

# Arizona Administrative REGISTER

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# From the Publisher

## ABOUT THIS PUBLICATION

The paper copy of the *Administrative Register* (A.A.R.) is the official publication for rules and rulemaking activity in the state of Arizona.

Rulemaking is defined in Arizona Revised Statutes known as the Arizona Administrative Procedure Act (APA), A.R.S. Title 41, Chapter 6, Articles 1 through 10.

The Office of the Secretary of State does not interpret or enforce rules published in the *Arizona Administrative Register* or *Code*. Questions should be directed to the state agency responsible for the promulgation of the rule as provided in its published filing.

The *Register* is cited by volume and page number. Volumes are published by calendar year with issues published weekly. Page numbering continues in each weekly issue.

In addition, the *Register* contains the full text of the Governor's Executive Orders and Proclamations of general applicability, summaries of Attorney General opinions, notices of rules terminated by the agency, and the Governor's appointments of state officials and members of state boards and commissions.

## ABOUT RULES

Rules can be: made (all new text); amended (rules on file, changing text); repealed (removing text); or renumbered (moving rules to a different Section number). Rules activity published in the *Register* includes: proposed, final, emergency, expedited, and exempt rules as defined in the APA.

Rulemakings initiated under the APA as effective on and after January 1, 1995, include the full text of the rule in the *Register*. New rules in this publication (whether proposed or made) are denoted with underlining; repealed text is stricken.

## WHERE IS A "CLEAN" COPY OF THE FINAL OR EXEMPT RULE PUBLISHED IN THE REGISTER?

The *Arizona Administrative Code* (A.A.C.) contains the codified text of rules. The A.A.C. contains rules promulgated and filed by state agencies that have been approved by the Attorney General or the Governor's Regulatory Review Council. The *Code* also contains rules exempt from the rulemaking process.

The printed *Code* is the official publication of a rule in the A.A.C. is prima facie evidence of the making, amendment, or repeal of that rule as provided by A.R.S. § 41-1012. Paper copies of rules are available by full Chapter or by subscription. The *Code* is posted online for free.

## LEGAL CITATIONS AND FILING NUMBERS

On the cover: Each agency is assigned a Chapter in the *Arizona Administrative Code* under a specific Title. Titles represent broad subject areas. The Title number is listed first; with the acronym A.A.C., which stands for the *Arizona Administrative Code*; following the Chapter number and Agency name, then program name. For example, the Secretary of State has rules on rulemaking in Title 1, Chapter 1 of the *Arizona Administrative Code*. The citation for this chapter is 1 A.A.C. 1, Secretary of State, Rules and Rulemaking

Every document filed in the office is assigned a file number. This number, enclosed in brackets, is located at the top right of the published documents in the *Register*. The original filed document is available for 10 cents a copy.

# Arizona Administrative REGISTER

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**ADMINISTRATIVE CODE**  
A price list for the *Arizona Administrative Code* is available online. You may also request a paper price list by mail. To purchase a paper Chapter, contact us at (602) 364-3223.

**PUBLICATION DEADLINES**  
Publication dates are published in the back of the *Register*. These dates include file submittal dates with a three-week turnaround from filing to published document.

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# Participate in the Process

## Look for the Agency Notice

Review (inspect) notices published in the *Arizona Administrative Register*. Many agencies maintain stakeholder lists and would be glad to inform you when they proposed changes to rules. Check an agency's website and its newsletters for news about notices and meetings.

Feel like a change should be made to a rule and an agency has not proposed changes? You can petition an agency to make, amend, or repeal a rule. The agency must respond to the petition. (See A.R.S. § 41-1033)

## Attend a public hearing/meeting

Attend a public meeting that is being conducted by the agency on a Notice of Proposed Rulemaking. Public meetings may be listed in the Preamble of a Notice of Proposed Rulemaking or they may be published separately in the *Register*. Be prepared to speak, attend the meeting, and make an oral comment.

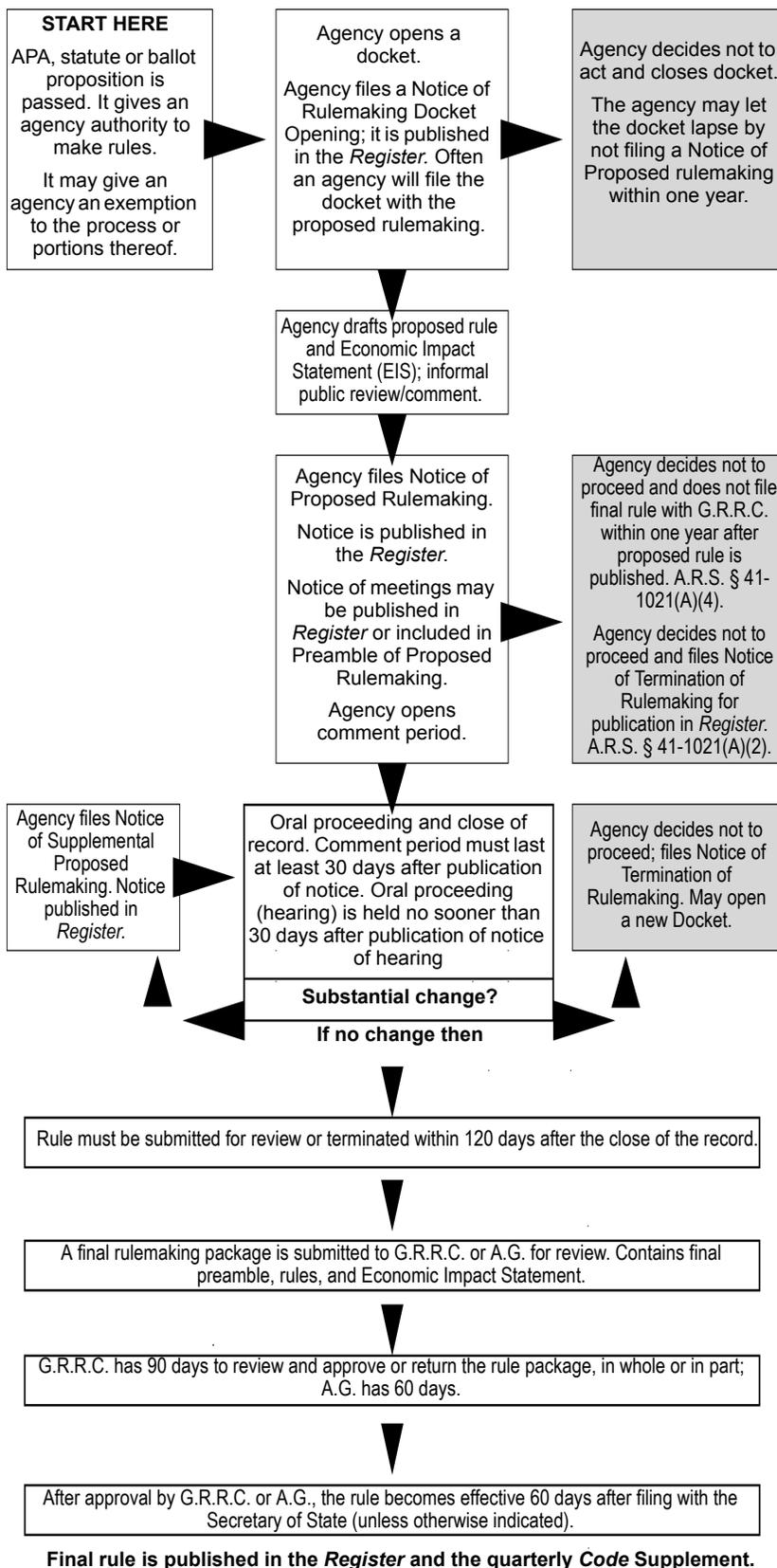
An agency may not have a public meeting scheduled on the Notice of Proposed Rulemaking. If not, you may request that the agency schedule a proceeding. This request must be put in writing within 30 days after the published Notice of Proposed Rulemaking.

## Write the agency

Put your comments in writing to the agency. In order for the agency to consider your comments, the agency must receive them by the close of record. The comment must be received within the 30-day comment timeframe following the *Register* publication of the Notice of Proposed Rulemaking.

You can also submit to the Governor's Regulatory Review Council written comments that are relevant to the Council's power to review a given rule (A.R.S. § 41-1052). The Council reviews the rule at the end of the rulemaking process and before the rules are filed with the Secretary of State.

## Arizona Regular Rulemaking Process



## Definitions

**Arizona Administrative Code (A.A.C.):** Official rules codified and published by the Secretary of State's Office. Available online at [www.azsos.gov](http://www.azsos.gov).

**Arizona Administrative Register (A.A.R.):** The official publication that includes filed documents pertaining to Arizona rulemaking. Available online at [www.azsos.gov](http://www.azsos.gov).

**Administrative Procedure Act (APA):** A.R.S. Title 41, Chapter 6, Articles 1 through 10. Available online at [www.azleg.gov](http://www.azleg.gov).

**Arizona Revised Statutes (A.R.S.):** The statutes are made by the Arizona State Legislature during a legislative session. They are compiled by Legislative Council, with the official publication codified by Thomson West. Citations to statutes include Titles which represent broad subject areas. The Title number is followed by the Section number. For example, A.R.S. § 41-1001 is the definitions Section of Title 41 of the Arizona Administrative Procedures Act. The "§" symbol simply means "section." Available online at [www.azleg.gov](http://www.azleg.gov).

**Chapter:** A division in the codification of the *Code* designating a state agency or, for a large agency, a major program.

**Close of Record:** The close of the public record for a proposed rulemaking is the date an agency chooses as the last date it will accept public comments, either written or oral.

**Code of Federal Regulations (CFR):** The *Code of Federal Regulations* is a codification of the general and permanent rules published in the *Federal Register* by the executive departments and agencies of the federal government.

**Docket:** A public file for each rulemaking containing materials related to the proceedings of that rulemaking. The docket file is established and maintained by an agency from the time it begins to consider making a rule until the rulemaking is finished. The agency provides public notice of the docket by filing a Notice of Rulemaking Docket Opening with the Office for publication in the *Register*.

**Economic, Small Business, and Consumer Impact Statement (EIS):** The EIS identifies the impact of the rule on private and public employment, on small businesses, and on consumers. It includes an analysis of the probable costs and benefits of the rule. An agency includes a brief summary of the EIS in its preamble. The EIS is not published in the *Register* but is available from the agency promulgating the rule. The EIS is also filed with the rulemaking package.

**Governor's Regulatory Review (G.R.R.C.):** Reviews and approves rules to ensure that they are necessary and to avoid unnecessary duplication and adverse impact on the public. G.R.R.C. also assesses whether the rules are clear, concise, understandable, legal, consistent with legislative intent, and whether the benefits of a rule outweigh the cost.

**Incorporated by Reference:** An agency may incorporate by reference standards or other publications. These standards are available from the state agency with references on where to order the standard or review it online.

**Federal Register (FR):** The *Federal Register* is a legal newspaper published every business day by the National Archives and Records Administration (NARA). It contains federal agency regulations; proposed rules and notices; and executive orders, proclamations, and other presidential documents.

**Session Laws or "Laws":** When an agency references a law that has not yet been codified into the Arizona Revised Statutes, use the word "Laws" is followed by the year the law was passed by the Legislature, followed by the Chapter number using the abbreviation "Ch.," and the specific Section number using the Section symbol (§). For example, Laws 1995, Ch. 6, § 2. Session laws are available at [www.azleg.gov](http://www.azleg.gov).

**United States Code (U.S.C.):** The Code is a consolidation and codification by subject matter of the general and permanent laws of the United States. The Code does not include regulations issued by executive branch agencies, decisions of the federal courts, treaties, or laws enacted by state or local governments.

## Acronyms

A.A.C. – *Arizona Administrative Code*

A.A.R. – *Arizona Administrative Register*

APA – *Administrative Procedure Act*

A.R.S. – *Arizona Revised Statutes*

CFR – *Code of Federal Regulations*

EIS – *Economic, Small Business, and Consumer Impact Statement*

FR – *Federal Register*

G.R.R.C. – *Governor's Regulatory Review Council*

U.S.C. – *United States Code*

## About Preambles

The Preamble is the part of a rulemaking package that contains information about the rulemaking and provides agency justification and regulatory intent.

