved by the Director and the EPA Administrator. Samples shall be combined into lots from trucks delivering material from the same source. For fluxes, one truckload per day shall be sampled.

b. Sample preparation – each total sample shall be prepared for analysis in the following manner:

(1) If necessary, the sample shall be crushed to minus quarter inch particles.

(2) Each sample shall be thoroughly blended in a roto-cone blender or similar device.

(3) A blended composite sample shall be prepared based on individual sample weight and moisture. Material to be used

in the composite sample shall be cut with a sample scoop or knife and used to make a composite sample of a minimum of 1800 grams for each lot.

(4) Each dry composite sample shall be pulverized to a nominal minus 100 mesh using a roto-disc pulverizer or similar equipment and then blended in a roto-cone blender or similar equipment.

(5) A portion that is a minimum of 200 grams shall be cut from the composite sample for analysis.

c. Sample analysis

The sample shall be analyzed to determine sulfur content using LECO Sulfur Analyzer or equivalent method approved by the Director and the EPA Administrator. The accuracy of such an analysis shall be within a range of ±1 percent.

d. Sulfur determination

The sulfur content of all feed material treated per month shall be determined by month and physical inventories in conjunction with certified scales for bed contents. Physical inventory determines beginning and ending bed contents for each month and all bed contents processed during the month, together with inventory changes for secondaries. Based upon individual lot numbers for each material processed (i.e. concentrates, reverts, purchased secondaries, and fluxes) the composite analysis shall be used to determine sulfur input.

3. Fuel sulfur content

Sulfur in fuels used in the process shall be calculated by multiplying the amount of fuel delivered to the process by the fraction of sulfur in the fuel as reported to the Permittee by the fuel's supplier. The sulfur content determination shall be accurate to within ±5 percent.

C. Calculating removed sulfur

Total removed sulfur is the sum of the sulfur removed in each of the following products as determined by each process set forth below.

1. Furnace Slag

a. The weight of the slag shall be determined using a count of furnace slag ladles.

b. A sample shall be collected from each slag ladle during skimming operations and combined into a daily composite sample.

c. The sample shall be prepared and analyzed for sulfur. The sample shall be dried, pulverized using a roto-disc pulverizer or equivalent method approved by the Director, and a sample that is a minimum of 50 grams

shall be split out using a Jones Splitter, or equivalent method approved by the Director and the EPA Administrator.

d. The sample will be analyzed as in Condition II.B.2.c above.

2. Scrubber Blowdown

a. Scrubber blowdown shall be collected, thickened, filtered and dried in accordance with the requirements in Section XII of Attachment "D". An average truck payload weight shall be determined for all filter cake recycled onsite. When shipped, all railcars shall be weighed. The filter cake that is recycled onsite shall be stockpiled and sampled. For shipment offsite, all railcars shall be sampled. The sample shall be prepared and analyzed for sulfur and copper using the procedures in Conditions II.B.2.b and II.B.2.c above.

b. If filter cake is managed in a manner other than as set forth in Condition II.C.2.a above, it shall be quantified, sampled and analyzed pursuant to generally acceptable methods.

3. Strong Acids

a. An inventory of strong acids shall be taken daily. The inventory shall be adjusted by the amounts of acid shipped or otherwise transferred during that day.

b. The daily inventory shall be accurate to within ±5 percent.

c. Strong acid analysis both at the acid plant and the laboratory shall be performed with a sonic analyzer or equivalent method approved by the Director and the EPA Administrator. Samples shall be taken a minimum of 6 times per day to compare to the on-stream analyzers.

d. The product sample shall be sent to the laboratory for daily analysis.

4. Weak Acids

a. A weak acid sample that is a minimum of 100 ml shall be collected daily and combined in a sample container to form a composite sample that shall be analyzed monthly for sulfur content using the Barium Sulfate Gravimetric Method or equivalent method approved by the Director and the EPA Administrator.

b. Weak acid railcars shall be loaded to a mark (nominally 20,125 gallons) and the total volume shall be determined by the number of railcars shipped.

5. Sulfur in Copper production

a. The weight of copper produced shall be determined by weight of copper cast to an accuracy of ±5 percent.

b. The weight and number of castings shall be recorded.

c. Three samples per copper anode charge shall be obtained at the beginning, middle and end of each pour. A portion (approximately 1 gram) from each sample shall become part of a monthly composite that is analyzed for sulfur content using a LECO Sulfur Analyzer, or equivalent method approved by the Director and the EPA Administrator, with an induction furnace to volatilize the sulfur and measure the resultant compound using a titration method to an accuracy of within ±50 percent.

6. Materials in process

a. Total tonnage of materials in process shall be determined by physical inventory on the first day of each month.

b. A monthly change of in-process inventory shall be calculated for each material in process by taking the difference between the inventory from each material in process on the first day of the preceding month and multiplying that difference by the monthly composite sulfur assay for that material.

c. The change of monthly in-process inventory shall be accurate to within ±50 percent.

D. General Provisions

1. The processes and procedures specified in this Appendix shall be available for inspection, review and verification by the Department at all reasonable times.

2. The sulfur capture and/or monitoring equipment may be replaced or changed from time to time without a permit revision to the extent such changes comply with A.A.C. R18-2-317 (facility changes allowed without a permit revision).

3. All flow meters, density gauges, sonic sensors, pressure sensors, etc., used in determining the sulfur balance shall be calibrated according to manufacturer's specifications or as needed.

III. ASARCO HAYDEN LABORATORY QA/QC PLAN FOR SULFUR ANALYSES

Sulfuric Acid – Shipments and Production

A. Operation: The Sulfuric Acid Analyzer shall be operated as per manufacturer's instructions.

B. Blank Analyses: A blank analysis consisting of deionized water shall be analyzed daily. This shall be compared to the velocity of sound in water and shall fall within ±5% of the published value.

C. Calibration Verification Sample: A standard sample shall be analyzed with each set of samples. The Calibration Verification Sample shall fall within ±2% of its control value. The results of the analysis shall be plotted on a control chart to indicate that the control value is within three (3) standard deviations.

D. Duplicates: Every twentieth (20^{th}) sample, or one sample from each analytical set, shall be analyzed in duplicate. The relative standard deviation shall be calculated and shall fall

within ±20 percent.

E. Quality Control Sample: A quality control sample shall be analyzed quarterly. The analysis shall compare within ±10%. (blind note: JTBaker Sulfuric acid 9681-02)

F. Quality Assurance: When control limits are exceeded, the analysis shall be repeated. If necessary, a supervisory chemist shall be notified and the necessary steps shall be taken to bring the analysis within control. No analyses shall be reported or used as valid data, until the method is found to be under control.

ATTACHMENT "G": REGIONAL HAZE REQUIREMENTS

I. APPLICABILITY

This Attachment is applicable to anode furnaces #1 and #2 at the Hayden Smelter.

[40 CFR 52.145(l)(1)]

II. GENERAL REQUIREMENTS

A. At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, maintain and operate the unit including associated air pollution control equipment in a manner consistent with good air pollution control practices for minimizing emissions. Pollution control equipment shall be designed and capable of operating properly to minimize emissions during all expected operating conditions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Regional Administrator which may include, but is not limited to, monitoring results, review of operating and maintenance procedures, and inspection of the unit.

[40 CFR 52.145(l)(12)]

B. Work Practice Standards

Anode furnaces #1 and #2 shall only be charged with blister copper or higher purity copper. This charging limitation does not extend to the use or addition of poling or fluxing agents necessary to achieve final casting chemistry.

[40 CFR 52.145(l)(4)(vi)]

C. Enforcement

Any credible evidence or information relevant as to whether a unit would have been in compliance with requirements under Attachment "G" of this permit if the appropriate performance or compliance test had been performed, can be used to establish whether or not the Permittee has violated or is in violation of any standard or applicable emission limit in Attachment "G" of this permit.

[40 CFR 52.145(l)(13)]

III. NITROGEN OXIDES

A. Emission Limitations and Standards

The Permittee shall not cause total NO_X emissions from anode furnaces #1 and #2 to exceed 40 tons per 12-continuous month period.

[40 CFR 52.145(l)(4)(v)]

B. Compliance determination

1. Compliance with the emission limit for NO_X in Condition III.A shall be demonstrated by monitoring natural gas consumption in anode furnaces #1 and #2 for each calendar day.

[40 CFR 52.145(l)(6)(v)]

2. At the end of each calendar month, the Permittee shall calculate 12-consecutive month NO_X emissions by multiplying the daily natural gas consumption rates for each unit by an approved emission factor and adding the sums for all units over

the previous 12-consecutive month period.

[40 CFR 52.145(l)(6)(v)]

IV. RECORDKEEPING AND REPORTING REQUIREMENTS

A. The Permittee shall maintain the following records for at least five years:

[40 CFR 52.145(l)(9)]

1. Records of all major maintenance activities conducted on emission units, and air pollution control equipment.

2. Records of daily natural gas consumption in anode furnaces #1 and #2, and all calculations performed to demonstrate compliance with the limit in Condition III.A.

ATTACHMENT "H": SMITHCO REVERTS AND FLUX CRUSHING OPERATIONS

I. GENERAL REQUIREMENTS

A. The Conditions in this Attachment are applicable to reverts crushing operations and silica flux crushing operations conducted at the Hayden facility.

B. Section III shall be applicable to

1. Coarse Revert crushing operations, and

2. Fine Crushing Operations, when used for crushing reverts

C. Section IV shall be applicable to

1. Coarse Flux Crushing operations, and

2. Fine Crushing Operations, when used for crushing silica flux

D. The Permittee shall keep records of periods when the fine crushing circuit is utilized for reverts crushing or silica flux crushing.

II. REQUIREMENTS FROM THE CONSENT DECREE

A. The Permittee shall manage uncrushed revert material only in areas protected by a Wind Fence.

[CD CV-15-02206-PHX-DLR B.3.A]

B. The Permittee shall crush revert and store crushed revert only on one or more concrete pads, and within an area protected by a Wind Fence. These pad(s) shall be designed to capture, store and allow pumping of storm water or sprayed water to minimize emissions to the greatest extent practicable, including curbing around the outer edges of the cement pad(s) where feasible.

[CD CV-15-02206-PHX-DLR B.4.A. B and E]

C. The Permittee shall install and continuously operate a sufficient number of sprayers in accordance with the Fugitive Dust Plan to ensure that the surface of all revert material being crushed and crushed revert material is wetted with the objective to minimize emissions to the greatest extent practicable.

[CD CV-15-02206-PHX-DLR B.3.B, 4.C, 26]

D. The Permittee shall perform all storage activities and loading and unloading of furnace silica flux within an area protected by a Wind Fence.

[CD CV-15-02206-PHX-DLR B.8.A]

E. The Permittee shall wet the surface of all furnace silica flux and converter silica flux storage piles with sufficient moisture to minimize emissions to the greatest extent practicable.

[CD CV-15-02206-PHX-DLR B.8.B and 9.A]

III. REVERT CRUSHING OPERATIONS

A. Applicability

This Section is applicable to equipment identified in the Equipment List in Attachment "K"

as applicable to this Section.

B. Operating Requirements

At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, maintain and operate any affected facility 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)]

C. Particulate Matter and Opacity

1. Emission Limitations

The Permittee shall not cause to be discharged into the atmosphere from an affected facility any process fugitive emissions that exhibit greater than 10 percent opacity.

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

2. Air Pollution Control Requirements

Water spray bars or equivalent control equipment shall be used whenever the equipment is operating or material must be adequately wet to minimize visible emissions to the extent practical.

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

3. Monitoring and Recordkeeping Requirements

A certified observer shall conduct a weekly visual survey of emissions from all sources covered by this Section while they are in operation and in accordance with Condition I.D of Attachment "B".

[A.A.C. R18-2-306.A.3.c and 306.A.4]

D. Permit Shield

Compliance with the conditions of this Subsection shall be deemed compliance with 40 CFR 60.382(b).

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

IV. SILICA (FLUX) CRUSHING OPERATIONS

A. OPERATIONS SUBJECT TO NSPS SUBPART OOO

1. Applicability

This Section is applicable to furnace and converter silica flux crushing and storage facilities identified in the Equipment List in Attachment "K" as applicable to this Section.

2. Operating Requirements

At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, maintain and operate any affected facility 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)]

3. Particulate Matter and Opacity

a. Emission Limitations

(1) *The Permittee shall not allow to be discharged into the atmosphere from any crusher at which a capture system is not used, any fugitive emissions which exhibit visible emissions greater than 15 percent opacity*.

[40 CFR 60.672(b) Table 3 and A.A.C. R18-2-331.A.3.f]
[Material permit conditions are indicated by underline and italics]

(2) *The Permittee shall not allow to be discharged into the atmosphere from any screening operation, transfer point on belt conveyors or any other affected facility which commenced construction, modification, or reconstruction after August 31, 1983, but before April 22, 2008, any fugitive emissions which exhibit visible emissions greater than 10 percent opacity*.

[40 CFR 60.672(b) Table 3 and A.A.C. R18-2-331.A.3.f]
[Material permit conditions are indicated by underline and italics]

(3) *The Permittee shall not allow to be discharged into the atmosphere from any screening operation, transfer point on belt conveyors or any other affected facility which commenced construction, modification, or reconstruction on or after April 22, 2008, any fugitive emissions which exhibit visible emissions greater than 7 percent opacity*.

[40 CFR 60.672(b) and A.A.C. R18-2-331.A.3.f]
[Material permit conditions are indicated by underline and italics]

b. Air Pollution Control Requirements

Water spray bars or equivalent control equipment shall be used whenever the equipment is operating or material must be adequately wet to minimize visible emissions to the extent practical.

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

c. Monitoring, Reporting, and Recordkeeping Requirements

(1) To demonstrate compliance with the opacity limits in Condition IV.A.3.a, the Permittee shall conduct weekly opacity monitoring of visible emissions on all affected

facilities in accordance with Condition I.D of Attachment "B".

[A.A.C. R18-2-306.A.3.c and 306.A.4]

(2) For any affected facility for which construction, modification, or reconstruction commenced on or after April 22, 2008,

(a) The Permittee shall perform monthly periodic inspections to check that water is flowing to discharge spray nozzles in the wet suppression system. The Permittee shall initiate corrective action within 24 hours and complete corrective action as expediently as practical if it is found that water is not flowing properly during an inspection of the water spray nozzles.

[CFR 60.674(b)]

(b) If an affected facility that routinely uses wet suppression water sprays ceases operation of the water sprays or is using a control mechanism to reduce fugitive emissions other than water sprays during the monthly inspection (for example, water from recent rainfall), the logbook entry required under Condition IV.A.3.c(2)(c) below must specify the control mechanism being used instead of the water sprays.

[40 CFR 60.674(b)(2)]

(c) The Permittee shall maintain record of each periodic inspection including dates and any corrective actions taken, in a logbook (in written or electronic format). The Permittee shall keep the logbook onsite and make hard or electronic copies (whichever is requested) of the logbook available to the Director upon request.

[40 CFR 60.676(b)(1)]

d. Testing Requirements

(1) The Permittee shall demonstrate compliance with the applicable opacity limits for fugitive emissions contained in Condition IV.A.3.a by conducting initial performance tests in accordance with EPA Reference Method 9 and the procedures in 40 CFR 60.11, with the following additions:

[40 CFR 60.675.(c)(1), Table 3 to 40 CFR 60 Subpart OOO]

(a) The minimum distance between the observer and the emission source shall be 4.57 meters (15 feet).

(b) The observer shall, when possible, select a position that minimizes interference from other fugitive emission sources (e.g., road dust). The required observer position relative to the sun (Method 9 of Appendix A–4 of 40 CFR 60, Section 2.1) must be followed.