It includes reference to the specific statutes authorizing the agency to make the rule, an explanation of the rule, reasons for proposing the rule, and the preliminary Economic Impact Statement.

The information in the Preamble differs between rulemaking notices used and the stage of the rulemaking.





**7. A reference to any study relevant to the rule that the agency reviewed and either relied on or did not rely on in its evaluation of or justification for the rule, where the public may obtain or review each study, all data underlying each study, and any analysis of each study and other supporting material:**

The Board did not review or rely on a study in its evaluation of or justification for the rule.

**8. A showing of good cause why the rulemaking is necessary to promote a statewide interest if the rulemaking will diminish a previous grant of authority of a political subdivision of this state:**

Not applicable

**9. A summary of the economic, small business, and consumer impact:**

The Board determined the rulemaking will have minimal impact. It is statute rather than this rulemaking that enables a licensee to obtain required continuing education during a biennial renewal period rather than annually. Adding a time frame for Board action on an application to retired a license and to renew a retired license will provide certainty to the applicant.

**10. A description of any changes between the proposed rulemaking, including supplemental notices, and the final rulemaking:**

Minor word changes were made between the proposed and final rulemakings. None of the changes were substantive.

**11. An agency's summary of the public or stakeholder comments made about the rulemaking and the agency response to comments:**

The Board received no public comments regarding the rulemaking. No one attended the oral proceeding on December 27, 2016.

**12. All agencies shall list any other matters prescribed by statute applicable to the specific agency or to any specific rule or class of rules. Additionally, an agency subject to Council review under A.R.S. §§ 41-1052 and 41-1055 shall respond to the following questions:**

None

**a. Whether the rule requires a permit, whether a general permit is used and if not, the reasons why a general permit is not used:**

The licenses listed in Table 1 are general permits consistent with A.R.S. § 41-1037 because they are issued to qualified individuals or entities to conduct activities that are substantially similar in nature.

**b. Whether a federal law is applicable to the subject of the rule, whether the rule is more stringent than federal law and if so, citation to the statutory authority to exceed the requirements of federal law:**

Federal law applies to the provision of health care but no federal law addresses the subject matter of this rulemaking. No rule in the rulemaking is more stringent than federal law.

**c. Whether a person submitted an analysis to the agency that compares the rule's impact of the competitiveness of business in this state to the impact on business in other states:**

No analysis was submitted.

**13. A list of any incorporated by reference material as specified in A.R.S. § 41-1028 and its location in the rule:**

None

**14. Whether the rule was previously made, amended, or repealed as an emergency rule. If so, cite the notice published in the Register as specified in R1-1-409(A). Also, the agency shall state where the text was changed between the emergency and the final rulemaking packages:**

No rule in the rulemaking was previously made, amended, or repealed as an emergency rule.

**15. The full text of the rules follows:**

**TITLE 4. PROFESSIONS AND OCCUPATIONS  
CHAPTER 22. BOARD OF OSTEOPATHIC EXAMINERS IN MEDICINE AND SURGERY**

**ARTICLE 1. GENERAL PROVISIONS**

Section	
R4-22-104.	Licensing <del>Time frames</del> <b>Time Frames</b>
Table 1.	<del>Time frames</del> <b>Time Frames</b> (in days)

**ARTICLE 2. LICENSING**

Section	
R4-22-207.	Continuing Medical Education; Waiver; Extension of Time to Complete

**ARTICLE 1. GENERAL PROVISIONS**

**R4-22-104. Licensing ~~Time frames~~ **Time Frames****

- A. The overall ~~time frame~~ **time frame** described in A.R.S. § 41-1072(2) for each type of license issued by the Board is listed in Table 1. An applicant and the Executive Director of the Board may agree in writing to extend the substantive review and overall ~~time frames~~ **time frames** by no more than 25 percent of the overall time-frame listed in Table 1.
- B. The administrative completeness review ~~time frame~~ **time frame** described in A.R.S. § 41-1072(1) for each type of license issued by the Board is listed in Table 1. The administrative completeness review ~~time frame~~ **time frame** for a particular license begins on the date the Board receives an application package for that license.
  - 1. If the application package is incomplete, the Board shall send to the applicant a written notice specifying the missing document or incomplete information. The administrative completeness review and overall ~~time frames~~ **time frames** are suspended from the postmark date on the notice until the date the Board receives the missing document or incomplete information.



- 2. If the application package is complete, the Board shall send to the applicant a written notice of administrative completeness.
- 3. If the Board grants or denies a license during the administrative completeness review ~~time frame~~ time frame, the Board shall not issue a separate written notice of administrative completeness.
- C. The substantive review ~~time frame~~ time frame described in A.R.S. § 41-1072(3) for each type of license issued by the Board is listed in Table 1. The substantive review ~~time frame~~ time frame begins on the postmark date of the Board’s notice of administrative completeness.
  - 1. During the substantive review ~~time frame~~ time frame, the Board may make one comprehensive written request for additional information or documentation. The substantive review and overall ~~time frames~~ time frames are suspended from the postmark date on the comprehensive written request for additional information or documentation until the Board receives the additional information or documentation. The Board and applicant may agree in writing to allow the Board to submit supplemental requests for additional information.
  - 2. The Board shall send a written notice of approval to an applicant who meets the requirements of A.R.S. Title 32, Chapter 17 and this Chapter.
  - 3. The Board shall send a written notice of denial to an applicant who fails to meet the requirements of A.R.S. Title 32, Chapter 17 or this Chapter.
- D. The Board shall administratively close an applicant’s file if the applicant fails to submit the information or documentation required under subsection (B)(1) or (C)(1) within 360 days from the date on which the application package was originally submitted. If an individual whose file is administratively closed wishes to be licensed, the individual shall file another application package and pay the application fee.
- E. The Board shall grant or deny the following licenses within seven days after receipt of an application:
  - 1. Ninety-day extension of locum tenens registration; and
  - 2. Waiver of continuing education requirements for a particular period; and
  - 3. Extension of time to complete continuing education requirements; and
  - 4. Five-day educational training permit; and
  - 5. Extension of one-year renewable training permit; and
  - 6. Renewal of retired status.
- F. In computing any ~~time frame~~ time frame prescribed in this Section, the day of the act or event that begins the ~~time frame~~ time frame is not included. The computation includes intermediate Saturdays, Sundays, and official state holidays. If the last day of a ~~time frame~~ time frame falls on a Saturday, Sunday, or official state holiday, the next business day is the ~~time frame’s~~ time frame’s last day.

**Table 1. ~~Time frames~~ Time Frames (in days)**

Type of License	Statutory Authority	Overall <del>Time-frame</del> <u>Time Frame</u>	Administrative Completeness <del>Time-frame</del> <u>Time Frame</u>	Substantive Review <del>Time-frame</del> <u>Time Frame</u>
License	A.R.S. § 32-1822	120	30	90
License Renewal	A.R.S. § 32-1825	120	30	90
90-day Locum Tenens Registration	A.R.S. § 32-1823	60	30	30
One-year Renewable Training Permit	A.R.S. § 32-1829(A)	60	30	30
Short-term Training Permit	A.R.S. § 32-1829(C)	60	30	30
One-year Training Permit at Approved School or Hospital	A.R.S. § 32-1830	60	30	30
Two-year Teaching License	A.R.S. § 32-1831	60	30	30
Registration to Dispense Drugs and Devices	A.R.S. § 32-1871	90	30	60
Renewal of Registration to Dispense Drugs and Devices	A.R.S. §§ 32-1826(A)(11) and 32-1871	60	30	30
Approval of Educational Program for Medical Assistants	A.R.S. § 32-1800(17)	60	30	30
<u>Retired Status</u>	<u>A.R.S. § 32-1832</u>	<u>90</u>	<u>30</u>	<u>60</u>

**ARTICLE 2. LICENSING**

**R4-22-207. Continuing Medical Education; Waiver; Extension of Time to Complete**

- A. Under A.R.S. § 32-1825(B), a licensee is required to obtain ~~20~~ 40 hours of Board-approved CME in ~~each of~~ the two years before license renewal. The Board shall approve the CME of a licensee if the CME complies with the following:
  - 1. At least ~~42~~ 24 hours are obtained ~~annually~~ by completing CME classified by the AOA as Category 1A; and



- 2. No more than ~~eight~~ 16 hours are obtained ~~annually~~ by completing CME classified as American Medical Association Category 1 approved by an ACCME-accredited CME provider.
- B. A licensee may fulfill ~~20~~ 40 hours of the CME requirement for a ~~particular year~~ biennial license renewal period by participating in an approved residency, internship, fellowship, postgraduate training program or preceptorship during that ~~year~~ biennial license renewal period.
- C. The Board shall accept the following documentation as evidence of compliance with the CME requirement:
  - 1. For a CME under subsection (A)(1):
    - a. The AOA printout of the licensee’s CME, or
    - b. A copy of the certificate of attendance from the provider of the CME showing:
      - i. Licensee’s name,
      - ii. Title of the CME,
      - iii. Name of the provider of the CME,
      - iv. Category of the CME,
      - v. Number of hours in the CME, and
      - vi. Date of attendance;
  - 2. For a CME under subsection (A)(2):
    - a. A copy of the certificate of attendance from the provider of the CME showing the information listed in subsection (C)(1)(b); or
    - b. A specialty board’s printout showing a licensee’s completion of CME.
  - 3. For a CME under subsection (B), either a letter from the Director of Medical Education or a certificate of completion for the approved internship, residency, fellowship, postgraduate training program or preceptorship.
- D. Waiver of CME requirements. To obtain a waiver under A.R.S. § 32-1825(C) of the CME requirements, a licensee shall submit to the Board a written request that includes the following:
  - 1. The period for which the waiver is requested,
  - 2. CME completed during the current license period and the documentation required under subsection (C), and
  - 3. Reason that a waiver is needed and the applicable documentation:
    - a. For military service. A copy of current orders or a letter on official letterhead from the licensee’s commanding officer;
    - b. For absence from the United States. A copy of pages from the licensee’s passport showing exit and reentry dates;
    - c. For disability. A letter from the licensee’s treating physician stating the nature of the disability; or
    - d. For circumstances beyond the licensee’s control:
      - i. A letter from the licensee stating the nature of the circumstances, and
      - ii. Documentation that provides evidence of the circumstances.
- E. The Board shall grant a request for waiver of CME requirements that:
  - 1. Is based on a reason listed in subsection (D)(3),
  - 2. Is supported by the ~~required~~ documentation required under subsection (D)(3),
  - 3. Is filed no sooner than 60 days before and no later than 30 days after the license renewal date, and
  - 4. Will promote the safe and professional practice of osteopathy in this state.
- F. Extension of time to complete CME requirements. To obtain an extension of time under A.R.S. § 32-1825(C) to complete the CME requirements, a licensee shall submit to the Board a written request that includes the following:
  - 1. Ending date of the requested extension,
  - 2. CME completed during the current license period and the documentation required under subsection (C),
  - 3. ~~Proof of registration~~ the licensee is registered for additional CME ~~that is~~ sufficient to enable the licensee to complete all CME required for license renewal before the end of the requested extension, and
  - 4. Licensee’s attestation that the CME obtained under the extension will be reported only to fulfill the current license renewal requirement and will not be reported on a subsequent license renewal application.
- G. The Board shall grant a request for an extension that:
  - 1. Specifies an ending date no later than May 1 following the license renewal date,
  - 2. Includes the ~~required~~ documentation and attestation required under subsection (F),
  - 3. Is submitted no sooner than 60 days before and no later than 30 days after the license renewal date, and
  - 4. Will promote the safe and professional practice of osteopathy in this state.



**NOTICE OF FINAL RULEMAKING  
TITLE 18. ENVIRONMENTAL QUALITY  
CHAPTER 2. DEPARTMENT OF ENVIRONMENTAL QUALITY  
AIR POLLUTION CONTROL**

[R17-38]

**PREAMBLE**

- 1. Article, Part, or Section Affected (as applicable)**
- | <u>Article, Part, or Section Affected (as applicable)</u> | <u>Rulemaking Action</u> |
|---|--------------------------|
| R18-2-715   | Amend                    |
| R18-2-715.01  | Amend                    |
| R18-2-715.02  | Amend                    |
| Article 13  | New Article              |
| R18-2-B1301   | New Section              |
| R18-2-B1301.01  | New Section              |
| R18-2-B1302   | New Section              |
| R18-2-C1301   | New Section              |
| R18-2-C1302   | New Section              |
| Appendix 14   | New Appendix             |
| Appendix 15   | New Appendix             |
- 2. Citations to the agency's statutory rulemaking authority to include both the authorizing statute (general) and the implementing statute (specific):**  
 Authorizing statute: A.R.S. §§ 49-104(A)(10), 49-404(A)  
 Implementing statute: A.R.S. § 49-425(A)
- 3. The effective date of the rule:**  
 Sections R18-2-715, R18-2-715.01 and R18-2-715.02 effective May 7, 2017 (60 days upon filing with this office). See item 3b of this Preamble for additional effective dates as specified by the agency.
- a. If the agency selected a date earlier than the 60 day effective date as specified in A.R.S. § 41-1032(A), include the earlier date and state the reason or reasons the agency selected the earlier effective date as provided in A.R.S. § 41-1032(A)(1) through (5):**  
 Not applicable
- b. If the agency selected a date later than the 60 day effective date as specified in A.R.S. § 41-1032(A), include the later date and state the reason or reasons the agency selected the later effective date as provided in A.R.S. § 41-1032(B):**  
 The effective date of R18-2-B1301 and –B1302 is on the earlier of July 1, 2018 or 180 calendar days after completion of all Converter Retrofit Project improvements authorized by Significant Permit Revision No. 60647.  
 The effective date of R18-2-B1301.01 is December 1, 2018.  
 The effective date of R18-2-C1302 is on the later of the effective date of the Administrator's action approving it as part of the state implementation plan or January 1, 2018.  
 The Arizona Department of Environmental Quality is requesting effective dates that are later than the 60 day effective date as specified in A.R.S. § 41-1032(A). An effective date later than the 60 day effective date is necessary to allow the owners/operators of the facilities subject to the rules to complete construction to comply with the new rules.
- 4. Citations to all related notices published in the Register as specified in R1-1-409(A) that pertain to the record of the final rulemaking package:**  
 Notice of Rulemaking Docket Opening: 22 A.A.R. 3336, November 25, 2016  
 Notice of Proposed Rulemaking: 22 A.A.R. 3279, November 25, 2016
- 5. The agency's contact person who can answer questions about the rulemaking:**  
 For the rules applicable to the Hayden Lead Nonattainment Area:  
 Name: Natalie Muilenberg  
 Address: Department of Environmental Quality  
 Air Quality Division, AQIP Section  
 1110 W. Washington St.  
 Phoenix, AZ 85007  
 Telephone: (602) 771-1089  
 Fax: (602) 771-2299  
 E-mail: nm3@azdeq.gov  
 Web site: www.azdeq.gov  
 For the Article 7 amendments and rules applicable to the Hayden and Miami Sulfur Dioxide Nonattainment Areas:  
 Name: Lisa Tomczak  
 Address: Department of Environmental Quality  
 Air Quality Division, AQIP Section



1110 W. Washington St.  
Phoenix, AZ 85007

Telephone: (602) 771-4450  
Fax: (602) 771-2299  
E-mail: [lt5@azdeq.gov](mailto:lt5@azdeq.gov)  
Web site: [www.azdeq.gov](http://www.azdeq.gov)

**6. An agency's justification and reason why a rule should be made, amended, repealed or renumbered, to include an explanation about the rulemaking:**

**Summary.**

The Arizona Department of Environmental Quality (ADEQ) is amending R18-2-715, -715.01, and -715.02. ADEQ is also adding a new Article with new rules applicable to two copper smelters: one located in Hayden, Gila County, and one located in Miami, Gila County.

The purpose of this final rulemaking is to control lead and sulfur dioxide air pollution in Hayden and sulfur dioxide pollution in Miami as part of the State Implementation Plan (SIP) program under the federal Clean Air Act (CAA).

The rules will be submitted to the U.S. Environmental Protection Agency (EPA) with a revision to Arizona's SIP for the Hayden lead nonattainment area, the Hayden sulfur dioxide nonattainment area, and the Miami sulfur dioxide nonattainment area. A.R.S. § 41-1038 is not applicable to this rulemaking because the failure to take such rulemaking action would result in sanctions under CAA Section 179.

**Background.**

**Hayden lead nonattainment area**

In 2008, EPA revised the nearly 40-year-old air quality standards for lead, strengthening them by almost 90 percent. *73 Fed. Reg.* 66964 (2008). The maximum allowable level of lead in ambient air is a rolling three-month average of 0.15 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) evaluated over a three-year period. EPA reviewed and synthesized over 6,000 international studies that covered a broad range of human health and environmental impacts of lead air pollution. EPA tightened the standards to "provide increased protection for children and other at-risk populations against an array of adverse health effects, most notably including neurological effects in children." *73 Fed. Reg.* 66964, 66965 (2008).

The promulgation of the 2008 lead National Ambient Air Quality Standards (NAAQS) requires states to subsequently submit boundary designations to EPA of areas that meet the standards ("attainment"), do not meet the standards ("nonattainment"), and cannot be classified. These designation recommendations must be submitted to EPA no later than one year after the promulgation of a new NAAQS, and EPA is required to complete designations within two years of promulgation.

In December of 2009, ADEQ recommended to EPA that most of Arizona be designated unclassified/attainment for the 2008 lead NAAQS. At the time, a violation of the NAAQS was recorded at one of EPA's CERCLA/Superfund ambient air monitors near a copper smelter in Hayden currently owned and operated by ASARCO LLC (Asarco). ADEQ requested that EPA delay its designation of the Hayden area because Asarco committed to improve its control of lead emissions in the future. ADEQ recommended that if the Hayden area continued to violate the NAAQS in 2010, it should be designated nonattainment.

After receiving ADEQ's recommendation, EPA conducted a technical analysis on the Hayden area, investigating the sources of lead emissions, topography, meteorology, and data from the violating air quality monitor. In 2010, EPA proposed to designate the Hayden area as nonattainment using air quality data from the violating CERCLA/Superfund monitor. However, commenters challenged the designation because EPA used data from a monitor that was not part of the State and Local Air Monitoring Stations (SLAMS) network and not collected in accordance with quality control and quality assurance requirements. *79 Fed. Reg.* 25077, 25079 (2014). In response, EPA designated the Hayden area as unclassifiable in 2011 until sufficient data could be collected by a SLAMS monitor in accordance with federal requirements. Later in 2012, Asarco installed a baghouse on the anode furnace to curb particulate and lead emissions from the smelter.

Finally, in 2014, EPA redesignated the Hayden area from unclassifiable to nonattainment after several violations were recorded at ADEQ's Globe Highway SLAMS monitor. *79 Fed. Reg.* 52205 (2014). The boundaries of the nonattainment area matched those of the Hayden sulfur dioxide nonattainment area, located in both Gila and Pinal Counties. The area's nonattainment designation triggers planning and control requirements under the CAA to bring the area to attainment as expeditiously as practicable.

In 2015, Asarco entered into a consent decree with EPA (see Consent Decree No. CV-15-02206-PHX-DLR) to settle a civil enforcement action. The action alleged that ASARCO had violated, and continued to violate, the National Emission Standards for Hazardous Air Pollutants ("NESHAP") for Primary Copper Smelting, 40 C.F.R. Part 63, Subpart QQQ. To comply with the consent decree, Asarco will spend over \$150 million to reduce emissions at its smelter and lead concentrations in the ambient air of the surrounding Town of Hayden. Control equipment installation and retrofit requirements in the consent decree are also part of the control strategy for the Hayden area's SIP revision and this rulemaking.

Asarco's copper smelter is one of three in the United States and has been operating since the early 1900s, around the same time the Town of Hayden was established. In general, Asarco's smelter produces copper anodes using an INCO flash furnace smelter, Peirce-Smith batch converters, and anode refining technologies. First, copper concentrate is produced from several of Asarco's mining and milling facilities and transported to the Asarco Hayden Smelter for further refining. Some concentrate may also be custom smelted on behalf of other companies. The concentrate is mixed with flux in the bedding plant and then routed to fluidized bed dryers for drying.

Once dried, the copper concentrate is next introduced into the INCO flash furnace with oxygen enriched air, where it is flash smelted and separates into a heavier copper-bearing matte layer and a lighter slag layer. The lighter slag layer is skimmed into a pot



which is transported to the slag dump for deposition. The molten matte is tapped from the flash furnace and is poured into a ladle that transfers it to the converter furnace for further refining.

At the converter furnaces, each batch of matte goes through a series of blowing cycles that drive off the remaining sulfur and other impurities and produce blister copper. From the converters, the molten blister copper is transferred to the anode furnace where it is reduced with natural gas and poured into anode molds for shipment to Asarco's refinery in Amarillo, Texas.

Lead is an impurity that is naturally occurring in the copper ore that is mined and in the copper concentrate that is produced. Lead has the potential to be emitted from the smelting processes in gaseous and particulate form. Smelting process emissions can occur from the INCO flash furnace, the converters, and the anode furnaces. All process emissions are already controlled by either process gas cleaning systems, electrostatic precipitators, or baghouses. However, not all emissions are captured; some are emitted into the atmosphere as process fugitive emissions. Process fugitive emissions occur from matte tapping and slag skimming at the flash furnace, the converters, and anode furnace and anode casting operations. In addition to process fugitive emissions, lead, in the form of particulate matter, is emitted by dust-causing sources. At Asarco's Hayden operations, fugitive lead dust is generated from sources like open-air concentrate storage and handling, slag pouring, reverts storage and handling, and roadways.

ADEQ's analysis concluded that Asarco's Hayden Operations is the primary source of lead emissions within the Hayden lead nonattainment area, thus, planning and rulemaking efforts are focused on the facility.

Ultimately, ADEQ's planning and rulemaking efforts aim to improve air quality in the Hayden lead nonattainment area to protect human health and the environment. ADEQ also recognizes Asarco's role and contributions to Hayden's local economy, which is historically built on copper mining and smelting, and intends to provide enough flexibility for the facility's successful operation.

#### Hayden and Miami sulfur dioxide nonattainment areas

The Hayden and Miami areas were designated as nonattainment for sulfur dioxide in 1979 due to violations of the 1971 sulfur dioxide NAAQS. In 1979, Arizona adopted rules to lower sulfur dioxide emissions from the smelters. The State of Arizona submitted revisions to its SIP to EPA on September 20, 1979; January 10, 1980; and September 10, 1980. The revisions consisted of a demonstration of good engineering practice (GEP) stack height for the copper smelter in Hayden, Arizona, and the application of multi-point rollback (MPR) in establishing sulfur dioxide emissions limits. EPA published a notice of proposed rulemaking on November 30, 1981, conditionally approving Arizona's submittals. *46 Fed. Reg.* 58098 (1981). On June 3, 1982, Arizona submitted a SIP revision to satisfy the conditional approval and Arizona's demonstration of MPR. The MPR rules, which established stack emission limits for the smelters, were approved by EPA on January 14, 1983. *48 Fed. Reg.* 1717 (1983).

Following EPA's approval of the rule, the smelters began to implement improved process and control technology. In August 1991, the owner and operator of the Miami smelter submitted a study to ADEQ to partially fulfill outstanding SIP commitments for analysis of fugitive emissions. The study was implemented to describe sulfur dioxide fugitive emission units and provide an estimate of fugitive emissions during typical smelter operation. On April 11, 1996, Asarco submitted the results of a fugitive sulfur dioxide emissions study to ADEQ to fulfill outstanding SIP commitments for analysis of fugitive emissions.

To meet CAA requirements for redesignation and demonstrate continued attainment of air quality standards, air quality analyses were performed for the smelters during the time period 2001 – 2002. These analyses used maximum actual emissions (both stack and fugitive) in relation to resulting ambient concentrations and showed that the smelters were not expected to cause or contribute to a violation of the 1971 sulfur dioxide standards. In 2002, ADEQ conducted two rulemakings adopting new limits for the smelters. These rulemakings were finalized in R18-2-715(F), (G), and (H) along with corresponding changes to compliance and monitoring procedures in R18-2-715.01.