(c) For affected facilities using wet dust suppression for

particulate matter control, a visible mist is sometimes generated by the spray. The water mist must not be confused with particulate matter emissions and is not to be considered a visible emission. When a water mist of this nature is present, the observation of emissions is to be made at a point in the plume where the mist is no longer visible.

(2) For the facility which commenced construction, modification, or reconstruction on or after April 22, 2008, the Permittee shall conduct a repeat performance test according Condition IV.A.3.d(1) above within 5 years from the previous performance test for fugitive emissions from affected facilities without water sprays. Affected facilities controlled by water carryover from upstream water sprays are exempt from this 5-year repeat testing requirement if,

[40 CFR 60.674(b)(1)]

(a) The Permittee conducts periodic inspections of the upstream water spray(s) that are responsible for controlling fugitive emissions from the affected facility. These inspections shall be conducted according to this Condition IV.A.3.c(2)(a) and

[40 CFR 60.674(b)(1)(i)]

(b) The Permittee designates which upstream water spray(s) will be periodically inspected at the time of the initial performance test in Condition IV.A.3.d(1).

[40 CFR 60.674(b)(1)(ii)]

4. Permit Shield

Compliance with the condition of this Section shall be deemed compliance with 40 CFR 60.672(b), 60.674(b)(1) and (2), 60.675.(c)(1) and 60.676(b)(1).

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

B. SILICA (FLUX) CRUSHING OPERATIONS NOT SUBJECT TO NSPS SUBPART OOO

1. Applicability

This Section is applicable to furnace and converter silica flux crushing and storage facilities in the Equipment List in Attachment "K" as applicable to this Section.

2. Particulate Matter and Opacity

a. Emission Limits/Standards

(1) The Permittee shall not cause, allow or permit the discharge of particulate matter into the atmosphere, except as fugitive emissions, in any one hour from any gravel or crushed stone processing plant in total quantities in excess of the amounts calculated by one of the following equations:

[A.A.C. R9-3-522]

(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:

$E = 3.59P^{0.62}$

Where:

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

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

[AZ SIP R9-3-522.A.2.a]

(b) For process sources having a 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:

$E = 17.31P^{0.16}$

Where E and P are defined above.

[AZ SIP R9-3-522.A.2.b]

(2) Opacity

The Permittee shall not cause to be discharged into the atmosphere from any silica crushing processes any emissions greater than 20 percent.

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

b. Air Pollution Control Requirements

(1) *Water spray bars or equivalent control equipment shall be used whenever the equipment is operating or material must be adequately wet to minimize visible emissions to the extent practical*.

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

(2) Spray bar pollution control shall be utilized in accordance with "EPA Control of Air Emissions From Process Operations in the Rock Crushing Industry" (EPA 340/1-79-002), and "Wet Suppression System" (pages 15-34, amended as of January, 1979 (and no future amendments or editions)), as incorporated herein by reference and on file with the Office of the Secretary of State, with placement of spray bars and nozzles as required by the Director to minimize air pollution.

[A.A.C. R18-2-722.D]

c. Monitoring and Recordkeeping Requirements

(1) A certified observer shall conduct a weekly visual survey of emissions from all sources covered by this Section while they are in operation and in accordance with Condition I.D of Attachment "B".

[A.A.C. R18-2-306.A.3.c and 306.A.4]

(2) *The Permittee shall install, calibrate*, maintain, and operate *monitoring devices which can be used to determine daily the process weight of sand, gravel or crushed stone produced. The weighing devices shall have an accuracy of plus or minus 5 percent over their operating range*.

[A.A.C. R18-2-722.F, and A.A.C. R18-2-331.A.3.c]
[Material permit conditions are indicated by underline and italics]

(3) The Permittee shall maintain records of the daily production rate of crushed silica produced.

[A.A.C. R18-2-722.G]

3. Permit Shield

Compliance with Conditions of this Subsection shall be deemed compliance with AZ SIP R9-3-522.A.2.a and b, A.A.C. R18-2-702.B, 722.D, 722.E, 722.F and 722. G.

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

ATTACHMENT "I": HAYDEN SMELTER SITE-SPECIFIC SIP REQUIREMENTS

I. GENERAL REQUIREMENTS

A. The operational controls and limitations in Condition II shall be implemented at the time specified in Condition II, or upon smelter restart where no time is listed in Condition II. The requirements of Condition II are federally enforceable as a permit condition upon restart and as part of the state implementation plan upon the Administrator's action approving them in the Hayden sulfur dioxide or lead nonattainment area plan, as applicable.

B. The requirements in Condition III (Sulfur Dioxide (SO_2) Emissions Limitations) shall become effective 60 days after the Hayden smelter achieves maximum production after smelter restart or 180 days after smelter restart. The requirements of Condition III are state-only enforceable until the effective date of the Administrator's action approve them as part of the state implementation plan for sulfur dioxide control.

C. The requirements in Condition IV (Particulate Limits and Lead Work Practice Standards) shall become effective 60 days after the Hayden Smelter achieves maximum production or 180 days after restart, whichever occurs first. The requirements of Condition IV are state-only enforceable until the effective date the EPA Administrator approves them as part of the state implementation plan for lead control.

D. The Tables in Appendix 1 of this Attachment are required to be maintained in accordance with the provisions of this Attachment as an aid to the administration of this Attachment, but the Tables and information contained therein shall not constitute part of the state implementation plan. The Tables and the information contained therein are federally enforceable when the condition referring to them is federally enforceable.

E. Definitions for Purposes of this Attachment:

1. "Fuming ladle" shall mean a ladle emitting an abnormal amount of fume after discharge of material.

2. "Maintenance downturn" shall mean a scheduled maintenance period lasting at least eight (8) working hours.

3. "Smelter restart" shall mean the first day after permit issuance that concentrate is processed through the INCO flash furnace to produce matte.

II. OPERATIONAL LIMITATIONS

A. Flash Furnace Area Capture Improvements

1. The Permittee shall install additional hooding and interceptor walls (the "Uptake Improvement System") to improve the capture of fugitive emissions from the flash furnace area, matte tapping and slag skimming areas, route them to the existing converter secondary hood baghouse for fabric filter and high surface area lime injection control, and then to the annulus of the main stack.

[A.A.C. R18-2-306.A.2 and ARS 49-426.E]
[State Enforceable Only]

2. The Uptake Improvement System shall have a design evacuation rate of 50,000 to 60,000 cfm hourly average and shall operate when the flash furnace is in operation

except for brief periods when slag is being returned to the flash furnace using the slag launder return. At those times, the ventilation for this system shall be switched to the slag return capture system and then switched back automatically to the Uptake Improvement System at the conclusion of the slag return cycle.

[A.A.C. R18-2-306.A.2 and ARS 49-426.E]
[State Enforceable Only]

3. Establishment of Operational Ranges

a. The Permittee shall establish a range of damper positions based upon the secondary hood baghouse flow monitor that provides reasonable assurance that the Uptake Improvement System exhaust flow is within the design range specified in Condition II.A.2. These ranges shall be established and verified by a stack test no later than 180 days after smelter restart and may be revised thereafter in the same fashion. The proposed ranges, stack test verifying evacuation rates compliant with Condition II.A.2, and proposed revision to Table 1 of Appendix 1 shall be submitted to the department within 45 days of the stack test. If the Director concurs that the proposed damper position ranges assure an exhaust flow compliant with Condition II.A.2, the director shall issue a revised Table 1 of Appendix 1 reflecting the new damper position range. Thereafter, the Permittee shall comply with the approved Table 1 range. Until the first submittal is approved, the Permittee shall use ranges specified by the air pollution control designer. The current ranges are specified in Table 1 of Appendix 1 of this Attachment.

[A.A.C. R18-2-306.A.2 and ARS 49-426.E]
[State Enforceable Only]

b. The Permittee shall establish a timed interlock on the slag return launder such that when slag is returned to the flash furnace the ventilation air from the Uptake Improvement System is switched to the slag return capture system for a defined period of not less than 5 minutes nor more than 10 minutes and then returns to the Uptake Improvement System automatically. The Permittee shall optimize the period within the 5 to 10-minute range during the initial 60-day optimization period by observation and analysis and thereafter as necessary. The first analysis, proposed time period, and proposed revisions to Table 2 shall be submitted no later than 75 days after smelter restart. The Director shall approve any period that falls within both the 5 to 10-minute range and a range between the mean and mean plus one standard deviation of observed slag return durations. If the director concurs that the proposed range meets these requirements, the director shall issue a revised Table 2. All analyses shall be submitted and approved by the Director. Until the first report is approved, the Permittee shall use ranges specified by the air pollution control designer. The current ranges are specified in Table 2 of Appendix 1 of this Attachment.

[A.A.C. R18-2-306.A.2 and ARS 49-426.E]
[State Enforceable Only]

4. Operational Requirements

The Permittee shall:

a. Operate the Uptake Improvement/Launder Return combined damper in

accordance with the approved Table 1 range(s) at all times the flash furnace is operating and at all times matte tapping, slag skimming or slag return is occurring.

[A.A.C. R18-2-306.A.2 and ARS 49-426.E]
[State Enforceable Only]

b. Operate the timed interlock in accordance with the approved Table 2 value. Operators shall trigger the interlock prior to starting slag return and may trigger the timed interlock again if slag is still returning at the end of the interlock cycle to minimize emissions.

[A.A.C. R18-2-306.A.2 and ARS 49-426.E]
[State Enforceable Only]

5. The Permittee shall inspect the Uptake Improvement System during each scheduled maintenance downturn to ensure that the hooding and walls are in proper position and that there are no visible accretions of material in the mouth of the hooding that would preclude efficient operation. The Permittee shall quarterly, evaluate the damper controlling air between the Uptake Improvement System and the slag return capture system to ensure it is operating properly. Records of these inspections shall be maintained for five (5) years.

[A.A.C. R18-2-306.A.2, -306.A.4.b, and ARS 49-426.E]
[State Enforceable Only]

B. Converter and Material Transfer Area Capture Improvements

1. The Permittee shall install a hood and interceptor walls (the "Fuming Ladle Capture System") to provide a system for the capture of fugitive emissions from fuming ladles in the converter aisle and material transfer areas, route them to the existing converter secondary hood baghouse for fabric filter and high surface area lime injection control, and then to the annulus of the main stack each day.

[A.A.C. R18-2-306.A.2 and ARS 49-426.E]
[State Enforceable Only]

2. The Permittee shall, whenever a fuming ladle is detected, promptly move the fuming ladle into the Fuming Ladle Capture System.

[A.A.C. R18-2-306.A.2 and ARS 49-426.E]
[State Enforceable Only]

a. The Permittee shall develop training for its employees responsible for ladle movement on identification of fuming ladles. The training shall be developed within 60 days of restart. Existing employees shall be trained within 90 days of restart and any new employees shall be trained before working ladle operations unsupervised by a trained operator. Employees shall be retrained once every five (5) years.

[A.A.C. R18-2-306.A.3.d and ARS 49-426.E]
[State Enforceable Only]

b. Training Program

The training program curriculum required for Condition 0 shall include:

(1) Identification of fuming ladles, including oral description from experienced operators, written descriptions and, after smelter restart, photographs and video of fuming and non-fuming ladles;

(2) Procedures on observing ladles to determine when they are fuming;

(3) Instruction on when marginal ladles may be moved to the matte tunnels for control and when they should be moved to the Fuming Ladle Capture System (FLCS);

(4) Prompt movement of ladles to, placement in, and operation of the FLCS;

(5) When and how ladles may be removed from the FLCS;

(6) Steps to take if a ladle remains fuming after initial time out of the FLCS; and

(7) Procedures for additional scrutiny of first slag and shell out ladles.

[A.A.C. R18-2-306.A.3.d and ARS 49-426.E]
[State Enforceable Only]

c. The Permittee shall submit the curriculum required for Condition 0 and any written and photographic/video training materials to the Department within 10 days of development of the curriculum and thereafter shall be provide training the curriculum and materials to inspectors upon request.

[A.A.C. R18-2-306.A.3.d and ARS 49-426.E]
[State Enforceable Only]

d. The Permittee shall keep a log of the occurrences of fuming ladle events. The log shall include the date of the event, duration of the event, severity of the fuming ladle, and the time elapsed between identification of the fuming ladle the operator moving the fuming ladle into the Fuming Ladle Capture System.

e. Training records for the operators shall be kept for (5) five years. The training and records shall be available for inspection.

[A.A.C. R18-2-306.A.4.b and ARS 49-426.E]
[State Enforceable Only]

3. The Fuming Ladle Capture System shall have a design evacuation rate of 40,000- to 50,000 cfm when a ladle is present within the hooded area. The capture system shall run until the ladle is removed or for at least 20 minutes after the ladle is placed in the containment. Fuming ladles shall not be removed from the Fuming Ladle Capture System containment unless transported directly to the tunnel or within the capture area of a secondary hood.

[A.A.C. R18-2-306.A.2 and ARS 49-426.E]
[State Enforceable Only]

4. The Permittee shall conduct an initial flow test within 180 days of smelter restart to verify that the system achieves the design flow. The results of this flow test shall be reported to the Department within 45 days of completion of the test.

[A.A.C. R18-2-306.A.3.d, -306.5.a, and ARS 49-426.E]
[State Enforceable Only]

5. The Permittee shall inspect the Fuming Ladle Capture System during each

scheduled maintenance downturn to ensure that it is actuating properly, that the hoods and walls are in proper position, and there are no visible accretions of material in the mouth of the hood that would preclude efficient operation. Records of these inspections shall be maintained for five (5) years.

[A.A.C. R18-2-306.A.2, -306.A.4.b, and ARS 49-426.E]
[State Enforceable Only]

C. Anode Furnace Secondary Hood Capture and Control System

1. The Permittee shall install secondary hoods around each of the anode furnaces to improve the capture of fugitive emissions from the anode furnaces during charging, holding and processing, route the emissions to a new anode secondary hood baghouse for fabric filter control, and then to the annulus of the main stack. This is the Anode Secondary Hood System.

[A.A.C. R18-2-306.A.2 and ARS 49-426.E]
[State Enforceable Only]

2. The Anode Secondary Hood System

a. The Anode Secondary Hood System shall have an overall design evacuation rate for the total system of 150,000 cfm hourly average.

[A.A.C. R18-2-306.A.2 and ARS 49-426.E]
[State Enforceable Only]

b. The anode secondary hood baghouse shall have a maximum design emission rate of 0.002 gr/scf.

[A.A.C. R18-2-306.A.2 and ARS 49-426.E]
[State Enforceable Only]

c. Each secondary hood shall be equipped with dampers that can close completely and operate with a range from 20 to 100% to modulate flows to the individual anode furnace.

[A.A.C. R18-2-306.A.2 and ARS 49-426.E]
[State Enforceable Only]

d. The Anode Secondary Hood System shall be operated to achieve balanced flows (± 15%) on the two operating anode furnaces when neither are charging. When one anode furnace is charging, the Anode Secondary Hood System shall be balanced so that the charging furnace achieves a minimum of 100,000 cfm and the other operating furnace gets the balance.