In 2004, ADEQ made several technical and administrative changes to A.A.C. Title 18, Chapter 2, Appendix 8 to clarify procedures for calculating material balance for sulfur applicable to three copper smelters: one located in Hayden, Gila County (currently owned by Asarco); one located in Miami, Gila County (currently owned by Freeport McMoRan-Miami Inc.); and one located in San Manuel, Pinal County. In 2006, ADEQ revised R18-2-715 to account for the shutdown of the smelter located in San Manuel and the March 2005 termination of its permit by deleting all references to the smelter from the rule.

On June 22, 2010, EPA replaced the existing annual and 24-hour primary sulfur dioxide NAAQS with a new 1-hour sulfur dioxide standard set at a level of 75 parts per billion (ppb) to better protect public health by reducing public exposure to elevated short-term concentrations of sulfur dioxide. *75 Fed. Reg.* 35520 (2010). The EPA revoked both the annual and 24-hour primary sulfur dioxide NAAQS. On August 5, 2013, EPA published the final designation of both the Hayden and Miami planning area as nonattainment for the 2010 sulfur dioxide NAAQS. *78 Fed. Reg.* 47191 (2013).

#### Regulatory requirements

To satisfy CAA requirements under Section 110 and Part D, ADEQ must develop and submit to EPA revisions to Arizona's SIP for the Hayden lead nonattainment area, Hayden sulfur dioxide nonattainment area, and Miami sulfur dioxide nonattainment area within 18 months of designation. The SIP revision must provide for the attainment of the 2008 lead NAAQS and 2010 sulfur dioxide NAAQS by containing, among other requirements:

1. Provisions to assure that reasonably available control measures are implemented;
2. A demonstration through air quality modeling that the plan will provide for attainment of the NAAQS as expeditiously as practicable, but no later than five years after the area's designation as nonattainment;
3. Provisions that result in reasonable further progress toward timely attainment through adherence to an ambitious compliance schedule;
4. Contingency measures that are to be implemented if the area fails to meet attainment or its reasonable further progress milestones; and
5. A permit program meeting the requirements of CAA Section 173 governing the construction and operation of new lead sources



in the area.

As part of the SIP revision and in order to provide a successful strategy that will bring the Hayden and Miami areas into attainment, ADEQ will be submitting these rules to EPA, making them federally enforceable under Arizona’s SIP. The rules set emission limits, control requirements, and compliance methods for the Asarco copper smelter in the Hayden lead and Hayden sulfur dioxide nonattainment areas and the Freeport-McMoRan Miami Inc. copper smelter in the Miami sulfur dioxide nonattainment area.

**Section by Section Explanation of Proposed Rules:**

Arizona is revising its rules for sulfur dioxide (R18-2-715 and -715.01) and adding a new Article to incorporate specific rules for the Hayden and Miami nonattainment areas. The current rules for sulfur dioxide (R18-2-715, -715.01, and -715.02) are being amended to clarify the applicability of the rules to the appropriate planning area and to revise incorrect references. The new rules will be included in Article 13, which contained the rules for the state’s terminated diesel conversion grant program, expired under A.R.S. § 41-1056(J) on April 30, 2013.

**Hayden lead nonattainment area**

Rule R18-2-B1301 primarily sets an emission limit and control requirements for Asarco’s copper smelter. The new emission limit will ensure that the smelter’s lead emissions will not cause or contribute to violations of the 2008 lead NAAQS. Within the rule, operational standards, monitoring requirements, compliance demonstration procedures, and recordkeeping/reporting requirements are tailored specifically for the smelter with the aim to reduce lead emissions. ADEQ conducted modeling to demonstrate future attainment of the 2008 lead NAAQS using the emission limits required by this rule.

Rule R18-2-B1301.01 sets control requirements for lead-bearing fugitive dust sources within Asarco’s Hayden operations. To comply with the rule, Asarco must develop a fugitive dust plan that addresses controls and compliance requirements for sources like paved and unpaved roads, concentrate storage, and reverts crushing. The rule also sets specific housekeeping requirements for such sources to control lead-bearing fugitive dust. The rule includes other requirements like recordkeeping, reporting, and a contingency measure should the area fail to attain.

**Hayden and Miami sulfur dioxide nonattainment areas**

Rule R18-2-B1302 sets control requirements and emission limits for sulfur dioxide for Asarco’s Hayden operations. Rule R18-2-C1302 sets control requirements and emission limits for sulfur dioxide for Freeport-McMoRan Miami Inc. Miami operations.

The sulfur dioxide NAAQS promulgated by EPA in 2010 adopted a new level, averaging time, and form of the primary standard. To comply with the new standard, control measures must be implemented that will lower emissions of sulfur dioxide sufficient for an area to attain the NAAQS. On April 23, 2014 EPA issued final guidance to assist agencies with the development of SIPs to comply with the new standard and CAA requirements. The guidance provided an approach whereby emission limits based on averaging times longer than one hour could be imposed as long as the limits reflect comparable stringency to a 1-hour critical emissions value (CEV). The CEV is the hourly emission rate that the model predicts would result in the five-year average of the annual 99th percentile of the daily maximum hourly sulfur dioxide concentrations at the level of the NAAQS. The approach requires that the source’s hourly emissions are effectively measured and that adequate assurance of attainment is evaluated through performance of a dispersion modeling analysis. The attainment modeling performed for the Hayden and Miami smelters evaluates emission limits with averaging times that are longer than one hour and demonstrates comparable stringency to a 1-hour CEV.

Due to differences in operations, Asarco and Freeport-McMoRan Miami Inc. are implementing control measures unique to each facility. The varied nature of the operations at the Hayden and Miami smelters require rules tailored to their specific operations in order for each area to meet the 2010 sulfur dioxide NAAQS. The new limits for both smelters also require minor changes to the compliance and monitoring provisions.

**7. A reference to any study relevant to the rule that the agency reviewed and either relied on or did not rely on in its evaluation of or justification for the rule, where the public may obtain or review each study, all data underlying each study, and any analysis of each study and other supporting material:**

**Hayden lead nonattainment area**

Arizona Department of Environmental Quality. (2016). “Modeling Technical Support Document for the Hayden lead (lead) Nonattainment Area.”

**Hayden sulfur dioxide nonattainment area**

Arizona Department of Environmental Quality and Asarco LLC. (2016). “Modeling Technical Support Document for the Hayden Sulfur Dioxide (SO<sub>2</sub>) Nonattainment Area.”

**Miami sulfur dioxide nonattainment area**

Arizona Department of Environmental Quality and Freeport-McMoRan Copper and Gold Inc. (2016). “Miami Sulfur Dioxide Nonattainment Area SIP Revision Attainment Demonstration Technical Support Document.”

All documents are available for the public to review, Monday through Friday, 8:30 a.m. – 4:30 p.m., at the ADEQ Records Center located at:

1110 W Washington St  
Phoenix, AZ 85007

For more information, contact the Records Center at (602) 771-4380 or recordscenter@azdeq.gov.

**8. A showing of good cause why the rulemaking is necessary to promote a statewide interest if the rulemaking will diminish a previous grant of authority of a political subdivision of this state:**

This rulemaking does not diminish a previous grant of authority of a political subdivision of this state.

**9. A summary of the economic, small business, and consumer impact:**

The following discussion addresses each of the elements required for an economic, small business, and consumer impact statement (EIS) under A.R.S. § 41-1055.

**An identification of the rule making.**

The rulemaking addressed by this EIS consists of new rules added to the new Article 13 (R18-2-B1301; R18-2-B1301.01; R18-2-B1302; R18-2-C1301 (Reserved), and R18-2-C1302). The purpose of the amendments and new rulemaking is to bring nonattainment areas in the State of Arizona into compliance with new air quality standards for lead and sulfur dioxide pollution.

This EIS addresses the impact of the 2008 lead NAAQS and the 2010 sulfur dioxide NAAQS that requires the owner and operators of copper smelters, Asarco and Freeport-McMoRan Miami Inc., to install new and improved air pollution control equipment, apply for a new permit, and comply with new emission limits. The new NAAQS may result in increased compliance costs for Asarco and Freeport-McMoRan Miami Inc. and minor increased administrative costs for ADEQ.

**An identification of the persons who will be directly affected by, bear the costs of or directly benefit from the rule making.**

The persons who will be directly affected by and bear the costs of this rulemaking are the owners and operators of the Miami and Hayden Smelters, which are Freeport-McMoRan Miami Inc. and Asarco, respectively. There are no other smelting facilities in the state of Arizona affected by this rulemaking.

The persons who will benefit from this rulemaking are the residents of Hayden and Miami, as well as the employees of Asarco and Freeport-McMoRan Miami Inc., due to the improved air quality that will result from this rulemaking and the corresponding control technology Asarco and Freeport-McMoRan Miami Inc. will be implementing to control lead and sulfur dioxide pollution.

**A cost benefit analysis of the following:****(a) The probable costs and benefits to the implementing agency and other agencies directly affected by the implementation and enforcement of the rule making.**

ADEQ estimates that the current number of full-time employees assigned in the Permits and Compliance Sections of the Air Quality Division at ADEQ are adequate to implement and enforce the 2008 lead NAAQS in the Hayden nonattainment area and the 2010 sulfur dioxide NAAQS in the Hayden and Miami nonattainment areas. The costs of the rules to the implementing agency will therefore be minimal. Furthermore, permits for sources in the nonattainment areas are revised every five years, with minor revisions occurring periodically. Under A.A.C. R18-2-301(2) and R18-2-326(B)(1)(a), the permit applicant—in this case, Asarco and Freeport-McMoRan Miami Inc.—will ultimately be required to reimburse ADEQ for the cost of revisions as part of permit fees.

ADEQ has permitting, enforcement, and compliance jurisdiction in the Hayden and Miami nonattainment areas, and therefore, no other state agencies will be affected by this rulemaking.

**(b) The probable costs and benefits to a political subdivision of this state directly affected by the implementation and enforcement of the rule making.**

No political subdivision of the state operates a smelter of metal ore like copper. Under A.R.S. § 49-402(A)(2), ADEQ has original jurisdiction over all “sources, permits, and violations which pertain to...smelting of metal ore.” The costs of enforcing these new rules applicable to the Asarco and Freeport-McMoRan Miami Inc. copper smelters are likely to be minimal and will be recoverable through permit fees acquired from Asarco and Freeport-McMoRan Miami Inc.

**(c) The probable costs and benefits to businesses directly affected by the rule making, including any anticipated effect on the revenues or payroll expenditures of employers who are subject to the rule making.**

The rules that are the subject of this preamble and EIS are necessary to comply with federal requirements for the SIP program under the CAA. If ADEQ fails to adopt these rules, the federal requirements will apply to the copper smelters through the adoption of a Federal Implementation Plan (FIP) issued by EPA under Section 110(c) of the CAA. However, the issuance of a FIP would likely require more strict emission limits and controls for the copper smelters, and further delay the areas’ attainment of the lead and sulfur dioxide NAAQS as expeditiously as practicable, as required by the CAA.

If ADEQ fails to submit approvable SIPs, the nonattainment areas would be subject to sanctions under CAA Section 179(b), which can include a prohibition of highway funds and emission offsets requirements for other facilities. Therefore this rulemaking is an effort to not only curb air pollution in Arizona, but to also avoid federal consequences.

Lead and sulfur dioxide pollution cause extreme health risks and burdensome healthcare costs. Such related costs and benefits obtained from controlling lead and sulfur dioxide pollution are discussed further below.

**The effects of lead air pollution**

According to EPA, lead is emitted into the air from a wide variety of source types. 73 *Fed. Reg.* 29184, 29190 (2008). Source types include aviation fuel, industrial boilers, iron and steel foundries, and metal ore smelters. Once deposited out of the air, lead can be disturbed and re-suspended into the air. For example, if dust containing particles of lead settles on a road, the lead can become airborne when a truck drives on the road. Lead pollution in the air can be exceptionally troublesome due to its ease of transport in smaller particle sizes. Lead also subsists in the environment for a very long time, making full remediation difficult.