[A.A.C. R18-2-306.A.2 and ARS 49-426.E]
[State Enforceable Only]

3. The Permittee shall establish a range of damper positions and total flow conditions based upon the anode secondary hood baghouse flow monitor that provides reasonable assurance that the Anode Secondary Hood System exhaust flow is within the design range. These ranges and flow conditions shall be verified during a performance test within 180 days of smelter restart may be revised thereafter in the same fashion. The proposed ranges and flow conditions, stack test verifying evacuation rates compliant with Condition II.C.2.a and 0, and proposed revision to Table 3 of Appendix 1 shall be submitted to the department within 45 days of the stack test. If the director concurs that the proposed damper position and flow ranges assure an exhaust flow compliant with Condition II.C.2.a and 0, the Director shall issue a revised Table 3 of Appendix 1 reflecting the new damper position and flow ranges. Thereafter, the Permittee shall comply with the approved

Table 3. Until the first performance test, the Permittee shall use ranges specified by the air pollution control designer. The current flows shall be specified in Table 3 of Appendix 1 of this Attachment. Damper positions shall be logged and the logs kept for five (5) years.

[A.A.C. R18-2-306.A.2 and ARS 49-426.E]
[State Enforceable Only]

4. Operational Requirements

The Permittee shall Operate the Anode Secondary Hoods in accordance with the approved Table 3 range(s) at all times the anode furnaces are operating.

5. The Permittee shall inspect the Anode Secondary Hood System during each scheduled maintenance down turn to ensure that the dampers are working properly, the hoods and walls are in proper position and that there are no visible accretions of material in the mouth of the hoods that would preclude efficient operation. Records of these inspections shall be maintained for five (5) years.

[A.A.C. R18-2-306.A.2, -306.A.4.b, and ARS 49-426.E]
[State Enforceable Only]

III. SULFUR DIOXIDE (SO_2) EMISSION LIMITS

The requirements of Condition III are state-only enforceable until the effective date of the Administrator's action approving them as part of the state implementation plan for sulfur dioxide control.

A. Main Stack Limit

Sulfur dioxide emissions from the Main Stack shall not exceed 1069.1 lb/hr, 14-day operating average.

[A.A.C. R18-2-306.01 and ARS 49-426.E]
[State Enforceable Only]

B. Fugitive Emissions Limits

Effective 60 days after the Hayden smelter achieves maximum production after smelter restart, or 180 days after smelter restart, whichever occurs first.

1. Fugitive emissions of SO_2 from the INCO flash furnace, matte tapping and slag skimming areas shall not exceed 38.5 pounds/hour, as measured by the flash furnace roofline monitoring system.

[A.A.C. R18-2-B1302 and ARS 49-426.E]
[State Enforceable Only]

2. Fugitive emissions of SO_2 from the converter aisle area shall not exceed 10.0 pounds/hour, as measured by the converter aisle roofline monitoring system.

[A.A.C. R18-2-B1302 and ARS 49-426.E]
[State Enforceable Only]

3. Fugitive emissions of SO_2 from the anode furnaces shall not exceed 9.0 pounds/hour, as measured by the anode furnace roofline monitoring system.

[A.A.C. R18-2-B1302 and ARS 49-426.E]
[State Enforceable Only]

These limits shall apply when the underlying processes are in operation, including periods

of startup, shutdown and malfunction.

[A.A.C. R18-2-B1302 and ARS 49-426.E]
[State Enforceable Only]

C. Monitoring

1. Main Stack Monitoring

Monitoring for the main stack emission limits in Condition III.A of this permit and A.A.C. R18-2-B1302, Subdivision C shall be as set forth in A.A.C. R18-2-B1302 Subdivision E with the following additional requirements:

a. *The Permittee shall install, calibrate,* maintain and operate *a CEMS for continuously monitoring and recording SO_2 emissions and stack gas volumetric flows at the exit of the Anode Secondary Hood Baghouse. This system shall be installed and a RATA successfully completed within 180 days of the effective date of this Section under Condition I.B.*

[A.A.C. R18-2-306.A.3.c, -306.A.3.d -331.A.3.c, -B1302.E, and ARS 49-426.E]
[Material Permit Conditions are defined by underline and italics]

b. The CEMS shall meet the requirements of A.A.C. R18-2-B1302(E)(2), (3), and (5), except that everywhere those provisions reference "subsection (E)(1)" it shall mean "subsection (E)(1) and Condition III.C.1.a of permit number 96410."

[A.A.C. R18-2-306.A.3.c, -B1302.E, and ARS 49-426.E]
[State Enforceable Only]

2. Fugitive Monitoring

Monitoring for the fugitive emission limits in Condition III.B of this permit shall be as follows:

a. *The Permittee shall install, calibrate,* maintain and operate *a CEMS for continuously monitoring and recording SO_2 emissions and volumetric flows at the roofline of the following areas when the underlying process units are operating:*

[A.A.C. R18-2-306.A.3.c, -306.A.3.d -331.A.3.c, -B1302.E, and ARS 49-426.E]
[State Enforceable Only]
[Material Permit Conditions are defined by underline and italics]

(1) Flash furnace roofline system, located on the penthouse and roof of the flash furnace building;

[A.A.C. R18-2-306.A.3.c and ARS 49-426.E]
[State Enforceable Only]

(2) Converter aisle roofline system, located at the north and south ends of the converter aisle, and

[A.A.C. R18-2-306.A.3.c and ARS 49-426.E]
[State Enforceable Only]

(3) Anode aisle roofline system, located over the anode furnaces.

[A.A.C. R18-2-306.A.3.c and ARS 49-426.E]
[State Enforceable Only]

b. These systems shall be installed and certified successfully completed

within 180 days of the effective date of this section under Condition I.B. The Permittee shall notify the Director in writing at least 30 days in advance of the initial certification testing performed on the CEMS.

[A.A.C. R18-2-306.A.3.c and ARS 49-426.E]
[State Enforceable Only]

c. The CEMS shall meet the requirements of A.A.C. R18-2-B1302(E)(2), (3), and (5), except that everywhere those provisions reference "subsection (E)(1)" it shall mean "Condition III.C.2.a of Permit No. 96410" and everywhere those provisions specify a relative accuracy test audit (RATA) a cylinder gas audit (CGA) shall be used instead.

[A.A.C. R18-2-306.A.3.c, -B1302.E, and ARS 49-426.E]
[State Enforceable Only]

d. The Permittee shall develop a roofline monitoring system operations and maintenance plan (Roofline Plan) that addresses the roofline monitoring system required by Condition III.C.2.a. The Roofline Plan shall include the following elements:

(1) a diagram showing the location of each intake point and which intake points are directed to which CEMS;

(2) a protocol for how the intake points will be sampled by the CEMS;

(3) a description of each CEMS, its required QA/QC procedures and span;

(4) manufacturer's or installer's recommended zero adjustment and calibration procedures, which must provide for instrument readings before and after zero adjustments and calibrations, to be implemented at least once per operating day on the CEMS and at a frequency set forth in the protocol for flow meters;

(5) a list of replacement parts that shall be maintained on hand and ready for immediate installation on the CEMS within 6 hours and to allow fabrication of new sample runs and installation within 10 days;

(6) and equations showing how mass emission rates will be calculated.

[A.A.C. R18-2-B1302.D.2.a, e and ARS 49-426.E]
[State Enforceable Only]

e. The Permittee shall submit the Roofline Plan to the Department and EPA Region IX at least 90 days prior to smelter restart. The Permittee may submit other revisions at any time when necessary. All revisions shall be designed to achieve data collection at the roofline monitoring system consistent with the attainment demonstration in the Hayden 2010 Sulfur Dioxide National Ambient Air Quality Standards Nonattainment Area SIP. Plans and plan revisions may be implemented upon submittal and shall remain in effect until superseded or until disapproved by the Department or EPA Region IX. Disapprovals are appealable agency

action.

[A.A.C. R18-2-B1302.D.2.a, e and ARS 49-426.E]
[State Enforceable Only]

3. Emergency Shutdown Ventilation Flue Monitoring

The Permittee shall install instrumentation on the Emergency Shutdown Ventilation Flue to detect and record all periods that the bypass is in operation. The Permittee shall keep a log of all times of both damper positions and, when both dampers are open, whether the period is a planned or unplanned maintenance period. The Permittee shall log any periods when one damper is open and the other damper is closed stating when the malfunctioning damper was repaired. For purposes of this Attachment, "planned maintenance" means any period where the Permittee has shut down the associated emissions units and run the evacuation system until the inlet meter at the acid plant registers the equivalent of 53.5 lb/hr or less before opening the Emergency Shutdown Ventilation Flue. The inlet concentration shall be documented in the operating log.

[A.A.C. R18-2-306.A.3.c and ARS 49-426.E]
[State Enforceable Only]

D. Compliance Demonstration

1. Main Stack Compliance Demonstration.

a. Compliance with the main stack limit in Condition III.A shall be demonstrated using the procedures in A.A.C. R18-2-B1302(F)(1), (2), (4) and (5) except as follows:

(1) "subsection (E)(1) and Condition III.C.1 of permit no. 96410 shall be substituted for "subsection (E)(1)" throughout;

(2) the provisions of subsection (F)(1)(c) shall not be used; and

(3) Notwithstanding subsections (F)(2)(a) and (F)(2)(b), the owner or operator may present any credible evidence as to the quantity or concentration of emissions during any period of missing data.

[A.A.C. R18-2-B1302 and ARS 49-426.E]
[State Enforceable Only]

b. For purposes of demonstrating compliance with the main stack limit in Condition III.A and A.A.C. R18-2-B1302(F)(1)(a), the pounds of SO_2 in the emergency shutdown vent shall be calculated for unplanned use of the emergency shutdown ventilation system as the total volume of the emergency shutdown system at the maximum expected SO_2 concentrations in each segment and 10 percent of that amount for planned shutdowns when the evacuation system is run until SO_2 emissions shown on the combined CEMS system are less than 53.5 lb/hr. Future changes to the design volume of the emergency shutdown system or to the maximum SO_2 concentrations used in the calculation shall be submitted to the Department with a written justification for the change and revised calculations showing the newly calculated planned and unplanned shutdown emissions. This justification may be included as part of a required permit or permit revision. The change shall not be made until

approved by the Director. A copy of the current calculations and planned and unplanned shutdown emissions values shall be included in Table 4 of Appendix 1 of this Attachment.

[A.A.C. R18-2-306.A.3.c, -B1302 and ARS 49-426.E]
[State Enforceable Only]

2. Fugitive Limit Compliance Demonstration

Compliance with the fugitive emission limits in Condition III.B shall be demonstrated as follows:

a. Each valid hour of calculated emissions from the flash furnace roofline system in Condition III.C.2.a(1) shall be compared to the limit in Condition III.B.1 to demonstrate compliance.

[A.A.C. R18-2-306.A.3.c and ARS 49-426.E]
[State Enforceable Only]

b. Each valid hour of calculated emissions from the converter aisle roofline system in Condition III.C.2.a(2) shall be compared to the limit in Condition III.B.2 to demonstrate compliance.

[A.A.C. R18-2-306.A.3.c and ARS 49-426.E]
[State Enforceable Only]

c. Each valid hour of calculated emissions from the anode aisle roofline system in Condition III.C.2.a(3) shall be compared to the limit in Condition III.B.3 to demonstrate compliance.

[A.A.C. R18-2-306.A.3.c and ARS 49-426.E]
[State Enforceable Only]

d. Data substitution under Section R18-2-B1302(F)(2) shall not be used. Instead, the Permittee shall maintain 95% or more valid hours for each system listed in Condition III.C.2.a.

[A.A.C. R18-2-306.A.3.c and ARS 49-426.E]
[State Enforceable Only]

e. The Permittee shall include periods of startup, shutdown, malfunction, or other upset condition when determining compliance with the limits in Condition III.B.

[A.A.C. R18-2-B1302.F.4 and ARS 49-426.E]
[State Enforceable Only]

3. For purposes of demonstrating compliance with the limits in A.A.C. R18-2-B1302(C) and Conditions III.A and III.B of Permit No. 96410, all CEMS listed in A.A.C. R18-2-B1302(C)(1) and Conditions III.C.1 and 2 of Permit No. 96410 shall use the following data validity requirements:

a. Except as provided under Condition III.D.3.c for a full operating hour (any clock hour with 60 minutes of unit operation), at least four valid data points are required to calculate the hourly average, i.e., one data point in each of the 15-minute quadrants of the hour.

[A.A.C. R18-2-306.A.3.c and ARS 49-426.E]
[State Enforceable Only]

b. Except as provided under Condition III.D.3.c for a partial operating hour (any clock hour with less than 60 minutes of unit operation), at least one

valid data point in each 15-minute quadrant of the hour in which the unit operates is required to calculate the hourly average.

[A.A.C. R18-2-306.A.3.c and ARS 49-426.E]
[State Enforceable Only]

c. For any operating hour in which required maintenance or quality-assurance activities are performed:

(1) If the unit operates in two or more quadrants of the hour, a minimum of two valid data points, separated by at least 15 minutes, is required to calculate the hourly average; or

[A.A.C. R18-2-306.A.3.c and ARS 49-426.E]
[State Enforceable Only]

(2) If the unit operates in only one quadrant of the hour, at least one valid data point is required to calculate the hourly average.

[A.A.C. R18-2-306.A.3.c and ARS 49-426.E]
[State Enforceable Only]

d. If a daily calibration error check is failed during any operating hour, all data for that hour shall be invalidated, unless a subsequent calibration error test is passed in the same hour and the requirements of Condition III.D.3.c are met, based solely on valid data recorded after the successful calibration.

[A.A.C. R18-2-306.A.3.c and ARS 49-426.E]
[State Enforceable Only]

e. For each full or partial operating hour, all valid data points shall be used to calculate the hourly average.

[A.A.C. R18-2-306.A.3.c and ARS 49-426.E]
[State Enforceable Only]

f. Data recorded during periods of continuous monitoring system breakdown, repair, maintenance, out of control periods, calibration checks, and zero and span adjustments shall not be included in the data averages computed under Condition III.D.

[A.A.C. R18-2-306.A.3.c and ARS 49-426.E]
[State Enforceable Only]

g. Either arithmetic or integrated averaging of all data may be used to calculate the hourly average. The data may be recorded in reduced or non-reduced form.

[A.A.C. R18-2-306.A.3.c and ARS 49-426.E]
[State Enforceable Only]

E. Recordkeeping

1. The Permittee shall maintain the operational and training records specified in Condition II.A.3, II.A.4, II.B.2, II.B.4, II.B.5, II.C.3,and II.C.4 for five (5) years.

[A.A.C. R18-2-306.A.4.b and ARS 49-426.E]
[State Enforceable Only]

2. The Permittee shall maintain the following records for at least five (5) years:

a. All measurements from the continuous monitoring systems required by

Condition III.C.1 and 2 including the date, place, and time of sampling or measurement, parameters sampled or measured, and results.
[A.A.C. R18-2-306.A.4.a and ARS 49-426.E]
[State Enforceable Only]

b. All records of all compliance calculations required by Condition III.D.
[A.A.C. R18-2-306.A.4.a and ARS 49-426.E]
[State Enforceable Only]

c. All records of quality assurance and quality control activities conducted on the continuous monitoring systems required by Conditions III.C.1 and 2.
[A.A.C. R18-2-306.A.4.a and ARS 49-426.E]
[State Enforceable Only]

d. All records of continuous monitoring system breakdowns, repairs, maintenance, out of control periods, calibration checks, and zero and span adjustments for the continuous monitoring systems required by Condition III.D.
[A.A.C. R18-2-306.A.4.a and ARS 49-426.E]
[State Enforceable Only]

e. All records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of Smelter processes; any malfunction of the associated air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device required by Condition III.C.1 or 2.
[A.A.C. R18-2-306.A.4.a and ARS 49-426.E]
[State Enforceable Only]

f. All records of all major maintenance activities conducted on emission units, capture system, air pollution control equipment, and continuous monitoring systems.
[A.A.C. R18-2-306.A.4.a and ARS 49-426.E]
[State Enforceable Only]

g. All records of reports and notifications required by Condition III.F.
[A.A.C. R18-2-306.A.4.b and ARS 49-426.E]
[State Enforceable Only]

F. Reporting

1. Within 30 days after the end of each calendar quarter, the Permittee shall submit a data assessment report to the Director in accordance with 40 CFR Part 60, Appendix F, Procedure 1 for the continuous monitoring systems required by Condition III.C.
[A.A.C. R18-2-306.A.5.a and ARS 49-426.E]
[State Enforceable Only]

2. The Permittee shall submit an excess emissions and monitoring systems performance report and/or summary report form in accordance with 40 CFR § 60.7(c) to the Director semiannually for the continuous monitoring systems required by Condition III.C.1 and 2. All reports shall be postmarked by the 30th day following the end of each six-month period.
[A.A.C. R18-2-306.A.5.b and ARS 49-426.E]
[State Enforceable Only]

3. The Permittee shall provide the following to the Director:

a. Notification of commencement of construction of the project improvements and equipment authorized by Significant Permit Revision No. 96410 to comply with the operational or emission limits permit no later than 30 days after such date.