Lead can enter the human body through many routes, but it is primarily inhaled when it is a component of air pollution. In its review of scientific literature for the 2008 lead NAAQS, EPA examined air-related lead exposure through:

1. Inhalation of airborne lead, including re-suspended lead particles
2. Ingestion of lead deposited as indoor or outdoor dust or soil, dietary items (like crops and livestock), and drinking water

EPA recognizes that “lead has been demonstrated to exert ‘a broad array of deleterious effects on multiple organ systems via widely diverse mechanisms of action.’” 73 *Fed. Reg.* 29184, 29197 (2008). Furthermore, a “safe” level of lead in the human body



that causes little to no harm has yet to be determined. In promulgating the 2008 lead NAAQS, EPA focused primarily on neurological effects in children and cardiovascular effects in adults that “are currently clearly of greatest public health concern.”

Health experts agree that the developing nervous system of a child is the most sensitive to lead exposure. EPA states, “Functional manifestations of lead neurotoxicity during childhood include sensory, motor, cognitive, and behavioral impacts.” 73 Fed. Reg. 29184, 29198 (2008). Studies have observed lower IQ, reduced academic achievement, and decreased graduation rates in adolescents exposed to lead. Lead exposure is associated with more negative ratings by teachers and/or parents for children exhibiting inattentiveness, impulsivity, distractibility, and lack of concentration. Higher concentrations of lead in the blood are also linked to impaired memory and visual-spatial skills. Additional studies show early exposure to lead in adolescents may result in an increased likelihood of antisocial and criminal behavior later in life. Since children are exposed to lead early, it has more time to accumulate in the blood supply and bones, hindering overall development and growth.

Lead exposure in adults can cause coronary heart disease, strokes, premature death, and hypertension. Furthermore, lead bioaccumulates in the body, causing persistent, long-term health problems. Lead exposure can also cause kidney disease, anemia, decreased sperm count, increased blood pressure, and interference with vitamin D metabolism. In the body of a pregnant woman, lead can easily cross the placenta, resulting in continued fetal exposure during pregnancy with lasting neurological impacts after birth. Pregnant women who are exposed to even low levels of lead are at high risk for premature birth.

Other symptoms caused by lead exposure include: irritability; shortened attention span; fatigue; impaired growth; loss of appetite; learning disabilities; headaches; seizures; nausea and vomiting; and severe abdominal pain.

A discussion of the monetary costs and health-based benefits of the proposed rulemaking for lead follows.

#### Lead emissions controls and costs

The CAA prohibits the EPA from considering costs in setting or revising the NAAQS for any pollutant. However, in promulgating the 2008 lead NAAQS, EPA analyzed the associated costs for pollution control equipment and benefits associated with improved public health. EPA estimates that full implementation of the lead NAAQS by sources across the U.S. in 2016 alone would cost approximately \$150 million to \$2.8 billion. The health benefits far outweigh these costs, estimated between \$3.8 billion to \$6.9 billion. 73 Fed. Reg. 66964 (2008).

As part of the consent decree, Asarco will implement the Converter Retrofit Project at its Hayden copper smelter to reduce lead and sulfur dioxide emissions. The project will replace the existing five 13-foot diameter copper converters with three 15-foot diameter converters that operate more efficiently. Improved primary and secondary hooded ventilation systems will also be installed above the smelting equipment to capture process off-gases. A new tertiary hooding system will further prevent emissions from escaping the smelting building. An upgraded vent gas baghouse will collect particulate and gaseous emissions coming from the converter dryers and flash furnace.

In addition to the Converter Retrofit Project, Asarco will also be implementing additional control technology for leaded fugitive dust sources. For example, solids from the acid plant scrubbers that process emissions from the flash furnace and copper converters will be dried in a fully enclosed system that is maintained under negative pressure instead of being dried in open piles outside. Materials like concentrate and reverts will no longer be stored in open piles outside, but rather on concrete pads with fences to block the wind and water sprays to minimize fugitive emissions. Unpaved roads will also be sprayed with chemical dust suppressants and paved roads will be sprayed with water to control leaded dust emissions. In addition to complying with the consent decree, these modifications will also contribute to the control strategy for the Hayden lead nonattainment area SIP.

In 2015, Asarco’s Hayden operations emitted over three tons of lead emissions. In 2019, that amount is projected to decrease by half to roughly 1.5 tons. The cost of the retrofit project is estimated to be \$110 million.

#### Benefits of lead emissions controls

The primary benefit of installing the emissions control technologies is an overall reduction in lead in ambient air, which in turn, decreases health and welfare risks from exposure.

Health issues cause more hospital stays and sick time taken from work, putting more burden on health care systems and the economy. EPA estimated between \$3.8 billion to \$6.9 billion of benefits can be contributed to the new lead NAAQS, reflecting public health improvements and an expected increase in lifetime earnings as a result of avoiding IQ loss.

This rulemaking will also help the State of Arizona avoid federal sanctions implemented under the CAA. If the State fails in submitting the rules and SIP revision for the Hayden lead nonattainment area, EPA has the authority to prohibit highway funding and increase costly emission offset requirements for new or modified facilities.

This rulemaking is necessary because of the health benefits derived from the improved controls implemented at the copper smelter and to avoid federal consequences.

#### The effects of sulfur dioxide pollution

According to the Agency for Toxic Substances and Disease Registry (ATSDR), sulfur dioxide is a colorless gas with a pungent odor. Sulfur dioxide is a liquid when under pressure; it easily dissolves in water and cannot catch fire. Sulfur dioxide in the air results primarily from activities associated with the burning of fossil fuels (coal, oil) such as at power plants or from copper smelting. Once released into the environment, sulfur dioxide moves to the air where it can convert to sulfuric acid, sulfur trioxide, and sulfates.

Short-term exposures to high levels of sulfur dioxide can be life-threatening. Exposure to 100 parts per million parts of air (ppm) is considered immediately dangerous to life and health. Previously healthy nonsmoking miners who breathed sulfur dioxide released as a result of an explosion in an underground copper mine developed burning of the nose and throat, breathing difficulties, and severe airway obstructions. Long-term exposure to persistent levels can also affect health. Lung function changes have been observed in some workers exposed to 0.4 - 3.0 ppm of sulfur dioxide for 20 years or more. However, these workers were also



exposed to other chemicals, making it difficult to attribute their health effects to sulfur dioxide exposure alone. Additionally, exercising asthmatics are sensitive to the respiratory effects of low concentrations (0.25 ppm) of sulfur dioxide.

Typical outdoor concentrations of sulfur dioxide may range from 0 to 1 ppm. Occupational exposures to sulfur dioxide may lawfully range from 0 to 5 ppm under state OSHA (Occupational Safety and Health Administration) regulations. During any 8-hour work shift of a 40-hour work week, the average concentration of sulfur dioxide in the workplace may not exceed 5 ppm.

Most of the effects of sulfur dioxide exposure that occur in adults (i.e., difficulty breathing, changes in the ability to breathe as deeply or take in as much air per breath, and burning of the nose and throat) are also of potential concern in children, but it is unknown whether children are more vulnerable to exposure. Children may be exposed to more sulfur dioxide than adults because they breathe more air for their body weight than adults do. Children also exercise more frequently than adults. Exercise increases breathing rate. This increase results in both a greater amount of sulfur dioxide in the lungs and enhanced effects on the lungs. One study suggested that a person's respiratory health, and not his or her age, determines vulnerability to the effects of breathing sulfur dioxide.

#### Sulfur dioxide emissions controls and costs

##### *Freeport-McMoRan Miami Inc.*

The construction work being performed at the Freeport-McMoRan Miami Inc. Miami smelter includes process changes along with environmental upgrades to achieve sulfur dioxide emission reductions so that the Miami area will meet the new ambient air quality standards. The Miami Smelter emission control upgrades include new converter mouth covers, a new Aisle Scrubber, additional capture systems, and upgrades to the Acid Plant Tail Gas and Vent Fume Scrubbers to use caustic for sulfur dioxide removal to ensure attainment of EPA's more stringent sulfur dioxide NAAQS. At this time, the cost of the project is estimated to be \$250 million.

##### *Asarco-Hayden*

The Converter Retrofit Project and associated controls discussed above for lead pollution will also greatly mitigate sulfur dioxide emissions. As mentioned earlier, the project involves replacement of the existing five 13-foot diameter converters with three 15-foot diameter converters. Corresponding modifications will be made to the converter aisle in order to accommodate the larger converters. The retrofit includes installation of a new converter primary gas system. New secondary hoods will also be installed and designed to fit the new, larger converters and new primary hoods. The new secondary hoods will direct sulfur dioxide ventilation gases during blowing operations to the acid plant instead of a baghouse, improving control. Other upgrades include installation of a new converter aisle tertiary gas collection system, enhanced lime injection at the secondary and new vent gas baghouse to further control sulfur dioxide emissions, and improvements to the acid plant. Overall, the retrofit is projected to reduce current sulfur dioxide emissions by 90 percent, with a total sulfur dioxide capture rate of 99.5 percent of the sulfur dioxide produced during the copper smelting process. The cost of the converter retrofit project is estimated to be \$110 million.

#### Benefits of sulfur dioxide emissions controls

One of the primary benefits of installing the emissions control technologies is an overall reduction in sulfur dioxide emissions. EPA first set health based standards for sulfur dioxide in 1971 at a 24-hour primary standard at 140 parts per billion (ppb) and an annual average standard at 30 ppb. In 1996, EPA reviewed the sulfur dioxide NAAQS and chose not to revise the standards. The 2010 revision to the sulfur dioxide NAAQS established a new one-hour standard at a level of 75 ppb. 75 Fed. Reg. 35520 (2010).

Lowering the standard will result in health benefits by lowering exposure to sulfur dioxide, specifically short-term exposure. Initial respiratory reactions to sulfur dioxide include narrowing of the airways in the lungs and difficulty breathing. Individuals with sensitive or compromised respiratory systems, such as children, the elderly, and individuals with respiratory related illnesses are more susceptible to these reactions. These negative reactions commonly result in increased emergency room and hospital visits. The revised NAAQS is designed to lower emissions and reduce exposure to high levels of sulfur dioxide by lowering the level of the standard and establishing new averaging time frame. EPA estimates that a level of 75 ppb for sulfur dioxide will result in cost benefits between \$13 billion and \$33 billion from reduced emergency room visits, hospitalizations, lost work days, and cases of aggravated asthma and bronchitis.

In addition to direct impacts, sulfur dioxide is also a precursor to particulate matter that is 2.5 micrometers in diameter, which can penetrate deep into the lungs and cause serious health effects including increases in cardiovascular illness and mortality.

Additional benefits of this rulemaking include continued oversight and control of air emissions by ADEQ. As stated earlier for lead pollution, without approval of this rulemaking and SIPs, the CAA specifies that EPA must develop a federal implementation plan (FIP) to regulate sources within the planning area. In addition to a FIP, the Hayden and Miami nonattainment areas would also be subject to highway sanctions and offsets. Highway sanctions are prohibitions on certain transportation projects or grants within the planning area. Offset sanctions are requirements for new or modified sources to have a ratio of emissions reductions to increased emissions at a level of at least two to one. Both ADEQ and the business community will benefit from continued regulation at the state level as a result of avoiding federal sanctions.

#### A general description of the probable impact on private and public employment in businesses, agencies and political subdivisions of this state directly affected by the rule making.

ADEQ anticipates that employment impacts will be minor. ADEQ does not expect short- or long-term employment, production, or industrial growth in Arizona to be negatively impacted by this rulemaking. Furthermore, no sources are expected to close from the implementation of this rulemaking.

##### *Asarco-Hayden Operations*

Asarco estimates that 10 contractors and 100 full-time employees will be needed in order to complete the retrofit project. Some of the contractors will be hired for planned maintenance outages during the construction period. Roughly 50 percent of the contrac-



tors will be hired from Arizona and the other 50 percent from the Southwest in general. Procurement of equipment for the retrofit project is scheduled to begin in 2015, with full completion of the project scheduled by the fourth quarter of 2018. Asarco is not planning to create any new full or part-time positions at the company as a result of this project.

*Freeport-McMoRan Miami Inc. – Miami Operations*

Through the various phases of the construction project described above, Freeport-McMoRan Miami Inc. expects to have over 500 contractors/individuals working on the construction; although this number will vary over the construction period. This estimate does not include contractors required for planned maintenance outages during the same time frame. While the number of contractors required for planned maintenance outages is contingent upon the work to be completed during the outage, it usually requires between 500 and 1,000 contractors.

Because of the increased demand for contractors, Freeport-McMoRan Miami Inc. anticipates a short-term increase in employment by the contractors throughout the project. Contractors will be selected on an as needed basis; some local and specialty contractors from outside the State may be necessary. No new positions will be created within the Freeport-McMoRan Miami Inc. Miami smelter for this project.

Construction will occur in two major phases. Phase 1 started with ADEQ’s approval of the smelter’s significant permit revision authorizing the proposed construction. Phase 2 will begin shortly after internal approval to move forward is received and Freeport-McMoRan Miami Inc. anticipates the project will be completed eight quarters after that approval is received.

**A statement of the probable impact of the rule making on small businesses.**

**(a) An identification of the small businesses subject to the rule making.**

Under A.R.S. § 41-1001(21):

“Small business” means a concern, including its affiliates, which is [1] *independently owned and operated*, which is [2] *not dominant in its field* and which [3] *employs fewer than one hundred full-time employees or which had gross annual receipts of less than four million dollars in its last fiscal year.* (Emphasis added.)

The lead and sulfur dioxide-related rules will apply only to the companies that own and operate copper smelters in Hayden and Miami, which is currently Asarco and Freeport-McMoRan Miami Inc., respectively. These companies do not qualify as small businesses.

As of 2014, Asarco’s Hayden operations employed over 600 people. Asarco is a subsidiary of Grupo Mexico, a public company, and one of the major copper producers in the world. According to its 2014 annual report, Grupo Mexico’s net profit was \$1.7 billion. Grupo Mexico nor Asarco’s Hayden operations meet the definition of a “small business” under A.R.S. § 41-1001(21).

As of this rulemaking, Asarco currently contracts with Smithco Enterprises, LLC, an operation that processes smelter byproducts like reverts for Asarco. Smithco’s business relies heavily on Asarco’s copper smelter. Several control measures required by this rulemaking (and the consent decree) will apply to some of Smithco’s operations. However, Asarco is paying for the control measures as part of the consent decree with EPA. Therefore, this rulemaking will not have a direct impact on Smithco.

In 2015, Freeport-McMoRan Miami Inc., also a public company and top producer of copper in the world, reported a \$15.8 billion revenue. Also in 2015, its Miami mine and smelter produced 43 million pounds of copper. As of 2016, roughly 760 people are employed at Freeport’s Miami operations. Freeport-McMoRan Miami Inc. Miami operations do not meet the definition of a “small business” under A.R.S. § 41-1001(21).

**(b) The administrative and other costs required for compliance with the rule making.**

Not applicable.

**(c) A description of the methods that the agency may use to reduce the impact on small businesses.**

Not applicable.

**(d) The probable cost and benefit to private persons and consumers who are directly affected by the rule making.**

Not applicable.

**A statement of the probable effect on state revenues.**

Since any costs associated with the rulemaking will be recoverable through air quality permit fees, there will be no net effect on state revenues.

**A description of any less intrusive or less costly alternative methods of achieving the purpose of the rule making.**

ADEQ was not able to identify any less intrusive or costly alternative methods for achieving the purpose of the rulemaking—attainment of the 2008 lead NAAQS and 2010 sulfur dioxide NAAQS. The smelters owned by Asarco and Freeport-McMoRan Miami Inc. are the primary source of emissions and are responsible for installing adequate control technologies that will bring the areas into compliance.

**A description of any data on which a rule is based with a detailed explanation of how the data was obtained and why the data is acceptable data. An agency advocating that any data is acceptable data has the burden of proving that the data is acceptable. For the purposes of this paragraph, “acceptable data” means empirical, replicable and testable data as evidenced in supporting documentation, statistics, reports, studies or research.**

To support the emission limits and control requirements in both rules, ADEQ conducted air quality modeling using data obtained from Asarco, Freeport-McMoRan Miami Inc., and air quality monitors. ADEQ followed EPA Guidance in conducting the modeling.

Before conducting the air quality modeling, ADEQ identified lead and sulfur dioxide pollution sources in the Hayden nonattainment area and sulfur dioxide pollution sources in the Miami nonattainment area. To do this, ADEQ obtained emissions data from



EPA's National Emission Inventory (NEI). After analyzing the emissions data, ADEQ determined that no other sources or combination of sources contributed as much as the Asarco smelter in the Hayden nonattainment area and the Freeport-McMoRan Miami Inc. smelter in the Miami nonattainment area.

ADEQ used the emissions data, in addition to meteorological and topographical data, to develop emissions limits that demonstrate attainment. Since the copper smelters in both areas were identified as the primary sources of emissions, the modeling efforts concentrated on the facilities' operations. The emission limits derived from the modeling are conservative and factor in the emission control equipment efficiency as well as peak smelter production levels.

The modeling Technical Support Documents outline ADEQ's methods, approach, and empirical results. The documents for both nonattainment areas are available for review at ADEQ's Records Center. See section 7 of this preamble for more information.

**10. A description of any changes between the proposed rulemaking, to include supplemental notices, and the final rulemaking:**

No substantive changes have been made to the rules. Non-substantive grammatical, formatting, and consistency changes have been made throughout the rules, including those resulting from the Governor's Regulatory Review Council.

As published in the Notice of Proposed Rulemaking, R18-2-715 and -715.01 are being amended. As a result of additional Agency review and stakeholder comments, R18-2-715.02 is also being amended. This amendment will clarify the applicability of the relevant effective dates of the rules to the appropriate planning area. This change is not substantive and only serves to clarify the applicability of the effective dates to ensure compliance.

**11. An agency's summary of the public or stakeholder comments made about the rulemaking and the agency response to the comments:**

On Monday, January 9, 2017, at 2:00 p.m. at ADEQ's Phoenix Offices, the Arizona Department of Environmental Quality conducted a public hearing on the NPRM. The public comment period for the rules began on Monday, December 5, 2016, and closed on Monday, January 9, 2017, at 5:00 p.m. No oral comments were received during the public hearing. The Arizona Department of Environmental Quality (ADEQ) received written comments from the current owner and operators of the copper smelters, ASARCO LLC and Freeport McMoRan, as well as the Environmental Protection Agency (EPA). These comments are summarized and addressed below.

**Comments on only R18-2-B1301, Lead Rule**

**I. Revise the main stack emission limit to conform to the NAAQS averaging period**

- 1) **Comment:** Under proposed R18-2-B1301(C), lead (Pb) emissions from the main stack cannot exceed 0.683 pound of lead per hour (pph). Asarco comments that "the limit is designed to ensure attainment of the lead NAAQS, which is set at 0.15 micrograms per cubic meter Pb in total suspended particles as a 3-month average," and asserts that "SIP limits should be tied to the averaging time of the corresponding NAAQS."

Asarco proposes that the emission limit in the rule be revised to 0.683 pound of Pb per hour, 3-month average, rolled each calendar month. Asarco asserts that the revised limit "is protective of the NAAQS and consistent with Asarco's modeling approach in the attainment demonstration." In a supplemental comment, Asarco included proposed language to be added to R18-2-B1301(F)(1). Essentially, the proposed rule language requires Asarco to calculate compliance with the proposed three-month rolling average limit using data from a three-month averaging period. The language also implies that Asarco can conduct additional main stack tests within a three-month period and then average the results.

*(Comment submitted by ASARCO LLC)*

**Response:** In ADEQ's attainment demonstration, lead emissions from the main stack were modeled at a constant rate of 0.683 pph, which is consistent with the current emission limit in the rule. This approach was taken due to a lack of main stack emissions data. Specifically, no data exists showing how main stack emissions vary over time. Currently, the only emissions data available comes from the facility's annual stack test, which is a brief representation of main stack emissions.

Asarco requests an emissions limit structure that would average the main stack emission rate over a three month period if the 0.683 pph limit were to be violated during one or more tests. Thus, Asarco could experience main stack emission rates higher than 0.683 pph during some testing periods, and still comply, as long as over a three month period, the average of all test results were below the limit. This varying emission rate approach is inconsistent with the attainment demonstration, in that, there is no fluctuation of the main stack emission rate in the model. A main stack emission rate greater than 0.683 pph was not modeled, therefore, attainment of the NAAQS at an emission rate greater 0.683 pph has not been demonstrated. Given this lack of support, ADEQ is not comfortable with the proposed compliance demonstration.

Furthermore, the rule and modeled limit represent Asarco's Potential To Emit (PTE) for the main stack. This is consistent with EPA's modeling guidance for the lead NAAQS (see memo from Scott Mathias, *2008 Lead (Pb) National Ambient Air Quality Standards (NAAQS) Implementation Questions and Answers*, July 8, 2011, EPA, Office of Air Quality Planning and Standards). This guidance states, "The emissions rate to input into AERMOD for attainment demonstrations is based on the maximum allowable or permit limit emissions, often 1-hour limits." Asarco's PTE limit is the maximum allowable or permit limit.

The guidance also states, "In general, the maximum hourly emission rate (PTE) should be used as the basis for establishing emission limits and for model input. This approach is appropriately conservative for emissions units that 1) could be operated at a relatively high capacity factor (% of available capacity) over the applicable averaging period, 2) are associated with *non-continuous compliance monitoring methods (e.g. periodic source testing)*, and 3) have emissions that are not well correlated with production or other measurable surrogate monitoring parameters" (emphasis added). Under the rule, Asarco is required to conduct main stack testing once a year and is a source that conducts non-continuous compliance monitoring, as mentioned from the guidance above. PTE therefore should serve as the basis for the emissions limit. If Asarco would prefer to have an emission limit that conforms to the NAAQS, then additional emissions data is needed, which can only be achieved through more frequent stack testing or Contin-



uous Emissions Monitoring Systems (CEMS).

ADEQ also notes Asarco’s comments that draw a connection between a NAAQS violation and a violation of an emissions limit. While emission limits are designed to attain the NAAQS—and keep the area in attainment so as to avoid a NAAQS violation—they do not need to conform to the NAAQS averaging period so long as they protect the NAAQS. As mentioned earlier, ADEQ modeled the current 0.683 pph limit and the area demonstrates attainment, ensuring protection of the NAAQS.

Finally, under the regulatory approach proposed by Asarco, the facility could choose to conduct additional tests, beyond the required annual test, only when an annual test result exceeded the standard. If a single test result showed compliance with the 0.683 pph limit, Asarco could rely on that result to show compliance for an entire year. On the other hand, if a test result exceeded 0.683 pph, Asarco could continue to retest until it came back into compliance, and then rely on that result to show compliance for the next year. Such an approach, versus a requirement to test periodically regardless of prior results, would bias results downward and would not provide a reliable demonstration of compliance.

**II. Removal of three operational limits in O&M plan that have no bearing on Pb emission control**

- 2) **Comment:** Under proposed R18-2-B1301(D)(2)(b), Asarco must submit an operations and maintenance plan (O&M plan) that addresses initial operating limits that are representative and reliable indicators of the performance of the capture system and control device operations. Asarco maintains that three of these operating limits, or parameters, do not impact Pb emissions, but rather are used to reduce SO<sub>2</sub> emissions. These parameters are:

“Identification of those modes of operation when the double dampers between the flash furnace vessel and the vent gas system will be closed and the interstitial space evacuated to the acid plant.” R18-2-B1301(D)(2)(b)(i).

“The temperatures of the acid plant catalyst bed, which shall at minimum, meet the manufacturer’s recommendations.” R18-2-B1301(D)(2)(b)(xi).

“The acid plant catalyst replenishment schedule, which shall at minimum, meet the manufacturer’s recommendations.” R18-2-B1301(D)(2)(b)(xii).

*(Comment submitted by ASARCO LLC)*

**Response:** ADEQ agrees with Asarco and removed these parameters from the final version of R18-2-B1301(D)(2)(b), as they are reliable performance indicators for SO<sub>2</sub> emission control systems, not those used to control Pb emissions. As Asarco notes in its comments, the Pb emissions from the flash furnace are already routed to a vent gas baghouse that substantially reduces Pb emissions. The double damper position between the flash furnace vessel and the vent gas system and the evacuation of the interstitial space to the acid plant described in R18-2-B1301(D)(2)(b)(i) is used as a SO<sub>2</sub> control performance indicator. Additionally, the acid plant catalyst bed temperature and schedule are parameters used to indicate the effectiveness of sulfuric acid production from the smelter’s SO<sub>2</sub> emissions.