[A.A.C. R18-2-306.A.5.a and ARS 49-426.E]
[State Enforceable Only]

b. Semiannual progress reports on construction of any such improvements and equipment on January 1 and July 1 of each calendar year until construction is complete.

[A.A.C. R18-2-306.A.5.a and ARS 49-426.E]
[State Enforceable Only]

c. Notification of initial startup of any such improvements and equipment within 15 days after such date.

[A.A.C. R18-2-306.A.5.a and ARS 49-426.E]
[State Enforceable Only]

IV. PARTICULATE MATTER AND LEAD REQUIREMENTS

A. Lead Emission Limits

1. Notwithstanding the addition of emissions from the anode secondary hood baghouse, total lead emissions from the main stack shall not exceed 0.683 pounds of lead per hour.

[A.A.C. R18-2-B1301.C and ARS 49-426.E]
[State Enforceable Only]

2. Total process fugitive lead emissions from the Hayden Smelter furnaces and converters shall not exceed 0.326 lb/hr calculated as a 3-month rolling average in accordance with Condition IV.E.3.c.

[A.A.C. R18-2-B1301.C and ARS 49-426.E]
[State Enforceable Only]

B. Operational Limits

1. The anode secondary hood baghouse and anode secondary hood capture system shall comply with the requirements of A.A.C. R18-2-B1301(D). Minimum specifications for the uptake improvement system, the fuming ladle control system, and the anode secondary hood system operations are set forth in Condition II of this Attachment. These shall be incorporated into the control system operations and maintenance plan required by A.A.C. R18-2-B1301(D)(2). Revisions to the plan shall be submitted for approval within 180 days of the effective date of this Section under Condition I.C.

[A.A.C. R18-2-B1301.D and ARS 49-426.E]
[State Enforceable Only]

2. At all times that any anode furnace is operating, its secondary hood shall be engaged and continuously operating so as to collect and convey process off-gases to the anode secondary hood baghouse. For the purposes of this Condition, "operating" shall include holding or processing metal in the furnace or transferring metal to or from the furnace but does not include curing, preheating or sweating of refractory.

[A.A.C. R18-2-B1301.D.1 and ARS 49-426.E]
[State Enforceable Only]

3. The Permittee shall increase the paved road cleaning frequency specified in A.A.C. R18-2-B1301.01.D.9 to twice per day.

[A.A.C. R18-2-B1301.01.E.1]

C. Testing Requirements

1. Performance testing of the main stack for lead shall be conducted annually as follows:

   a. The gas stream exiting the anode furnaces baghouse prior to mixing with other gas streams routed to the Main Stack.

   b. The gas stream exiting the acid plant at a location prior to mixing with other gas streams routed to the Main Stack.

   c. The gas stream exiting the converter secondary baghouse at a location prior to mixing with other gas streams routed to the Main Stack.

   d. The gas stream collected by the tertiary hooding at a location prior to mixing with other gas streams routed to the Main Stack.

   e. The gas stream exiting the vent gas baghouse at a location prior to mixing with other gas streams routed to the Main Stack.

   f. The gas stream exiting the anode secondary hood baghouse at a location prior to mixing with the other gas streams routed to the Main Stack.

[A.A.C. R18-2-B1301.E and ARS 49-426.E]
[State Enforceable Only]

2. The performance tests at the main stack shall test particulate matter using Method 5 and lead using Method 29.

[A.A.C. R18-2-312, -B1301.E.3, and ARS 49-426.E]
[State Enforceable Only]

3. The Permittee shall also evaluate opacity at the time of each performance test. The opacity evaluation shall evaluate both the opacity at the roofline monitor and note the opacity exiting from the walls or other openings but shall not include dust entrained from vehicles passing through an entryway. The opacity evaluation of the flash furnace building and anode aisle shall be conducted in accordance with 40 CFR 60.13 and the opacity evaluation of the converter aisle shall be conducted in accordance with 40 CFR 63.1450(c). If complying with 40 CFR Part 63, Subpart QQQ, then testing to demonstrate compliance with that standard shall satisfy this requirement for the converter aisle.

[A.A.C. R18-2-312, -B1301.E, and ARS 49-426.E]
[State Enforceable Only]

D. Monitoring Requirements

1. *The Permittee shall install, calibrate,* maintain and operate *a monitoring device that continuously records the volumetric flow rate, or other parameter that has a direct relationship to volumetric flow rate such as pressure drop (delta P) if*

approved by the Department at a representative point in the anode secondary hood system, fuming ladle control system and uptake improvement hood. If the Permittee seeks an alternative to a volumetric flow monitor, the permittee shall submit a detailed proposal to the Department that includes the following:

[A.A.C. R18-2-306.A.3.c, -306.A.3.d, -331.A.3.c, and ARS 49-426.E]
[Material Permit Conditions are defined by underline and italics]
[State Enforceable Only]

a. Identification of the parameter(s) to be monitored in lieu of volumetric flow rate;

b. Identification of where in the hooding system such monitors would be placed and how such location will give appropriate and representative measurements in accordance with good engineering practices;

c. A detailed explanation, including sample calculations, of how such parameter(s) has a direct relationship to volumetric flow rate in the hooding system and how such parameter(s) will ensure proper operation in accordance with design at all times, including detecting any degraded performance over time; and

d. Proposed limit(s), including sample calculations, for the selected parameters that would be the enforceable demonstration of acceptable performance. Upon the Department's approval within 180 days of the effective date of this Section under Condition I.C , this limit shall take effect and be enforceable thereafter until changed in accordance with this paragraph.

[A.A.C. R18-2-306.A.3.c and ARS 49-426.E]
[State Enforceable Only]

2. The Permittee shall monitor the pressure drop across the anode secondary hood baghouse.

[A.A.C. R18-2-306.A.3.c and ARS 49-426.E]
[State Enforceable Only]

3. The Permittee shall monitor the damper positions for the Uptake Improvement System and Fuming Ladle Control System at all times.

[A.A.C. R18-2-306.A.3.c and ARS 49-426.E]
[State Enforceable Only]

4. *The Permittee shall install, certify, calibrate*, maintain, and operate *PM continuous emission monitoring systems (CEMS) at the locations specified in Condition IV.D.1 according to EPA Performance Specification 11 in 40 CFR Part 60, Appendix B (PS-11) and the quality assurance requirements of Procedure 2 in 40 CFR Part 60, Appendix F and in accordance with the requirements of the following subparagraphs*.

[A.A.C. R18-2-306.A.3.c, -306.A.3.d, -331.A.3.c, and ARS 49-426.E]
[Material Permit Conditions are defined by underline and italics]
[State Enforceable Only]

a. No later than 180 days after the effective date of this Condition, the Permittee shall submit to the Department for review and approval a proposed Installation, Certification, and Quality Assurance/Quality Control (Installation, Certification, and QA/QC) Protocol, developed in consultation with the PM CEMS vendor(s), for the PM CEMS required on

the anode secondary hood baghouse
[A.A.C. R18-2-306.A.3.c, -1301B.D.2.a, and ARS 49-426.E]
[State Enforceable Only]

b. The Installation, Certification, and QA/QC Protocol shall include a schedule and specifically describe a proposed testing plan that is designed to maximize the likelihood of successful certification of the PM CEMS. If certification is not approved, then the Permittee shall consult with the PM CEMS vendor and the Department. Then, within sixty (60) days of completion of the PS-11 testing (including receipt of the results) that was conducted pursuant to the original Installation, Certification, and QA/QC Protocol for that PM CEMS, the Permittee shall submit a revised Installation, Certification, and QA/QC Protocol for that PM CEMS to the Department and the EPA Administrator for review and approval.
[A.A.C. R18-2-306.A.3.c, -1301B.D.2.a, and ARS 49-426.E]
[State Enforceable Only]

c. Each PM CEMS shall comprise a continuous particle mass monitor to measure and record PM concentration, directly or indirectly, and gas stream flow rates on an hourly average basis.
[A.A.C. R18-2-306.A.3.c and ARS 49-426.E]
[State Enforceable Only]

d. The Permittee shall maintain, in an electronic database, the hourly average emission values of all PM CEMS in milligrams per dry standard cubic meter (mg/dscm) and pounds per hour (lbs/hr).
[A.A.C. R18-2-306.A.3.c and ARS 49-426.E]
[State Enforceable Only]

e. In the event that no PM CEMS is successfully certified after the first round of testing, the Permittee shall within ninety (90) days of certification failure submit an updated Installation, Certification and QA/QC Protocol to EPA and the Department for review and approval. If, upon completion of the second round of PS-11 testing (including receipt of the results), the PM CEMS fail to certify, the permittee shall submit an alternative PM monitoring plan for such gas stream(s) for review and approval by the EPA and the Department that will propose a methodology for using data from the PM CEMS as a continuous parametric monitoring system (CPMS) and stack performance test data to ensure continuous compliance with the relevant PM emission standard in Condition 0 of this Attachment. Upon approval by the EPA and the Department, the Permittee shall continuously operate the PM CEMS as a CPMS.
[A.A.C. R18-2-306.A.3.c, -1301B.D.2.a, and ARS 49-426.E]
[State Enforceable Only]

f. The Permittee shall use reasonable efforts to keep each PM CEMS running and producing data whenever any gas at that location is being exhausted to the atmosphere. After at least twelve months of operation, the Permittee may attempt to demonstrate that it is infeasible to continue operating the PM CEMS. As part of such demonstration, the Permittee shall submit an alternative PM monitoring plan for review and approval by the Department and the EPA Administrator. The plan shall explain the basis for stopping operation of the PM CEMS and propose an alternative monitoring plan. Operation of the PM CEMS shall be considered

infeasible if:

(1) The PM CEMS cannot be kept in working condition for sufficient periods of time to produce reliable, adequate, or useful data consistent with the QA/QC protocol (including, without limitation, PS-11 and Procedure 2); or

(2) Recurring, chronic, or unusual equipment adjustment, servicing, or replacement needs in relation to other types of continuous emission monitors cannot be resolved through reasonable expenditures of resources.

If the Department and the EPA Administrator approves the Permittee's demonstration that it is infeasible to continue operating a PM CEMS, the Permittee shall be entitled to discontinue operation of and remove the PM CEMS. At that point, the Permittee shall comply with the approved alternative PM monitoring plan. The Department's and the EPA Administrator's disapproval of the Permittee's demonstration or alternative monitoring plan shall constitute an appealable agency action.

[A.A.C. R18-2-306.A.3.c, -1301B.D.2.a, and ARS 49-426.E]
[State Enforceable Only]

5. The Permittee shall complete two fugitive emissions studies required by Paragraph 22 of the Consent Decree that was filed on December 30, 2015 in United States v. ASARCO LLC, No. CV-15- 02206-PHX-DLR (D. Ariz.).

a. The studies shall be completed according to the updated Fugitive Emissions Study Protocol submitted to the EPA Administrator on January 20, 2017 and approved by the EPA Administrator on May 31, 2017. The Permittee shall submit modifications to the protocol six months prior to each study for EPA approval and Department comment. Upon EPA approval, the modified protocol shall take effect.

[CD CV-15- 02206-PHX-DLR and ARS 49-426.E]
[State Enforceable Only]

b. The first fugitive study shall be commenced no later than six months after smelter restart or three months after EPA approval of a modified protocol,. The Permittee shall complete 12 months of monitoring and submit a report to the Department and EPA no later than three months after the conclusion of the study. The study shall evaluate the effectiveness of MiniVol samplers in providing high quality, replicable data; compare the MiniVol sampler data to estimates derived from lb/ton emission factors or other process parameters or surrogates; evaluate the accuracy and cost effectiveness of various monitoring approaches; and recommend either a new lb/ton concentrate emission factor or a SIP revision to incorporate an improved monitoring methodology. If the study concludes that the lb/ton concentrate emission factor should be retained, permittee shall submit a justification for why an improved monitoring methodology (e.g., MiniVols) is not feasible and a justification for the selected lb/ton concentrate factor and how it may be revised to maintain accuracy and representativeness. If the study concludes that a new methodology should be proposed, the Permittee shall submit a petition to the Department to

revise the SIP within 90 days after submitting the report unless either EPA or the Department provides comments upon the report, in which case the deadline is 60 days after receipt of the final comments but no earlier than 90 days after report submittal.

[CD CV-15- 02206-PHX-DLR and ARS 49-426.E]
[State Enforceable Only]

c. The second fugitive study shall be commenced at the start of the fourth year after smelter restart or three months after EPA approval, and shall run for 12 months. The second fugitive study shall evaluate whether the monitoring methodology remains appropriate. The Permittee shall submit a report to EPA and the Department on the adequacy of the monitoring methodology within 90 days after completion of the fugitive monitoring. Based upon the study results, the Permittee may petition the Department for a SIP revision. The Department or EPA may require the Permittee to submit a revised monitoring methodology if, based upon the second fugitive study or other credible evidence, the then-current methodology underestimates emissions by 15 percent or more or overestimates emissions by 20 percent or more.

[CD CV-15- 02206-PHX-DLR and ARS 49-426.E]
[State Enforceable Only]

E. Compliance Demonstration

1. Compliance with the main stack limit in Condition IV.A.1 shall be demonstrated using the procedures in A.A.C. R18-2-B1301(F)(1) except that "Subsection (E)(1) and Condition IV.C.1 of Permit No. 97168" shall be substituted for "Subsection (E)(1)" throughout. Continuous compliance with the limit in Condition IV.A.1 is demonstrated if the most recent performance test under Condition IV.E.1 was 0.683 pounds lead/hour or less.

[A.A.C R18-2-B1301.F.1 and ARS 49-426.E]
[State Enforceable Only]

2. Proper operation of the control and capture system shall be verified follows:

a. For each outlet identified in Condition IV.C.1 that is equipped with a certified PM CEMS, a 30-day average of PM CEMS mg/dscm shall be calculated based on the average of all valid hour data during the prior 30 operating days for each outlet and then across all outlets on a flow-weighted basis using the following equation:

$$E = \frac{(\sum_{i=1}^{n} C_i \times VF_i)}{\sum_{i=1}^{n} VF_i}$$

Where:

E = Main stack concentration PM, mg/dscm.

i = ith certified PM CEMS identified in Condition IV.E.1.

n = number of certified PM CEMS covered by Condition IV.E.1.

C_i = 30-day average of PM CEMS i, mg/dscm.