The parameters removed from the Pb rule are still required under the SO<sub>2</sub> rule, R18-2-B1302, and Asarco is still required to submit these parameters in its operations and maintenance plan to comply with R18-2-B1302.

**III. Report harmonizing**

- 3) **Comment:** Under the proposed R18-2-B1301(H)(5), Asarco must submit a quarterly report detailing any deviations from the smelting process and related control systems that are inconsistent with the operations and maintenance plan. Asarco proposes additional language for the rule so that reports can be submitted earlier than required to coordinate with SIP and permit reporting. The proposed rule states:

“Within 30 days after the end of each calendar-year quarter, the owner or operator 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 the operations and maintenance plan required by subsection (D)(2).”

Asarco requests that the following language be added to the rule:

“The owner or operator may submit a report earlier than required for purposes of harmonizing reporting under this Section with air quality permit required reporting, so long as no report is delayed beyond the period required by this Section.”

*(Comment submitted by ASARCO LLC)*

**Response:** ADEQ understands Asarco’s desire to consolidate and thus streamline reporting requirements, but does not believe the requested change is necessary to achieve that goal. The phrase “[w]ithin 30 days after the end of each calendar-year quarter” means the report can be submitted *at any time* within that period. Thus, Asarco already has the ability to submit reports earlier than required.

**IV. Clarification of calculation method for the converter’s primary hood exhaust rate and infiltration ratio**

- 4) **Comment:** Under the proposed R18-2-B1301(D)(2)(b)(iv), Asarco must include in its operations and maintenance plan a parameter that determines the air infiltration ratio from the converter primary hooding systems. The proposed rule states: “A minimum air infiltration ratio for the converter primary hoods of 1:1 averaged over 24 converter Blowing hours, rolled hourly measured as volumetric flow in primary hood less the volumetric flow of tuyere Blowing compared to the volumetric flow of tuyere Blowing.” Asarco understands this language requires it to track Blowing hours to determine the infiltration ratio on a 24-Blowing hour basis, rolled each Blowing hour. Asarco notes that Blowing hours will rarely, if ever, correspond to calendar hours.

*(Comment submitted by ASARCO LLC)*

**Response:** ADEQ notes that the rule is consistent with Asarco’s understanding, and states “24 converter *Blowing hours*, rolled hourly...” (emphasis added). The rule already implies that the Blowing hours be rolled each Blowing hour, as Asarco explains in its comment above.



- 5) Comment: Asarco asserts that the exhaust rate in the primary hood cannot be directly measured due to space and process constraints. Asarco says the primary hood gas flow rate will be calculated as follows: “by a differential pressure-based flow meter located in the common duct downstream of the converter spray chambers. Spray system air and water flow rates will be measured for the blowing converter. The exhaust flow rate of gas exiting the blowing converter’s primary hood will be calculated based on the primary gas flow rate measured downstream of the spray chamber and subtracting the spray air flow rate and spray water flow rate. It will be assumed that all of the spray water flow will be evaporated to water vapor into the gas stream.”

*(Comment submitted by ASARCO LLC)*

Response: ADEQ, EPA, and Asarco collaborated on this rule’s development, most notably the list of operational parameters in R18-2-B1301(D)(2)(b). As the operator of the copper smelter, Asarco provided extensive knowledge and expertise on the technology and feasibility of such operational parameters. ADEQ appreciates Asarco’s input on the rule, while in development and as proposed, and its insight in the space and process constraints for the primary hood exhaust rate measurement. ADEQ commits to work with Asarco to ensure compliance with the rule.

- 6) Comment: Asarco maintains there will be technical issues in tracking the start and finish of Blowing and tying together all the necessary measurements, such as differential pressure-based flow meter, spray flow rate, spray water flow rate, delta T, to determine the air infiltration ratio. Asarco requests that EPA and ADEQ recognize these issues and allow “some latitude in the development and implementation of the necessary measurement systems.”

*(Comment submitted by ASARCO LLC)*

Response: ADEQ commits to work with Asarco and EPA on ensuring the development and implementation of the necessary measurement systems to meet requirements of the rule. Asarco is also required to maintain the minimum air infiltration ratio of 1:1 under the Consent Decree.

**Comments on only R18-2-B1301.01, Fugitive Lead Dust Rule**

**V. Confirmation that concrete pad designs are approved for SIP/rule purposes**

- 7) Comment: Under R18-2-B1301.01(C)(2)(e), Asarco must develop and comply with a fugitive dust plan that includes, among other things, design plans for concrete pads for leaded materials piles specified in subsections (D)(11) and (D)(13). Under the rule, the concrete pads must be designed to “capture, store, and control stormwater or sprayed water to minimize emissions to the greatest extent practicable, including curbing around the outer edges of the concrete pad where feasible.” Like other requirements in R18-2-B1301.01, the concrete pad design requirements are the same as those in the Consent Decree. Asarco has already constructed the concrete pads used to store the revert crushing system. EPA has already approved the design for these pads for Consent Decree purposes and that the approved designs do not include a water pump system. Asarco requests that ADEQ confirms that the concrete pads for the revert crushing system will be approved under the rule since they are approved by EPA.

*(Comment submitted by ASARCO LLC)*

Response: ADEQ notes that the rule does not explicitly require that the concrete pad designs include a water pump system, but rather must be designed to “capture, store, and control stormwater or sprayed water,” which can be done in other ways such as curbing. While ADEQ has yet to review the concrete pad design plans and fugitive dust plan, ADEQ commits to work with Asarco on the implementation of the concrete pads, so long as the designs fulfill the requirements of the rule.

**VI. Removal of chemical dust suppressant requirements for certain unpaved roads**

- 8) Comment: Under R18-2-B1301.01(D)(10), Asarco is required to apply chemical dust suppressants on three identified unpaved roads according to the application intensity and schedule in the rule. Asarco refers to ADEQ’s “Unpaved Roads De Minimis Analysis” that compares the levels of Pb on unpaved roads using samples taken during EPA’s Remediation Investigation and Feasibility Study (RI/FS). These roads are the slag hauler road, smelter support area road, and concentrator access road (See SIP, Modeling TSD, Appendix G). ADEQ compared the road samples to the Arizona residential soil remediation level (SRL) of 400 parts per million (ppm) to evaluate whether the roads were significant for modeling purposes. ADEQ subsequently included the slag hauler road in the modeling demonstration and determined the smelter support area and concentrator access roads were de minimis and did not require modeling.

Asarco thus asserts that the inclusion of the chemical dust suppressant requirement for the smelter support and concentrator access unpaved roads is therefore not justified and requests that the requirements be removed from the rule.

Asarco believes that striking the requirements from the rule for the smelter support area and concentrator access roads would not be a significant change because Asarco is otherwise required to control dust from its operations, including unpaved roads, under the particulate matter requirements of its permit.

Asarco believes that including the requirements in the rule and SIP would render changes to the control regime difficult should different or more effective measures be identified.

*(Comment submitted by ASARCO LLC)*

Response: ADEQ considered Asarco’s comment and concludes that the chemical dust suppressant application should continue to be required for all of the unpaved roads identified in the rule. The rule’s requirements match those developed by Asarco in its Fugitive Dust Plan submitted to EPA pursuant to the Consent Decree. Thus, Asarco will be applying the rule-related dust suppressants also to meet Consent Decree requirements. While the concentrator access and smelter support area roads were found to contain de minimis Pb levels for the SIPs’ modeling purposes, ADEQ does not believe it appropriate to remove them from the rule for the following reasons:

ADEQ’s modeling demonstration did not include the concentrator access and smelter support area roads because of finding that the samples taken near the roads contained a de minimis amount of Pb. However, should operations and processes change in the future, the chemical dust suppressant requirements supply assurance that emissions will still be adequately mitigated. For example,



the reverts crushing operation will be re-located near the smelter support area road as part of the Consent Decree. Since this operation is a source of Pb emissions, chemical dust suppressants on the smelter support area road will provide adequate control.

Additionally, striking the requirements from the rule would be a significant change. Asarco's permit and current particulate matter regulations do not contain the level of specificity in R18-2-B1301.01(D)(10)(a)(i)-(iii) that assists in enforcement and compliance determinations (see Asarco's Operating Permit No. 1000042, issued Oct. 9, 2001, at section X, "Non-Point Sources"). In order to bridge the gap between the current PM regulations that are not specific, R18-2-B1301.01 provides a suppressant application schedule, of which compliance is determined through the silt loading test and opacity observations required under Appendix 15.

Asarco asserts that the specific schedule and intensity in the rule and SIP makes future adjustments to the control regime difficult. The rule, however, already allows considerable flexibility in the control regime. The rule includes a provision that allows Asarco to increase the application of the suppressants if needed to control emissions, as well as maintaining backup watering trucks should emissions be observed. In the future, Asarco could potentially pave these roads, in which case, the roads would then be regulated under R18-2-B1301(D)(9). ADEQ encourages Asarco to find more effective measures should the current control measures be found insufficient. If, in fact, Asarco's control measures for the roads need to be altered, ADEQ commits to work with Asarco to maintain effective control of emissions and reflect changes of the controls in the rule and SIP where appropriate.

- 9) **Comment:** Asarco disagrees with ADEQ's use of RI/FS samples taken from the slag dump to characterize the Pb levels of the entire slag hauler road. Asarco asserts that most of the samples are slag and not road-based material and are therefore, not characteristic of the slag hauler road. Additionally, Asarco maintains that the slag dump material represents less than half of the length of the slag hauler road (see SIP, Modeling TSD, Appendix G, Figure 15). Asarco maintains that the slag hauler road is not comprised of significant levels of slag until the unpaved road enters the actual slag dump, where the slag dump becomes part of the road substrate.

Asarco asserts that for the portion of the road that extends farther from the slag dump, the RI/FS samples from the smelter support area would be more representative. Asarco notes that ADEQ's analysis found that this smelter support area road contained de minimis Pb levels. Thus, Asarco believes there is no basis for believing that the portion of the slag hauler road outside of the actual slag dump is a significant source of Pb emissions.

*(Comment submitted by ASARCO LLC)*

**Response:** ADEQ considered Asarco's comment and concludes that the chemical dust suppressant application should continue to be required for all of the unpaved roads identified in the rule, including the slag hauler road and any roads to be used by slag hauler, for the following reasons:

First, Asarco asserts that ADEQ used samples of slag instead of road-based material to characterize the Pb content of the slag hauler road. This suggests that there's no mixing of the road-based material and the slag. However, the occurrence of surface creep, saltation, and resuspension of slag from the dump onto the road is likely occurring.

With regards to Asarco's assertion that the smelter support area samples may be more representative for the slag hauler road, ADEQ notes that the samples used in the De Minimis Analysis to characterize the smelter support unpaved roads were taken at a minimum of 600 feet (sample SMS 11 in Sub-Area B) and at a maximum well over 800 feet (samples SMS 23 and 24, sample SMS 39 in Sub-Area H) from the slag hauler road (See SIP, Modeling TSD, Appendix G, Figure 18 "Smelter Support Area"). These samples ranged from a minimum of 25 ppm to a maximum of 350 ppm of Pb.

However, there are samples closer to the slag hauler road that are much higher in Pb than the de minimis samples adjacent to the smelter support area road, particularly in the Sub-Area C identified in Figure 18 of Appendix G. Sub-Area C, while located in the smelter support area, is adjacent to the portion of the slag hauler road that is not near the actual slag dump. In Sub-Area C, samples SMS 08, 09, and 10 had Pb levels of 1,500, 500, and 2,100 ppm, respectively. These levels are significantly higher than levels found in the smelter support area samples considered in the De Minimis Analysis. Therefore, comparing the Pb levels on the smelter support area road to the slag hauler road is inaccurate.