VF_i = 30-day average of volumetric flow measured at PM CEMS i, dscm.
[A.A.C. R18-2-306.A.3.c, -B1301, and ARS 49-426.E]
[State Enforceable Only]

b. For each outlet identified in Condition IV.C.1 that is not equipped with a certified PM CEMS, a 30-day average of the continuous parametric data shall be calculated based on the approved alternative monitoring plan.
[A.A.C. R18-2-306.A.3.c, -B1301, and ARS 49-426.E]
[State Enforceable Only]

c. Proper operation of the control and capture system is verified if "E" in Condition IV.E.2.a is 23 mg/dscm or less, and any outlet subject to an approved alternative monitoring plan is in compliance.
[A.A.C. R18-2-306.A.3.c, -B1301, and ARS 49-426.E]
[State Enforceable Only]

3. The Permittee shall demonstrate compliance with the process fugitive limit in Condition IV.B.2:

a. By demonstrating that all work practice standards set forth in Conditions IV.B, D.1, 2, and 3 are being met with no more than a 3-hour consecutive period out of manufacturer's specification before the underlying process unit was shut down or idled; and
[A.A.C. R18-2-B1301.F, and ARS 49-426.E]
[State Enforceable Only]

b. Until the fugitive study required under Condition IV.D.5 is completed, by the fifth working day of each month, the Permittee shall calculate rates of process fugitive lead emissions by multiplying the tons of concentrate processed through the flash furnace during the three prior calendar months by 0.0018 lb lead/ton of concentrate and then dividing that value by the number of operating hours during the same three calendar months, where an operating hour is defined as 24 hours for each operating day as defined in A.A.C. R18-2-B1302(B)(2) less any maintenance downturn hours during an operating day in that month, with compliance demonstrated if the calculated value is 0.326 lb/hr or less. The lb/ton concentrate factor provisions in Condition IV.E.3 shall remain in effect until a SIP revision replacing them is approved.
[A.A.C. R18-2-B1301.F, and ARS 49-426.E]
[State Enforceable Only]

c. After the fugitive emissions studies described in Condition IV.D.5 are completed, by the fifth working day of each month, the Permittee shall calculate rates of process fugitive lead emissions by multiplying the tons of concentrate processed during the three prior calendar month by the factor for lead that is developed in the most recent fugitive study and then dividing that value by the number of operating hours, as defined in Condition IV.E.3.b, in the same three calendar months to calculate an average pound/hour with compliance demonstrated if the calculated value is 0.326 lb/hr or less.
[A.A.C. R18-2-B1301.F, and ARS 49-426.E]
[State Enforceable Only]

F. Recordkeeping Requirements

The Permittee shall maintain the following records for at least five years and keep on-site for at least two years:

1. All records of major maintenance activities and inspections conducted on emission units, capture systems, monitoring devices, and air pollution control equipment, including those set forth in the operations and maintenance plan required by A.A.C. R18-2-B1301(D)(1)-(3).
[A.A.C. R18-2-B1301.G.2 and ARS 49-426.E]
[State Enforceable Only]

2. All records of performance tests, test plans, and audits required by Condition IV.C and operational parameters required pursuant to Condition IV.D.1 through 4.
[A.A.C. R18-2-B1301.G.3 and ARS 49-426.E]
[State Enforceable Only]

3. The output of the PM CEMS and 30-day flow weighted average value required in Condition IV.D.3.
[A.A.C. R18-2-306.A.4, -B1301.G and ARS 49-426.E]
[State Enforceable Only]

4. All records of compliance calculations required by Condition IV.E.
[A.A.C. R18-2-B1301.G.4 and ARS 49-426.E]
[State Enforceable Only]

5. All records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of concentrate drying, smelting, converting, anode refining, and casting emission units; and any malfunction of the associated air pollution control equipment that is inoperative or not operating correctly.
[A.A.C. R18-2-B1301.G.6 and ARS 49-426.E]
[State Enforceable Only]

6. All records of reports and notifications required by Condition IV.G.
[A.A.C. R18-2-B1301.G.7 and ARS 49-426.E]
[State Enforceable Only]

7. Records of the fugitive studies and their supporting data required under Condition IV.D.5.
[A.A.C. R18-2-B1301.G.5 and ARS 49-426.E]
[State Enforceable Only]

8. Records of daily concentrate processed and operating hours and the corresponding calculation of 90-day average fugitive lead emissions required by Condition IV.E.3
[A.A.C. R18-2-306.A.4, -B1301.G and ARS 49-426.E]
[State Enforceable Only]

G. Reporting Requirements

The Permittee shall provide the following to the Department:

1. Notification of commencement of construction of any equipment necessary to comply with the operational or emission limits.
[A.A.C. R18-2-B1301.H.1 and ARS 49-426.E]
[State Enforceable Only]

2. Semiannual compliance reports on construction of any such equipment postmarked by July 30 for the preceding January-June period and January 30 for

the preceding July-December period.

[A.A.C. R18-2-B1301.H.2 and ARS 49-426.E]
[State Enforceable Only]

3. Notification of initial startup of any such equipment within 15 business days of such startup.

[A.A.C. R18-2-B1301.H.3 and ARS 49-426.E]
[State Enforceable Only]

4. Whenever the Permittee becomes aware of any exceedance of the emission limit set forth in Condition IV.A the Permittee shall notify the Department orally or by electronic or facsimile transmission as soon as practicable, but no later than two business days after the Permittee learns about the exceedance.

[A.A.C. R18-2-B1301.H.4 and ARS 49-426.E]
[State Enforceable Only]

5. Within 30 days after the end of each calendar-year quarter, the Permitee shall submit a quarterly report to the Department for the preceding quarter that shall include dates, times, and descriptions of deviations when the owner or operator operated smelting processes and related control equipment in a manner inconsistent with this permit.

[A.A.C. R18-2-B1301.H.5 and ARS 49-426.E]
[State Enforceable Only]

6. Reports from performance testing conducted pursuant to Condition IV.C shall be submitted to the Department within 60 calendar days of completion of the performance test. The reports shall be submitted in accordance with A.A.C. R18-2-312(A).

[A.A.C. R18-2-B1301.H.6 and ARS 49-426.E]
[State Enforceable Only]

7. The Permittee shall submit reports to the Department providing the results of the fugitive studies required in Condition IV.D.5 within six (6) months of completion of each study.

[A.A.C. R18-2-306.A.5, CD CV-15- 02206-PHX-DLR and ARS 49-426.E]
[State Enforceable Only]

8. The Permittee shall submit quarterly, 30 days after the end of each calendar quarter, a summary report showing the date, time and magnitude of any exceedance of the PM CEMS (or approved alternative monitoring system) calculated in accordance with Condition IV.E.2 - (3) and any exceedance of the fugitive parameters calculation in accordance with Condition IV.E.3.

[A.A.C. R18-2-306.A.5 and ARS 49-426.E]
[State Enforceable Only]

9. The permittee shall submit a report to the Department showing that the contingency measures required in Condition IV.H were implemented within 90 days of receipt of notice from the Department or EPA Region 9 that the requirement for implementing the contingency measures is triggered.

[A.A.C. R18-2-306.A.5 and ARS 49-426.E]
[State Enforceable Only]

H. Contingency Measures

The Permittee shall implement contingency measures as set forth in this condition.

1. Contingency Measures

a. The Permittee shall install a wind fence starting west of the filter plant and proceeding around its northern perimeter for an approximate length of 790 feet. The fence shall be at least 20 feet high or greater than or equal to the material pile height at the filter plant, whichever is greater. The allowed material pile height shall be posted in a readily visible location at the wind fence. Wind fence porosity shall not exceed 50 percent.

[A.A.C. R18-2-B1301.D.1 and ARS 49-426.E]
[State Enforceable Only]

b. The Permittee shall install a wind fence along the south perimeter road starting at the east end of the former SmithCo processing area and extending for an approximate length of 655 feet. The fence shall be at least 20 feet high or greater than or equal to the material pile height, whichever is greater. The allowed material pile height shall be posted in a readily visible location at the wind fence. Wind fence porosity shall not exceed 50 percent.

[A.A.C. R18-2-B1301.D.1 and ARS 49-426.E]
[State Enforceable Only]

c. The Permittee shall install a new perimeter fence on the southwest corner of the property extending from the south entry gateway area toward the chlorinator area and then reconnecting to the existing perimeter at the former SmithCo area. The fence shall be at least 6 feet high and shall be posted for no trespassing.

[A.A.C. R18-2-B1301.D.1 and ARS 49-426.E]
[State Enforceable Only]

d. The fencing shall approximate that shown in Figure 4-3 of the 2023 Hayden Pb NAA SIP.

[A.A.C. R18-2-B1301.D.1 and ARS 49-426.E]
[State Enforceable Only]

2. Triggers

The Permittee shall implement the contingency measures set forth in Attachment "I", Condition IV.H.1, no later than 60 days after receiving notice from the Department or EPA Region 9 that any of the following have occurred:

a. Failure to attain the 2008 Pb NAAQS by the January 31, 2027, attainment date.

[A.A.C. R18-2-B1301.D.1 and ARS 49-426.E]
[State Enforceable Only]

APPENDIX 1 OF ATTACHMENT "I"

Table 1: Uptake Improvement System Flow Conditions and Damper Positions

Converter Secondary Hood Baghouse Flow Cfm	Uptake Improvement/Slag Return Combined System Damper
>170,000	100% open

Table 2: Uptake Improvement System Interlock Timing

System Condition	Requirement
Normal Operation	Uptake Improvement Damper 100% open Slag Return N and S Dampers 0% open
Slag in Slag Return	Uptake Improvement Damper 0% open Slag Return w/Slag 100% open Other Slag Return 0% open
Slag Return Damper Timing	Upon initiating slag return Damper remains open for 10 minutes

Table 3: Anode Secondary Hood System Flow Conditions and Damper Positions

Condition	Requirement
Furnace Offline	AF SH Damper Closed
1 Furnace Processing Only	AF SH Damper 100% Open
2 Furnaces Processing	Each AF Damper 45-55% Open
1 Furnace Charging, 1 Processing	Charging AF SH Damper 75-100% Open Processing AF SH Damper 25-50% Open

Table 4: Emergency Shutdown Ventilation Flue Emissions

Event Type	SO_2 Emissions (lbs)
Unplanned Event[1]	1081
Planned Event[2]	108

1 Based upon highest SO2 percentages and volumes

2 Based upon running ventilation system until SO2 clears and accepting 10% as a conservative number

ATTACHMENT "J": EQUIPMENT LIST- CONCENTRATOR

EQUIPMENT TYPE	MAX. CAPACITY	MAKE	MODEL	SERIAL NUMBER	DATE OF MFG.	APPLICABLE PERMIT SECTION
ORE RECEIVING						
Track Hopper	1,625 tph	National Iron Co.	N/A	T11	1959	Att. "C" Section I
Reciprocating Plate Feeders (6 total)	1,625 tph	National Iron Co.	Hydrastroke Feeders	PF1-PF6	1959	Att. "C" Section I
Scrubber #7	15,000 acfm	Ducon	IV	C99-0808-Item 2/WS7	1988	Att. "C" Section I
CONVEYORS						
#1 A, B ,C Conveyor Belts – 48 inch (Plate Feeders to Secondary Screens)	1,625 tph (total)	N/A	N/A	BF1-BF3	Pre-1982	Att. "C" Section II.A
#2 Conveyor Belt- 60 inch (Secondary Crushers to #3 Conveyor Belt)	3,470 tph	N/A	N/A	#2C	Pre-1982	Att. "C" Section II.A
#3 Conveyor Belt- 60 inch (#2 Conveyor Belt to #4 Conveyor Belt)	3,470 tph	N/A	N/A	#3C	Pre-1982	Att. "C" Section II.A
#4 Conveyor Belt – 60 inch (#3 Conveyor Belt to #5 Conveyor Belt)	3,470 tph	N/A	N/A	#4C	Pre-1982	Att. "C" Section II.A

#5 Conveyor Belt – 60 inch (#4 Conveyor Belt to Surge Bin)	3,470 tph	N/A	N/A	#5C	Pre-1982	Att. "C" Section II.A
#6 Conveyor Belt – 42 inch (Secondary Screens to #8 Conveyor Belt)	490 tph	N/A	N/A	#6C	Pre-1982	Att. "C" Section II.A
#8 Conveyor Belt – 42 inch (#6 and #7 Conveyor Belts to #9 Conveyor Belt)	1,625 tph	N/A	N/A	#8C	Pre-1982	Att. "C" Section II.A
#7 Conveyor Belt- 48 inch (Tertiary Screens to #8 Conveyor Belt)	1,135 tph	N/A	N/A	#7C	Pre-1982	Att. "C" Section II.A
#9 Conveyor Belt- 42 inch (#8 Conveyor Belt to #10 Conveyor Belt)	1,625 tph	N/A	N/A	#9C	Pre-1982	Att. "C" Section II.A
#10 Conveyor Belt – 48 inch (#9 Conveyor Belt to Fine Ore Bins)	1,875 tph	N/A	N/A	#10C	Pre-1982	Att. "C" Section II.A
Scrubber #3	36,000 cfm	Clean Gas Systems	Dynascrub II	J95531/WS3	1995	Att. "C" Section II.A
SECONDARY CRUSHING CIRCUIT						
Vibrating Screens (3), 8'x 16' double deck	1,625 tph (total)	Svedala	Low-head	SS1-SS3	1995	Att. "C" Section II.B
Cone Crushers (3)	1,625 tph (total)	Symons by Nordberg	N/A	SC1-SC3	1958	Att. "C" Section II.A
Scrubber #4	36,000 acfm	Clean Gas Systems	Dynascrub II	J9531/WS4	1995	Att. "C" Section II.B

TERTIARY CRUSHING CIRCUIT						
Variable Speed Feeders (6)	750 tph each	60 inch	N/A	TBF1-TBF6	Pre 1982	Att. "C" Section II.A
Tertiary Feed Bin	3,000 ton live	N/A	N/A	TFB	1961/1989	Att. "C" Section II.B
Vibrating Screens (6), 8'x 16'	700 tph each	Svedala	Low-head	K09531, K09532, K09533, K09534, TS1-TS6	1997	Att. "C" Section II.B
Cone Crushers (6)	189 tph each	Symons by Nordberg	Shorthead	TC1-TC6	1958	Att. "C" Section II.A
Scrubber #1	36,000 acfm	Ducon Dynamic Scrubber	IV	DC88-808-Z Item 3/WS1	1988	Att. "C" Section II.B
Scrubber #2	36,000 acfm	Ducon Dynamic Scrubber	IV	DC88-808-Z Item 4/WS2	1988	Att. "C" Section II.B
Scrubber #5	36,000 acfm	Ducon Dynamic Scrubber	IV	WS5	1988	Att. "C" Section II.B
TRANSFER HOUSE						
Transfer House	N/A	N/A	N/A	TFRII	Pre-1982	Att. "C" Section II.A
Scrubber #6	15,000 acfm	Ducon Dynamic Scrubber	IV	C88-0808-Item 1/WS6	1988	Att. "C" Section II.A
FINE ORE STORAGE						
Fine Ore Bin	30,500 ton dead	N/A	N/A	FOB	1961/1989	Att. "C" Section II.B

	5,000 ton live					
Variable Speed Feeders- 11-42 inch belts & 1-60 inch belt	218 tph each	N/A	N/A	N/A	Pre-1982	Att. "C" Section II.A
Fine Ore Bin Scrubber #8 (NW)	15,000 acfm	Ducon Dynamic Scrubber	IV	DS89-939-Z/WS8	1988	Att. "C" Section II.B
Fine Ore Bin Scrubber #9 (SE)	34,700 cfm	Ducon Dynamic Scrubber	IV	C04-3863/WS9	2005	Att. "C" Section II.A
Fine Ore Bin Scrubber #10 (SW)	15,200 cfm	Ducon Dynamic Scrubber	IV	C04-386X3/WS10	2005	Att. "C" Section II.A
LIME STORAGE AND HANDLING						
Lime Storage Bins (2)	250 tons each	N/A	N/A	N/A	1959	Att. "C" Section IV
Lime Slaker	9 tph	Eimco	N/A	N/A	1959	Att. "C" Section IV
Lime Dust Collector (Baghouse)	5,100 cfm shaker	Wheelabrator Dustube	N/A	126-D/LSB	1960	Att. "C" Section IV
Feedoweight Conveyor	2.5 to 15 tph	Merrick	WS Feedoweight	WS-3969/70	1959	Att. "C" Section IV
Conveyor Belt to Bucket Elevator	15 tph	N/A	N/A	N/A	Pre 1982	Att. "C" Section IV
Bucket Elevator	12.75 tph	Hewitt Robins	N/A	N/A	1959	Att. "C" Section IV
BOILERS/HEATERS						
Boiler (Change House)	85,000 Btu/Hr	Coroaire	85S-HB	A	1990	Att. "B" Section V
Boiler (Admin. Basement)	1,500,000 Btu/Hr	Rite Engg.	150	24696	1995	Att. "B" Section V

Gas Fired Heater (HCTTS)	300,000 Btu/Hr	Dayton	3E376B	Q9162368	N/A	Att. "B" Section V
Gas Fired Heater (HCTES)	300,000 Btu/Hr	Dayton	3E376B	Q9162369	N/A	Att. "B" Section V
Gas Fired Heater (Hagemeyer)	50,000 Btu/Hr	Modine	PA50AB	30011011279	N/A	Att. "B" Section V
Gas Fired Heater (Hagemeyer)	120,000 Btu/Hr	TRANE	TUD120C960B0	J28537397	N/A	Att. "B" Section V
Gas Fired Heater (Hagemeyer)	120,000 Btu/Hr	TRANE	TUD120C960B0	J11529944	N/A	Att. "B" Section V
Water Heater (Change House)	199,000 Btu/Hr	AMERICAN STANDARD	D100-199 AS	B13-0463	N/A	Att. "B" Section V
Water Heater (Change House)	199,000 Btu/Hr	AMERICAN STANDARD	D100-199 AS	B13-0473	N/A	Att. "B" Section V
EMERGENCY GENERATORS						
Concentrator Generator #1	190 HP	N/A	N/A	N/A	N/A	Att. "B" Section VI.A
Concentrator Generator #2	100 KW	N/A	N/A	N/A	N/A	Att. "B" Section VI.A
Concentrator Generator #3	33 KW	N/A	N/A	N/A	N/A	Att. "B" Section VI.A
Concentrator Generator #4	167 HP	TBD	TBD	TBD	TBD	Att. "B" Section VI.B
FUEL TANKS						
Gasoline Storage Tank #9	2000 gallons	N/A	N/A	N/A	N/A	Att. "B" Section VII and VIII

ATTACHMENT "K": EQUIPMENT LIST- SMELTER

EQUIPMENT TYPE	MAX. CAPACITY	MAKE	MODEL	SERIAL NUMBER	DATE OF MFG.	APPLICABLE PERMIT SECTION
Sampling and Unloading Operations						
Dump Hopper (12'x28.6')	175 tph, 1,533,000 tpy	Linkbelt	N/A	N/A	1983	Section XIII of Att. D and E
Unloading conveyors (60"x17'8") (3)	175 tph, 1,533,000 tpy	Linkbelt	N/A	N/A	N/A	Section XIII of Att. D and E
Tripper car & belt separator (2)	175 tph, 1,533,000 tpy	Linkbelt	51M	N/A	1964/1968	Section XIII of Att. D and E
Bedding area - 4 storage bins (Concrete)	30,000 wet tons, 26,000 dry tons	N/A	N/A	N/A	1964/1968	Section XIII of Att. D and E
Bedding area – Vibrating screen/ grizzly (4' x 8')	N/A	Ty-rock	I-surface/F300	7308	1967	Section XIII of Att. D and E
Reclaim hopper & feeder	150 tph, 1,533,000 tpy	Feeder Belt, Rex Chainbelt Inc.	N/A	N/A	1968	Section XIII of Att. D and E
No. 2 main inclined conveyor (24" X 625')	300 tph, 2,628,000 tpy	N/A	N/A	N/A	1982	Section XIII of Att. D and E
No. 3 inclined conveyor (30" X 439')	300 tph, 2,628,000 tpy	Boston Dulon 600	600	N/A	1982	Section XIII of Att. D and E
No. 4 Horizontal Conveyor (42" X 139')	300 tph, 2,628,000 tpy	Boston Dulon 600	600	N/A	1982	Section XIII of Att. D and E

EQUIPMENT TYPE	MAX. CAPACITY	MAKE	MODEL	SERIAL NUMBER	DATE OF MFG.	APPLICABLE PERMIT SECTION
Flash Furnace Building Operations						
Wet bin conveyors, dryer feed & weigh belts	85 tph, 744,600 tpy	ASARCO design	N/A	N/A	1983	Section XIII of Att. D and E
Vibrating Screen	6tph, 52,560 tpy	N/A	N/A	N/A	1998	Section XIII of Att. D and E
Nos. 1 & 2 Fluid Bed Dryers with Burners Burners (gas): 38,000 CFH x 2	64 wet ton/hr, 560,640 tpy Maximum dryer usage: 6,915 hours per year	Fuller	11-81-20337-106 Farrier	N/A	1983	Section IV of Att. D and E
Dryer Oversize System						Section XIII of Att. D and E
#1 Bucket Conveyor	10 tph	Nerak	WB300A315	3032/08	2008	
#2 Bucket Conveyor	10 tph	Nerak	PB350	3033/08	2008	
Double Deck Screen	10 tph	FMC	CS-238	T102994	2010	
Fluid Bed Dryer Product Baghouse Nos. 1 & 2	55,000 ACFM	Peabody Process Systems, Inc.	PMTR-10-1692 TW	N/A	1982	Section IV of Att. D and E
Dry Screw Conveyors #1-8	56.9 tph, 498,444 tpy	FMC	N/A	N/A	1983	Section XIII of Att. D and E
Feed Screw Conveyors #10-16	N/A	FMC	N/A	N/A	1983	Section XIII of Att. D and E

EQUIPMENT TYPE	MAX. CAPACITY	MAKE	MODEL	SERIAL NUMBER	DATE OF MFG.	APPLICABLE PERMIT SECTION
West Wet Bins Nos. 1 & 2	200 tons	N/A	N/A	N/A	1983	Section XIII of Att. D and E
200-ton dry bins nos. 1 through 4, each served by one silo ventilation baghouse	1050 acfm	Nederman	SiloSafe 66	N/A	2013	Section XIII of Att. D and E
30-ton dust bin no. 1 served by a ventilation baghouse	1200 acfm	BHA	N/A	N/A	1998	Section XIII of Att. D and E
30-ton dust bin no. 2 served by a ventilation baghouse	1200 acfm	Fuller	N/A	N/A	1983	Section XIII of Att. D and E
Oxygen Flash Furnace with oxygen concentrate burners 4 Natural Gas Burners used only when furnace is on stand-by	2,400 tpd concentrates Maximum gas usage is 91,113 CFH.	Inco	N/A	N/A	1983	Section VI of Att. D and E
WGHS Venturi Scrubber	62,913 acfm	Swemco Inc.	SW-A-138696	14520	August, 1997	Section VI of Att. D and E
WGHS Disengagement vessel	62,913 acfm	Swemco Inc.	SW-A-138696	14525-100	August, 1997	Section VI of Att. D and E
WGHS Condensing Heat Exchanger	80 MBtu/hr	High Country Fabrications	N/A	3196	2009	Section VI of Att. D and E
WGHS Saturation Tower 25' high x 8' dia.	125,168 acfm	Structural Steel and Fabrication Company	N/A	N/A	fourth quarter 1997	Section VI of Att. D and E

EQUIPMENT TYPE	MAX. CAPACITY	MAKE	MODEL	SERIAL NUMBER	DATE OF MFG.	APPLICABLE PERMIT SECTION
WGHS Clarifier	77,153 total gallons	Westech Engineering	Elevated tank-35'	N/A	1997	Section VI of Att. D and E
WGHS Stripping Tower 34' high x 3' dia	1,032 acfm	Structural Steel and Fabrication Company	N/A	N/A	fourth quarter 1997	Section VI of Att. D and E
Brick Crushing System						
Feeder	200 tph, 42,000 tpy	Kue-Ken	Hydro stroke feeder	270	1980	Section XII of Att. D and E
Jaw Crusher	200 tph, 42,000 tpy	Kue-Ken	N/A	11011781	1980	Section XII of Att. D and E
Vibrating Screen	200 tph, 42,000 tpy	Tyler Industry	R1204X	502626	1980	Section XII of Att. D and E
Cone Crusher	200 tph, 42,000 tpy	Kue-Ken	N/A	3095132	1980	Section XII of Att. D and E
Belt Conveyors (2)	200 tph, 42,000 tpy	Kue-Ken	BC-203 and BC-206	N/A	1980	Section XII of Att. D and E
Brick Crusher Baghouse	32,000 acfm	Peabody Process Systems, Inc.	PMTR-10-592W pulse	01-5011-01	1989	Section XII of Att. D and E

EQUIPMENT TYPE	MAX. CAPACITY	MAKE	MODEL	SERIAL NUMBER	DATE OF MFG.	APPLICABLE PERMIT SECTION
Converter Building						
Converters (3)	6185 cubic feet each	FSmidth	Pierce Smith	TBD	2017	Section VI of Att. D and E
Converter Burners (6) (2 for each converter)	12 MMBtu/hr each	Fives North American Construction Services, Ltd.	4570-12-ETF-X13839	TBD	2017	Section VI of Att. D and E
Converters silica conveying system	3 Tons per minute	McCord Conveyor Systems LLC	N/A	N/A	2017	Section VI of Att. D and E
Converter Primary Hooding	Blowing: 32,000 scfm	Drummond-GCT	N/A	N/A	2017	Section VI of Att. D and E
Converter Secondary Hooding	Charging/skimming : 133,000 scfm	Drummond-GCT	N/A	N/A	2017	Section VI of Att. D and E
Converter ESP	177,600 acfm	Hamon Research–Cottrell, Inc	N/A	N/A	2017	Section VI of Att. D and E
Secondary hood and Furnace Vent lime injection system and silo	100 Ton	Clyde Bergemann Power Group Americas	TBD	TBD	TBD	Section VI of Att. D and E
Secondary hood baghouse	300,000 scfm	Hosakawa Mikroupul	100 J-10-30-TRH Pulse type	950281 H1-Hy	1996	Section VI of Att. D and E
Anode Secondary Hood Baghouse	150,000 dscf	TBD	TBD	TBD	TBD	Section II of Att. I
Tertiary hooding	402,000 acfm	N/A	N/A	N/A	2017	Section VI of Att. D and E

EQUIPMENT TYPE	MAX. CAPACITY	MAKE	MODEL	SERIAL NUMBER	DATE OF MFG.	APPLICABLE PERMIT SECTION
Tertiary ventilation SO_2 CEM	TBD	SICK	GM32-1	TBD	TBD	Section VI of Att. D and E
Secondary Hood Baghouse Outlet SO_2 CEM	TBD	SICK	GM32-1	TBD	TBD	Section VI of Att. D and E
Gas Cleaning Plant						
WGC Venturi Scrubber	240,728 acfm	Mikropul	N/A	215051S1	2016	Section VI of Att. D and E
WGC Packed Cooling Tower	146,000 scfm	GEA	CT01	37-0329-01	2016	Section VI of Att. D and E
WGC Thickener	1,950 TPY	Westech Engineering	N/A	22691B TKE51	2016	Section XIV of Att. D and E
WGC Filter Press	1,950 TPY	Ascension Industries, Inc	DURCO Filters EPMM1200/32-48	14238-1-1	2016	Section XIV of Att. D and E
WGC Dryer	1,950 TPY	Metchem	N/A	N/A	2016	Section XIV of Att. D and E
WGC Filter Cake Packaging System	1,950 TPY	Best Process Solutions, Inc.	N/A	1603-10225	2016	Section XIV of Att. D and E
Mist precipitators (8)	N/A	ASARCO design	N/A	N/A	1983	Section XIV of Att. D and E
Acid Plant						
Acid plant -Double contact type	2,820 STPD (100% acid basis) as 93% H_2SO_4	Monsanto	N/A	N/A	1983	Section VI of Att. D and E

EQUIPMENT TYPE	MAX. CAPACITY	MAKE	MODEL	SERIAL NUMBER	DATE OF MFG.	APPLICABLE PERMIT SECTION
Acid Plant Preheater - Natural gas fired	200 MMBTu/hr	NORAM	TBD	TBD	2018	Att. B Section V
Anode Plant						
Anode Furnaces (3)	330 ton each	Fuller Co.	N/A	N/A	1971	Section VII of Att. D and E
Anode Furnace Burners (3)	30 MMBTU/hour each	Bloom Engineering	1020-160-16	B011321	2013	Section VII of Att. D and E
Anode Furnace Pilot Burners (3)	0.1 MMBTU/hour each	Bloom Engineering	?\3001-150-03	N/A	2013	Section VII of Att. D and E
Anode Baghouse	69,500 scfm	MikroPul	323(6.25)-16-30TRH	TBD	2012	Section VII of Att. D and E
Anode Steam Boiler- Natural gas fired (1)	3,780,000 Btu/hr	Parker	N/A	N/A	2010	Att. B Section V
Anode Casting Wheels (2)	16 molds each	Stearns-Rodgers Corporation	N/A	N/A	1972	Section VII of Att. D and E
Anode Launder Burners (6) - Natural gas fired	N/A	North American/ASARCO	4-1518	N/A	2011	Section VII of Att. D and E
Anode Ladle Burners (3) - Natural gas fired	N/A	North American/ASARCO	4-1518	N/A	2011	Section VII of Att. D and E

EQUIPMENT TYPE	MAX. CAPACITY	MAKE	MODEL	SERIAL NUMBER	DATE OF MFG.	APPLICABLE PERMIT SECTION
Anode Mold Burners (2) - Natural gas fired	N/A	N/A	N/A	N/A	N/A	Section VII of Att. D and E
Oxygen Plant						
Oxygen Plant Boiler- Natural gas fired	8,740,000 Btu/hr	General Electric	CB Packaged Boiler 700X	L-75227	1982	Att. B Section V
Oxygen Plant (Consists of main air compressor, oxygen compressor, direct contact after cooler, liquid oxygen storage tank and cooling tower)	650 tpd gaseous oxygen	Air Products	N/A	N/A	1983	-
Furnace Ventilation Gas Control (PRE-CRP)						
R & R Electrostatic Precipitator	43,350 dscfm	ASARCO Inc.	Plate wire	N/A	1961/1968	Att. D Section IV
R & R ESP Screw Conveyors #1-15, 17, 18	Conveyors #1-15: 12 tph, Conveyor #17:105 tph, Conveyor #18:120 tpy	Screw Conveyor Corporation	N/A	N/A	1968	Att. D Section IV
R & R ESP Bucket Elevator	35 tph, 306,600 tpy	Automation Supply	3-SA	N/A	1975	Att. D Section IV

EQUIPMENT TYPE	MAX. CAPACITY	MAKE	MODEL	SERIAL NUMBER	DATE OF MFG.	APPLICABLE PERMIT SECTION
R & R ESP Pugmill	15 ton	Automation Supply & Engineering	Double shaft	N/A	1968	Att. D Section IV
Furnace Ventilation Gas Control (POST – CRP)						
Vent gas baghouse	275,000 scfm	AMEC Foster Wheeler	10 Compartment, Size 1917, Model 192 TA-SB	TBD	2017	Section IV of Att. D and E
Vent Gas Baghouse Outlet SO_2 CEM	TBD	SICK	GM32-1	TBD	TBD	Section IV of Att. D and E
Other Processes						
Reverts Screen #2	200 tph, 40,000 tpy	N/A	N/A	N/A	1994	Section XIII of Att. D and E
Reverts Screen #3	100 tph	Chieftain	Std/Chief	50 07 895	1995	Section XIII of Att. D and E
Storage Tanks						
Gasoline Tanks (1)	2000 gallons	N/A	N/A	N/A	N/A	Att. B Sections XII and XIII
Sulfuric Acid Tanks	1,221,045 gallons	N/A	N/A	N/A	N/A	Att. B Section IX
Sulfuric Acid Tanks	790,565 gallons	N/A	N/A	N/A	N/A	Att. B Section IX
Emergency Generators						
Generator – Cooling Towers	760 HP	Onan	500 DFED	J9706511679	pre-2000	Att. B Section VI.A

EQUIPMENT TYPE	MAX. CAPACITY	MAKE	MODEL	SERIAL NUMBER	DATE OF MFG.	APPLICABLE PERMIT SECTION
Power House East	760 HP	Cummins	VTA-28	N/A	1987	Att. B Section VI.A
Power House West	755 HP	Cummins	VTA-28	N/A	1989	Att. B Section VI.A
(2) Natural gas generators (South end of converter aisle)	536 HP	DOOSAN	GG12VK183A1N	TBD	TBD	Att. B Section VI.C
Cooling Towers						
Acid Plant Cooling Tower	21,000 GPM	Evaptech	EX212-636T32	15001463	2017	Att. B Section XII
Marley Cooling Tower	12,000 GPM	Marley	596-88-3	596-12-524-81	1981	Att. B Section XII
Flash Cooling Tower	8,300 GPM	Marley	1232	110968	1997	Att. B Section XII
Anode Cooling Tower	2,273 GPM	Ecodyne	153-1-347	N/A	1972	Att. B Section XII
Oxygen Plant Cooling Tower	4,400 GPM	Marley	NC 8305H-2GG	NC801950-A	2005	Att. B Section XII
Portable Oxygen Plant Cooling Tower	900 GPM	Marley	NC 8614	N/A	1969	Att. B Section XII
Powerhouse Cooling Tower	5,300 GPM	Fluor	FW60A	N/A	1982	Att. B Section XII
Converter Cooling Tower	3,000 GPM	Evaptech	EX110-324J18	17002047	2018	Att. B Section XII
Non-emergency Generator						
Engine for Power Screen	76 HP	Cummins	4B3.9-F	21186967	1995	Att. B Section VI.A
Miscellaneous Heaters						
(2) Gas Fired Heaters (HSES)	175,000 Btu/Hr	Dayton electric mfg. co.	4LX58	K1101099701003002	N/A	Att. B Section V
(3) Gas fired dryer (Vallens)	165,000 – 300,000 Btu/Hr	Alliance laundry systems, LLC	JT75CG	Varies	N/A	Att. B Section V

EQUIPMENT TYPE	MAX. CAPACITY	MAKE	MODEL	SERIAL NUMBER	DATE OF MFG.	APPLICABLE PERMIT SECTION
Gas fired water heater (Vallens)	600,000 Btu/Hr	Hamilton engineering, INC.	HDD 00600	101675082	N/A	Att. B Section V
20 ton gas package unit (Change house)	250,000 Btu/Hr	American standard	YCH240E3L0BB	101210385D	N/A	Att. B Section V
(3) Gas fired ovens (Sampling)	100,000 Btu/Hr	Wisconsin oven CORP	SWN 34-56	Varies	N/A	Att. B Section V
Hot water boiler (Lab)	511,000 Btu/Hr	Natl. bd	H3-0514	1006311171	N/A	Att. B Section V
(4) Gas fired griddle ranges (Lab)	30,000 Btu/Hr	American range	ARHP-24-2	Varies	N/A	Att. B Section V
(2) Gas fired ovens (Lab)	2,420,000 Btu/Hr	North American mfg. co.	4659-7-C/BO	Varies	N/A	Att. B Section V
(4) Gas fired heaters (Truck shop)	75,000 – 175,000 Btu/Hr	Dayton Electric mfg co.	4LX58	Varies	N/A	Att. B Section V
(2) Gas fired heaters (Area 3 shop)	30,000 Btu/Hr	Reznor	XL30	Varies	N/A	Att. B Section V
Gas fired heater (Carpenter shop)	100,000 Btu/Hr	American Standard	AUD1C100A9481 AB	10353JF51G	N/A	Att. B Section V
(9) Gas fired heaters (engineering)	80,000 – 120,000 Btu/Hr	American Standard	Varies	Varies	N/A	Att. B Section V
(2) Gas fired water heaters (Change house)	199,000 Btu/Hr	Varies	Varies	Varies	N/A	Att. B Section V

EQUIPMENT TYPE	MAX. CAPACITY	MAKE	MODEL	SERIAL NUMBER	DATE OF MFG.	APPLICABLE PERMIT SECTION
Gas fired water heater (Sampling)	30,000 Btu/Hr	American Water Heater Company	BFG6130T303NOH	1233T465724	N/A	Att. B Section V
Gas fired water heater (R&r cottrell)	40,000 Btu/Hr	American Water Heater Company	BFG12240T403NO	1008T419530	N/A	Att. B Section V
Gas fired water heater (Lab)	30,000 Btu/Hr	American Water Heater Company	BFG6130T303NOH	1022T409496	N/A	Att. B Section V
Gas fired water heater (Respirator rm)	35,500 Btu/Hr	Reliance	640YORT4	E07J019315	N/A	Att. B Section V
Gas fired water heater (Area 4)	40,000 Btu/Hr	American Water Heater Company	G62 40T40 400	1.6211E+12	N/A	Att. B Section V
Gas fired water heater (Engineering build.)	40,000 Btu/Hr	American Water Heater Company	BFG6140T403NO	1426T467159	N/A	Att. B Section V
(2) Gas fired water heaters (Boilershop)	35,000 Btu/Hr	Reliance	630YORT	Varies	N/A	Att. B Section V
Gas fired water heater (Hses)	40,000 Btu/Hr	American Water Heater Company	BFG6140T403NO	1217T463653	N/A	Att. B Section V
SO_2 CEMS for Anode B/H	TBD	SICK	GM32-1	TBD	TBD	Att. E Section IX

ATTACHMENT "L": EQUIPMENT LIST- SMITHCO

EQUIPMENT TYPE	MAX. CAPACITY	MAKE	MODEL	SERIAL NUMBER	DATE OF MFG.	APPLICABLE PERMIT SECTION
SMITHCO – Coarse Flux Crushing Circuit						
Hopper Pan Feeder	N/A	N/A	N/A	N/A	Pre-2008	Att. "H" Section IV.A
Crusher	200 TPH	Eagle	623-C1-105	10665	1973	Att. "H" Section IV.B
Under jaw conveyor	27 feet	N/A	N/A	N/A	Pre-2008	Att. "H" Section IV.A
Screen feed conveyor	38 feet	N/A	N/A	9-30-6838-AA	Pre-2008	Att. "H" Section IV.A
Screen	200 TPH	El Jay	FSG-5163-26	34D0487	1987	Att. "H" Section IV.A
Crusher	200 TPH	El Jay	548	N/A	1970	Att. "H" Section IV.B
Under cone conveyor	33 feet	N/A	N/A	N/A	Pre-2008	Att. "H" Section IV.A
Short return conveyor	25 feet	N/A	N/A	N/A	Pre-2008	Att. "H" Section IV.A
Little rock conveyor	22 feet	N/A	N/A	N/A	Pre-2008	Att. "H" Section IV.A
Converter rock stacker conveyor	65 feet	N/A	N/A	N/A	Pre-2008	Att. "H" Section IV.A
Surge stacker conveyor	86 feet	N/A	N/A	N/A	Pre-2008	Att. "H" Section IV.A
Under screen conveyor	25 feet	N/A	N/A	N/A	Pre-2008	Att. "H" Section IV.A
Cross over conveyor	40 feet	N/A	N/A	N/A	Pre-2008	Att. "H" Section IV.A
Primary fines stacker	78 feet	N/A	N/A	N/A	Pre-2008	Att. "H" Section IV.A
SMITHCO – Coarse Revert Crushing Circuit						

EQUIPMENT TYPE	MAX. CAPACITY	MAKE	MODEL	SERIAL NUMBER	DATE OF MFG.	APPLICABLE PERMIT SECTION
Hopper pan feeder	N/A	Hewitt-Robins	LP-89	N/A	Pre-2008	Att. "H" Section III
Picking conveyor	60 feet	N/A	N/A	N/A	Pre-2008	Att. "H" Section III
Electromagnet	N/A	Dings	55-CR	N/A	N/A	Att. "H" Section III
Screen feed conveyor	60 feet	Superior	36x60	U8037 07	Pre-2008	Att. "H" Section III
Double deck screen	85 TPH	Tyler	5x16 Incline	N/A	1993	Att. "H" Section III
HSI Feed conveyor	60 feet	Superior	36x60	6360 05	Pre-2008	Att. "H" Section III
Horizontal shaft impact crusher	400 TPH	Bear Claw	300-502	N/A	1995	Att. "H" Section III
Under HSI conveyor	27 feet	N/A	N/A	N/A	Pre-2008	Att. "H" Section III
Under screen conveyor	21 feet	N/A	N/A	N/A	Pre-2008	Att. "H" Section III
Revert stacker conveyor	60 feet	Superior	36x60	6363 05	Pre-2008	Att. "H" Section III
SMITHCO – Fine Crushing Circuit						
Hopper feeder conveyor	N/A	N/A	N/A	N/A	Pre-2008	Att. "H" Section III or IV.A
VSI discharge conveyor	45 feet	N/A	N/A	N/A	Pre-2008	Att. "H" Section III or IV.A
Screen feed conveyor	60 feet	Superior	36x60	N/A	Pre-2008	Att. "H" Section III or IV.A
Double deck screen	200 TPH	TCI	Kimball EO 6' X 18' DD	17092557	2017	Att. "H" Section III or IV.A
VSI feed conveyor	60 feet	Superior	36x60	UN297	2008	Att. "H" Section III or IV.A

EQUIPMENT TYPE	MAX. CAPACITY	MAKE	MODEL	SERIAL NUMBER	DATE OF MFG.	APPLICABLE PERMIT SECTION
Vertical shaft impact crusher	120 TPH	Remco	9000	9000-896	1996	Att. "H" Section III or IV.A
Under screen conveyor	22 feet	N/A	N/A	N/A	Pre-2008	Att. "H" Section III or IV.A
Stacker conveyor	60 feet	N/A	N/A	N/A	Pre-2008	Att. "H" Section III or IV.A

TECHNICAL REVIEW AND EVALUATION
OF APPLICATION FOR
AIR QUALITY PERMIT No. 97168

I. INTRODUCTION

This Class I Significant Permit Revision (SPR) is for the continued operation of ASARCO LLC's ("ASARCO") Hayden Operations. SPR No. 97168 to Operating Permit No. 39948 incorporates the Uptake Improvement Project, Fuming Ladle Control Project and the Anode Furnaces Secondary Hood Project. In addition, it includes lead emissions limitations at the Hayden Smelter under Attachment "I": Hayden Smelter Site-Specific SIP Requirements as part of the state implementation plan (SIP) for the Hayden Lead Nonattainment Area (NAA).

A. Company Information

Facility Name: ASARCO LLC Hayden Operations

Mailing Address: P.O. Box 8, Hayden, AZ 85135

Facility Location: 100 N Hayden Ave, Hayden, AZ 85135

B. Attainment Classification

The facility is located in Gila County. The area is designated as a non-attainment area for particulate matter with a diameter less than 10 microns (PM_{10}), sulfur dioxide (SO_2) and lead (Pb) for the National Ambient Air Quality Standards (NAAQS). For all other criteria pollutants, the area is designated as attainment or unclassified.

II. BACKGROUND

ASARCO operates copper concentrator and smelter facilities in Hayden, Arizona. The facility emits a significant amount of lead emissions in the Hayden Nonattainment Area (NAA). The purpose of this SPR is to address lead emissions from the facility:

- **January 12, 2009** – The United States Environmental Protection Agency (EPA) revised the lead NAAQS (the "2008 Lead NAAQS") to establish a revised primary standard of 0.15 $\mu g/m^3$ based on the highest quarterly average during a three-year period.

- **October 3, 2014** – The EPA designated the Hayden area of Gila County as nonattainment for the 2008 Lead NAAQS.

- **March 2, 2017** – The Arizona Department of Environmental Quality (ADEQ) submitted the "Arizona State Implementation Plan Revision: Hayden Lead Nonattainment Area for the 2008 Lead NAAQS" (2017 Hayden Lead SIP) to the EPA.

    - The proposed SIP included the Converter Retrofit Project (CRP) to implement additional emissions capture and control technologies to reduce lead emissions at the Hayden smelter.

- In 2017-2018, ASARCO undertook the CRP to attain the 2008 Lead NAAQS as set forth in the 2017 Hayden Lead SIP.

- **November 14, 2018** – The EPA published its approval of the 2017 Hayden Lead SIP.

- **January 31, 2022** – The EPA issued a Finding of Failure to Attain (FFTA) triggering additional requirements to submit a revised SIP.

- **March 31, 2022 –** ASARCO filed a petition for judicial review of the FFTA in the Ninth Circuit Court of Appeals (case I.D. 22-70058). By court order, that action is temporarily suspended pending the outcome of the two SIP revision proceedings (lead and SO_2).

ASARCO has developed the following three projects to address the elevated SO_2 levels and demonstrate attainment of the 1-hour SO_2 NAAQS (SPR No. 96410). These projects also will reduce particulate and lead emissions. ASARCO proposes to revise the Hayden Lead NAA SIP to include these additional controls: The Uptake Improvement Project, the Fuming Ladle Control Project and the Anode Furnaces Secondary Hood Project.

III. REVISION DESCRIPTION

The three projects described below are designed to reduce peak emissions and to assure that the 2008 Lead NAAQS is attained in the Hayden Lead NAA.

A. Uptake Improvement Project

The objective of the Uptake Improvement Project is to improve the capture of fugitive emissions from the flash furnace and emissions generated during matte tapping and slag skimming activities. ASARCO proposes to install a partial enclosure around the INCO flash furnace uptake shaft. The captured emissions will be ducted to the converter secondary hood baghouse, then vented to the annulus of the main stack. The uptake enclosure will be ventilated at all times except during periods where slag is returned to the furnace. Based on data from the fugitive emissions studies required by Consent Decree CV-15-02206-PHX-DLR, it is estimated that the project will improve capture in the flash furnace area to reduce peak emissions at the flash furnace roofline and converter roofline.

B. Fuming Ladle Control Project

The objective of the Fuming Ladle Control Project is to capture emissions from fuming ladles. Fuming ladles refer to ladles emitting an abnormal amount of fume after discharge of material. This can occur sometimes after a ladle is poured.

ASARCO proposes to construct a hood and retaining walls to capture fuming-ladle emissions from the converter aisle and material transfer area. The captured emissions will be ducted to the converter secondary hood baghouse where they will be treated to remove particulate matter including lead. The Fuming Ladle Capture System will operate when a fuming ladle is present in the enclosure.

C. Anode Furnaces Secondary Hood Project

The objective of the Anode Furnaces Secondary Hood Project is to improve the capture of fugitive emissions from the anode furnaces during operations. ASARCO proposes to install secondary hoods around each of the anode furnaces and a new anode furnaces secondary hood baghouse. The captured emissions will be directed to the anode furnaces secondary hood baghouse where they will be treated to remove particulate matter and then released to the annulus of the main stack.

In addition to the proposed projects, the facility also proposed an emission limit of 0.326 lb/hr (3-month rolling average) for process fugitive lead emissions from the Hayden smelter furnaces and converter. This limit was determined using the results from a 2019 fugitive emissions study and the emission reductions expected from the proposed projects.

IV. EMISSIONS

Emissions were calculated using maximum process rates for the facility, applicable control efficiencies, and corresponding emission factors. The emission factors used were from the Compilation of Air Pollutant Emission Factors (AP-42) and an analysis conducted by Gas Cleaning Technologies LLC. The facility has a maximum throughput limit of 693,500 tons of concentrate per year. ASARCO proposes to maintain the current limit of 0.683 pound per hour lead from the main stack.

Lead emissions were calculated by dividing actual lead emissions by actual PM emissions to derive a lead fraction from the years 2004 to 2015. The maximum value plus a 5% margin was used as a conservative value. This lead fraction was then multiplied by the particulate matter emissions to obtain the lead emissions.

The facility's PTE based on the proposed changes is provided in Table 1 below:

Table 1: Potential to Emit (tpy)

Pollutant	PTE
PM	446.47
PM_{10}	1626.35
$PM_{2.5}$	1364.75
Pb	3.69

V. MINOR NEW SOURCE REVIEW (NSR)

Minor new source review is required if the emissions of any physical change or change in the method of an operation of an emission unit or stationary source increase in emissions of any regulated minor NSR pollutant by an amount equal to or greater than the permitting exemption threshold. The proposed projects result in a decrease of lead emissions and thus, minor NSR does not apply.

VI. MAJOR NEW SOURCE REVIEW

Major new source review is required if there is a major modification to the facility. A major modification is a physical change, or change in the operation of a major stationary source that would result in a significant increase in emissions of any regulated NSR pollutant and a significant net increase of that pollutant from the stationary source. The proposed significant permit revision establishes additional operating and emissions limitations to demonstrate attainment with the 2008 Lead NAAQS. The proposed projects do not add or modify any production equipment. Thus, major new source review does not apply.

VII. MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS

Table 2 contains an inclusive but not an exhaustive list of the monitoring, recordkeeping and reporting requirements prescribed by the air quality permit. The table below is intended to provide insight to the public for how the facility is required to demonstrate compliance with the emission limits in the permit.

Table 2: Permit No. 97168

Emission Unit	Pollutant	Emission Limit	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements
Main Stack	Pb	0.683 lbs/hr	Monitor the pressure drop across the anode secondary hood baghouse.	Record major maintenance activities and inspections conducted on emission units, capture systems, monitoring devices, and air pollution control equipment.	Submit semiannual compliance reports on construction of any such equipment.
			Monitor the damper positions for the Uptake Improvement System and Fuming Ladle Control System at all times.	Record required performance tests, test plans, and audits.	Submit quarterly summary reports that include dates, times, and descriptions of deviations when the facility operated smelting processes and related control equipment.
			Monitor PM Continuous Emissions Monitoring System (CEMS) - exit of the Anode Secondary Hood Baghouse.	Record output of the PM CEMS.	Submit quarterly summary report showing the date, time and magnitude of any exceedance of the PM CEMS (or approved alternative monitoring system and any exceedance of the fugitive parameters calculation).
				Record required compliance calculations.	Submit reports of exceedances within two days

Table 2: Permit No. 97168

Emission Unit	Pollutant	Emission Limit	Monitoring Requirements	Recordkeeping Requirements	Reporting Requirements
Process Fugitives	Pb	0.326 lb/hr, 3 month-rolling average	Monitor work practice standards for capture system performance	Record work practice standard outputs	Submit reports of exceedances within two day
			Monitor concentrate feed rates	Record concentrate feed rates and required compliance calculations	Submit quarterly summary reports that include dates, times, and descriptions of deviations when work practices not followed

VIII. ENVIRONMENTAL JUSTICE ANALYSIS

The Environmental Protection Agency (EPA) defines Environmental Justice (EJ) to include the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and polices. The goal of completing an EJ assessment in permitting is to provide an opportunity for overburdened populations or communities to allow for meaningful participation in the permitting process. Overburdened is used to describe the minority, low-income, tribal and indigenous populations or communities that potentially experience disproportionate environmental harms and risks due to exposures or cumulative impacts or greater vulnerability to environmental hazards. The significant permit revision does not allow or permit any increases in emissions and thus, will not result in any additional impacts.

The EPA developed EJSCREEN, a publicly available tool that uses nationally consistent data, to produce maps and reports detailing environmental and demographic indicators that can be used to evaluate EJ concerns. The EPA selected an 90th percentile threshold for this action to evaluate the potential for EJ concerns in a community, meaning that if the area of interest exceeds the 90th percentile for one or more of the EJ indexes, the EPA considers that area to have a high potential for EJ concerns. The ADEQ mapped the location of the Hayden Smelter and reviewed a 5-mile radius around the facility for potential environmental justice concerns (see Figure 1 below).

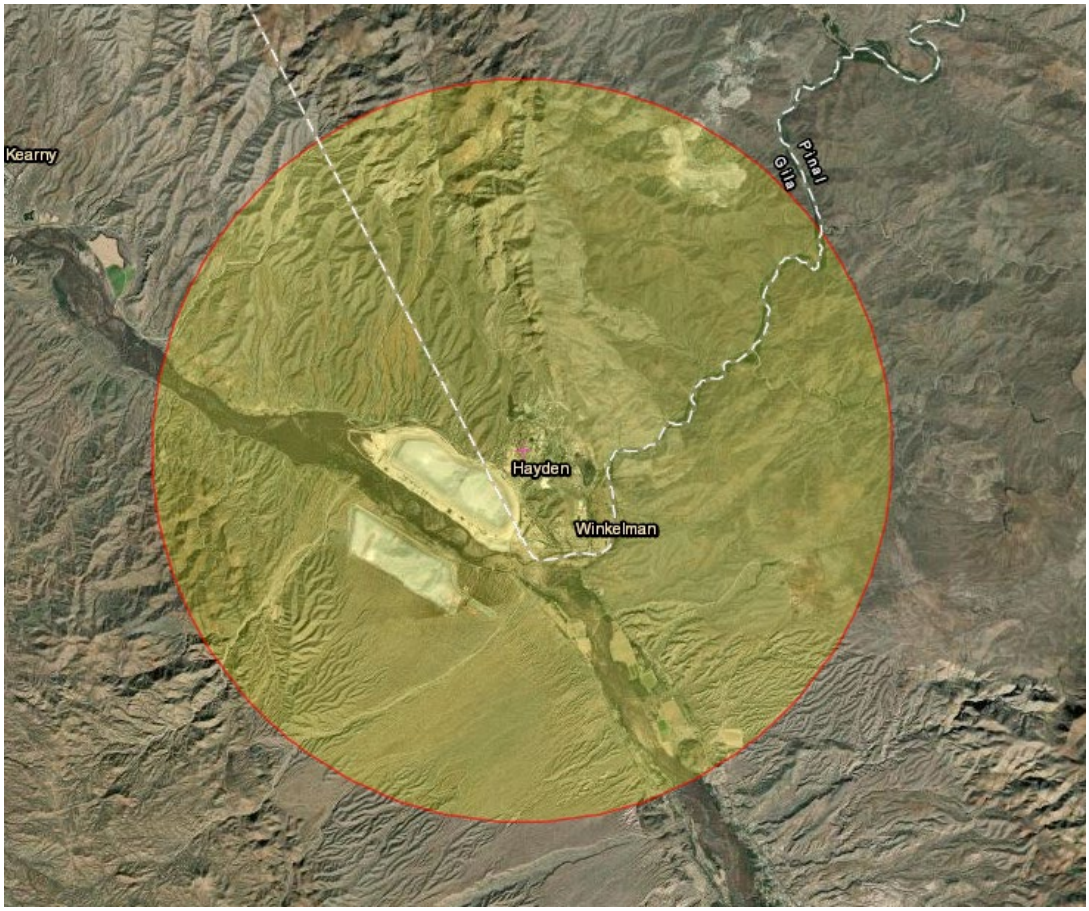

Figure 1: Hayden Smelter – EJSCREEN – 5-Mile Radius

A. Demographics

The ADEQ relied on data from the EPA EJ Screen tool to assess the demographics of the communities near the initial location for this proposed facility. The EJSCREEN report shows that the Limited English-Speaking Households, People Under Age 5, and People Over Age 64 are all below the 80th percentile threshold compared to Arizona and the USA average. The Demographic Indicator for Demographic Index, People of Color, Low Income, Unemployment Rate, and People with Less Than High School Education were all above the 80th percentile compared to Arizona and the USA average, but did not exceed the 90th percentile.

B. Summary of Air Quality

All air quality related environmental indicators within a 5-miles radius of the facility were below the 90th percentile for both Arizona and the USA averages. Additionally, ASARCO submitted an ambient air impact analysis to demonstrate that the implementation of the proposed projects will result in ambient Pb levels in the Hayden Nonattainment Area below the 2008 Lead NAAQS. A complete review of the air quality analysis can be found in Section X below. In addition, the submitted air quality analysis demonstrated that the levels of Pb decreased rapidly as the distance from the facility increased.

C. Conclusion

The proposed projects in this significant permit revision will result in a reduction Pb emissions and will not result in any significant emission increases of other criteria pollutants. The ADEQ concludes that the protections afforded by the Arizona Revised Statutes (A.R.S.) § 49-426, which is imposed through the permit, ensure that the public health and environment in Arizona are protected and that the public notice and comment opportunities afforded to the community on this new permit application satisfy the public participation component of the EPA EJ Guidance. The dispersion modeling ADEQ conducted further concludes that ASARCO will demonstrate compliance with the 2008 Lead NAAQS and that the emissions from the facility will not result in any significant environmental or public health impacts.

IX. LEARNING SITE EVALUATION

In accordance with ADEQ's Environmental Permits and Approvals near Learning Sites Policy, the Department is required to conduct an evaluation to determine if any nearby learning sites would be adversely impacted by the facility. Learning sites consist of all existing public schools, charter schools and private schools the K-12 level, and all planned sites for schools approved by the Arizona School Facilities Board. The learning sites policy was established to ensure that the protection of children at learning sites is considered before a permit approval is issued by ADEQ.

This significant permit revision will not result in any increase in emissions as there are no changes to any equipment. Hence, a learning site evaluation was not conducted.

X. AMBIENT AIR IMPACT ANALYSIS

ASARCO submitted an air quality dispersion model in their application for this permit revision to Operating Permit No. 39948 and to support the Hayden Lead NAA SIP. The modeling was performed in accordance with the EPA's Guideline on Air Quality Models (GAQM). In addition, the "2008 Lead (Pb) National Ambient Air Quality Standards (NAAQS) Implementation Questions and Answers" (U.S. EPA, 2011) was used for clarification.

A. Model Selection

The American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) is the preferred model for EPA when estimating impacts at receptors located in simple terrain and complex terrain (within 50 km of a source) due to emissions from industrial sources. ASARCO used the regulatory default option of AERMOD for this ambient impact air analysis. Version 22112 of AERMOD was used in this analysis. In addition to this, AERMET (version 22112) was used to process the meteorological data and AERMAP (version 18081) was used to process terrain data and develop elevations for receptors. AERSURFACE (Version 20060), and BPIPPRIM were also used in this analysis.

B. Source Inputs

The ADEQ determined that the Hayden Smelter releases lead emissions from the following sources: the main smelter stack, the anode furnace roof monitors, the converter aisle roof monitors, the flash furnace building roof monitors, outdoor slag pouring, miscellaneous material handling activities, and fugitive dust from roadways.

Point sources were used to model the emissions from the main stack and slag pouring. Volume sources were used to model the fugitive emissions from the anode furnace, converter aisle, flash furnace building, other material handling sources, and roads. Fugitive emissions storage areas and storage piles were represented as AreaPoly sources.

C. Meteorological Data

For AERMOD, the EPA recommends 5 years of National Weather Service (NWS) station meteorological data, or one-year of site-specific meteorological data. For this model, ASARCO used meteorological data from the most recent complete year of data available, the 2020 calendar year.

The data used consists of on-site hourly surface observations the Camera Hill station and ADEQ's HOJ station. The data from the Camera Hill station was used to model emissions from the main stack and fugitive rooflines. The data from the HOJ station was used to model the emissions from lower elevation sources (e.g. material storage and handling sources, paved roads, unpaved roads).

D. Background Air Quality Concentration

The EPA requires that modeling results include background air quality estimates for comparison to the NAAQS. The background concentrations should be representative of regional air quality in the vicinity of a facility.

To determine this background concentration, ASARCO used ambient air monitoring data located in the Hayden area. Since the Smelter has been temporarily shut down since October 2019, the data from November 2019 through September 2022 was used. The data was generated from two air monitoring stations, the Globe Highway station and the Hillcrest station. Since the Hillcrest monitor resulted in higher concentrations of lead, it was used as the background concentration as a conservative estimate. Per 8.3.2(c)(i) of Appendix W of 40 CFR Part 51, "the monitoring data used to calculate the background concentration of Pb employed in the modeling analysis excluded data generated when wind was blowing from a 90-degree arc relative to the monitor"[1]. After the relevant data points were excluded, the resulting background concentration was 0.013 $\mu g/m^3$.

E. Modeling Results for 2008 Lead NAAQS

The results of the model demonstrated that the proposed controls will result in attainment of the 2008 Lead NAAQS in the Hayden NAA. Table 3 below summarizes the results of the modeling analysis, in addition to applicable background concentrations for comparison to the NAAQS.

Table 3: Modeling Results, Pb NAAQS

Highest 3-Month Concentration ($\mu g/m^3$)*	Total Concentration ($\mu g/m^3$)*	NAAQS ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)
0.134	0.147	0.15	0.013

* Highest 3-month concentration predicted to occur at (521358.8 m, 3651137.8 m).

AERMOD was run for each year for the Camera Hill and for the Hayden Jail Data sets to determine the design concentration. The results for the two runs were combined then post-processed using LEADPOST. The analysis demonstrates that the proposed projects will result in attainment of the 3-month rolling average Pb NAAQS. In addition, the results showed that the modeled Pb concentrations decrease very rapidly with distance from the facility.

XI. LIST OF ABBREVIATIONS

ADEQ .....Arizona Department of Environmental Quality
AERMAP.....Terrain data preprocessor for AERMOD
AERMET.....AERMOD Meteorological Preprocessor
AERMOD.....AMS/EPA Regulatory Model
AERSURFACE .....Surface characteristics preprocessor for AERMOD
AMS.....American Meteorological Society
A.R.S.....Arizona Revised Statutes

1 Modeling Report for the Hayden Lead Nonattainment Area (December 20, 2022) by Blue Sky Modeling, LLC.

CEMS.....Continuous Emissions Monitoring System
CFR..... Code of Federal Regulations
CMS.....Continuous Monitoring System
CRP.....Converter Retrofit Project
EJ .....Environmental Justice
EPA .....Environmental Protection Agency
NAA.....Nonattainment Area
NAAQS.....National Ambient Air Quality Standard
NWS.....National Weather Service
Pb ..... Lead
PM.....Particulate Matter
PM_{10} .....Particulate Matter less than 10 µm nominal aerodynamic diameter
PTE ..... Potential to Emit
SIP.....State Implementation Plan
SO_2 ..... Sulfur Dioxide
SPR .....Significant Permit Revision
TPY..... Tons per Year