Furthermore, there is evidence showing that Pb levels on the slag hauler road outside of the slag dump are significant, contrary to what Asarco's comment suggests. Another RI/FS sample, SP09.2, was taken from a road roughly 50 yards southwest of the slag hauler road. The Pb results from this sample, in the PM<sub>10</sub> fraction, are equivalent to a sample taken of crushed slag from the slag dump (sample SP05). Specifically, the crushed slag sample (SP05) resulted in a percent PM<sub>10</sub> mass of 1.456 percent, while the road sample (SP09.2) resulted in a percent PM<sub>10</sub> mass of 1.5247 percent. This is not to suggest there is crushed slag on the slag hauler road outside of the slag dump, but that in the PM<sub>10</sub> particle size fraction, Pb concentrations are similar between the two materials. Given this, ADEQ does not agree with Asarco's assertion that Pb levels on the slag hauler road outside of the slag dump are negligible.

**VII. Typographical correction for cross references in R18-2-B1301.01.**

- 10) **Comment:** Asarco notes that the proposed version of R18-2-B1301.01(D)(10) refers to subsections (D)(10)(a)(i) through (D)(10)(a)(v). However, there are no subsections (D)(10)(a)(iv) through (v) in the proposed rule. Asarco also notes that it has presented substantial reasons as to why chemical dust suppressant requirements in (D)(10)(a)(ii)-(iii) should not apply and be eliminated (see Section VI above).

*(Comment submitted by ASARCO LLC)*

- 11) EPA also suggests correcting the typographical error.

**Response:** Because ADEQ is keeping the unpaved road requirements in the final version, the cross references in (D)(10) have been corrected to "(D)(10)(a)(i) through (iii)." ADEQ thanks Asarco and EPA for bringing this typographical correction to its attention.

**VIII. Clarifying silt content language in R18-2-B1301.01.**

- 12) **Comment:** Asarco proposes clarifying what is meant by 6 percent in R18-2-B1301.01(D)(10)(c) for silt content on unpaved roads,



and requests that language from Appendix 15 be incorporated into R18-2-B1301.01(D)(10)(c) as follows:

“However, if silt loading is equal to or greater than 0.33 oz/ft<sup>2</sup>, then the owner or operator shall not allow the average percent silt content to exceed 6 percent of the total sample taken pursuant to Appendix 15 procedures.”

*(Comment submitted by ASARCO LLC)*

**Response:** ADEQ concludes that the rule is already clear, and further clarification is provided in Appendix 15 language (starting at subsection A15.3). In Appendix 15, section A15.3.10, the language “average percent silt content” is used to determine the silt content. To provide some additional clarity and consistency among the subsection and Appendix 15, ADEQ added Asarco’s suggestion of “average percent” to R18-2-B1301.01(D)(10)(c) as it does not change the requirement.

ADEQ did not, however, add Asarco’s additional suggested language because the meaning of “total sample” is unclear. This language is not used in Appendix 15, which requires that three samples be collected and averaged together. Asarco’s proposed language of “total sample taken pursuant to Appendix 15 procedures” does not clarify what is meant by 6 percent, as requested, but rather introduces new terminology that is not consistent with the rule or Appendix 15.

#### IX. Requiring additional contingency measure(s)

- 13) **Comment:** EPA requests additional measures be added considering that the Ninth Circuit court (*Bahr vs. EPA*, 836 F.3d 1218, 9<sup>th</sup> Cir. 2016, “*Bahr*”) rejected EPA’s approval of contingency measures implemented “early” as inconsistent with the plain language of CAA section 172(c)(9). Subsection (E) of R18-2-B1301.01 establishes a single contingency measure (doubling the paved roads cleaning frequency from once to twice per day) that could be triggered by certain specified events, whichever happens first. One of the triggering events is a notification from EPA that the area failed to attain by its statutory attainment date which is October 3, 2019. EPA asserts that a number of other specific triggering events pre-date the area’s attainment date, and as a result, the SIP’s one contingency measure could be implemented “early,” i.e. prior to EPA’s determination of failure to attain, potentially leaving no measure to be undertaken if the area, in fact, fails to attain the standard. In light of the *Bahr* decision, and to meet requirements under CAA § 179(c)(9), EPA requests a measure or measures be set aside specifically for when the area fails to attain by October 3, 2019.

*(Comment submitted by U.S. EPA, Region IX)*

**Response:** Subsection (E) of the rule contains a compliance schedule that details the dates of when Asarco must have attainment-related control measures implemented. This compliance schedule is the area’s Reasonable Further Progress (RFP) schedule. The compliance schedule, or “certain specified events” as EPA’s comment suggests, is one of the trigger mechanisms that will be used to implement the contingency measure. Thus, the compliance schedule in R18-2-B1301.01(E) will be implemented only when a statutory trigger for a contingency measure under CAA section 172(c)(9) occurs, i.e. failure to meet RFP. The other statutorily required trigger mechanism is a finding of failure to attain issued by EPA.

ADEQ disagrees with EPA’s use of *Bahr*, in that the case was regarding already-implemented control measures being credited as a SIP’s contingency measure, whereas the use of the compliance schedule in R18-2-B1301.01(E) is to meet the statutory trigger requirement in § 172(c)(9). While the control measures in the compliance schedule will be implemented prior to the attainment date, they are the control measures that will bring the area into attainment. Therefore, these control measures are not being used for contingency purposes and cannot be applied to the *Bahr* case. As mentioned earlier, the compliance schedule in R18-2-B1301.01(E) is the area’s RFP schedule.

Furthermore, ADEQ believes that the rule and SIP meet the requirements of § 172(c)(9), which states:

“Such plan shall provide for the implementation of specific measures to be undertaken if the area fails to make reasonable further progress, *or* to attain the national primary ambient air quality standard by the attainment date applicable under this part. Such measures shall be included in the plan revision as contingency measures to take effect in any such case without further action by the State or the Administrator.” (emphasis added)

As the Act states, contingency measures must be undertaken if the area fails to make reasonable further progress **or** fails to attain by the attainment date. The Act does not imply that separate measures be set aside for each trigger, as EPA interpreted in its comments. A contingency measure, or group of measures, can be used to comply with an RFP schedule or bring an area into attainment, so long as the measure(s) provide the correct amount of emissions reductions. ADEQ’s analysis of reductions attributable to the paved road cleaning contingency measure is in the SIP submittal, Section 4.0 “Control Measures.” The contingency measure in R18-2-B1301.01(E) will either bring the area back into compliance with its RFP schedule or back into attainment, whichever occurs first. Therefore, ADEQ did not revise R18-2-B1301.01(E) to include additional contingency measures.

#### X. Clarifying report submittal timeframes.

- 14) **Comment:** EPA suggests editing the following language to R18-2-B1301.01(I) “Reporting” to be consistent with the reporting timeframe in R18-2-B1301(H)(5):

“~~On a quarterly basis,~~ *Within 30 days after the end of each calendar-year quarter,* the owner or operator shall submit a report to the Department covering the prior quarter that includes the following...”

*(Comment submitted by EPA, Region IX)*

**Response:** ADEQ has added this language to the rule in order to stay consistent with reporting requirements in R18-2-B1301.

#### **Comments on both R18-2-B1301 and R18-2-C1301**

The following comments and responses pertain to Section (D), “Operational Standards” within the Hayden SO<sub>2</sub> and Pb rules, R18-2-B1301 and R18-2-B1302.

#### XI. Operating in accordance with O&M plan’s operational limits

- 15) **Comment:** Under both rules, subsection (D)(2)(b), Asarco must establish several operational limits for control devices in the oper-



ations and maintenance plan (O&M plan). EPA notes that “subparagraph (D)(2)(b) merely states that these limits must be established, and does not include more explicit language indicating that the owner/operator must operate in accordance with those operating limits.” EPA suggests the following edits to subsection (D)(2)(b):

“Operational limits. The owner or operator shall establish *and operate in accordance with* operating limits in the operations and maintenance plan for the capture systems and/or control devices that are representative and reliable indicators of the performance of the capture system and control device operations...”

*(Comment submitted by EPA, Region IX)*

Response: While subsection (D)(2)(b) does not explicitly state such requirement, subsection (D)(2) does, per the following:

“Capture system and control device operations and maintenance plan. The owner or operator shall develop *and implement* an operations and maintenance plan for each capture system and/or control device...The operations and maintenance plan must address the following requirements as applicable to each capture system and/or control device.” (emphasis added)

Subsection (D)(2) already requires such implementation of the entire operations and maintenance plan, covering those operational limits in subsection (D)(2)(b), in addition to monitoring requirements in (D)(2)(a), preventative maintenance procedures in (D)(2)(c), and inspection requirements in (D)(2)(d). The operations and maintenance plan must include the operational limits required under (D)(2)(b), and the owner/operator must operate (or implement) according to such limits in the plan, per the language in (D)(2).

**XII. Qualifying conditions for acid plant catalyst bed temperature for O&M plan.**

- 16) Comment: Subsection (D)(2)(b)(xi) is helpful in addressing preheater operation by establishing a temperature at the catalyst bed consistent with manufacturer’s recommendation. However, EPA feels that this language needs additional clarification and specificity to ensure that future acid plant emissions are of a magnitude consistent with the assumptions in the projected emissions profile, i.e. acid plant SO<sub>2</sub> emissions will not exceed 1,000 pph as assumed in Asarco’s projected emissions profile. EPA suggests the following revision to (D)(2)(b)(xi):

*“The operating temperatures of the acid plant catalyst bed, which shall at minimum, meet ~~manufacturer’s~~ catalyst vendor’s recommendations for minimum reaction temperature ranges. This operating temperature range shall be achieved in each of the acid plant catalyst beds prior to introduction of gases from hot metal process sources listed in subsection (B)(9).”*

*(Comment submitted by U.S. EPA, Region IX)*

Response: ADEQ first notes that subsection (D)(2)(b)(xi) has been removed from the R18-2-B1301, per discussions with Asarco (see Section II).

ADEQ concludes that the current rule language provides operational flexibility and also helps in addressing the acid plant’s catalyst bed operations by establishing a temperature that is consistent with manufacturer recommendations. The additional clarification language proposed by EPA would again limit operations for equipment that has yet to be installed. After the equipment is in operation, Asarco may submit such temperatures of the acid plant catalyst bed to ADEQ pursuant to subsection (D)(2)(e)(iv). Changes to the operational limits in subsection (D)(2)(b), including the acid plant catalyst bed temperature, must be approved by ADEQ prior to implementation. Furthermore, Asarco will be monitoring SO<sub>2</sub> emissions using CEMS, which can provide accurate emissions data to assess the acid plant’s operation.

**XIII. Providing additional criteria for acid plant catalyst replenishment in O&M plan.**

- 17) Comment: The language in subsection (D)(2)(b)(xii) is helpful to address acid plant catalyst effectiveness; however, it may be overly restrictive. EPA asserts that the projected acid plant emissions profile is based on historical acid plant emission rates, which are in turn affected by the effectiveness and quality of acid plant catalyst over that historical period. As a result, acid plant catalyst management and replenishment is an important underlying assumption in the projected emissions profile. It is similarly important in ensuring that future acid plant emissions are of a magnitude consistent with the assumptions in the projected emissions profile. While EPA feels the current language in subsection (D)(2)(b)(xii) is helpful in this regard, it focuses only the schedule of acid plant catalyst replenishment. While the frequency/schedule of replenishment is important, there are other aspects governing catalyst replenishment, such as catalyst activity, catalyst structural integrity, and possibly catalyst type, which may be relevant and warrant inclusion in the O&M plan. EPA recommends the use of the broader term “criteria” which would provide for the inclusion of other factor besides schedule in the O&M plan. Such revision is:

*“The acid plant catalyst replenishment ~~schedule~~ criteria, which shall at a minimum, meet the ~~manufacturer’s~~ recommendations of the catalyst vendor(s).”*

*(Comment submitted by U.S. EPA, Region IX)*

Response: ADEQ first notes that subsection (D)(2)(b)(xii) has been removed from R18-2-B1301, per discussions with Asarco (see Section II).

ADEQ agrees with EPA, and replaced “schedule” with “criteria” in the final rule. However, ADEQ concludes that the use of “vendor” may be inaccurate, as sometimes the vendor is a third party and can be different from the manufacturer, who builds the equipment and would have appropriate recommendations for operations. Therefore, ADEQ kept the use of “manufacturer’s recommendations.”

**XIV. Additional recordkeeping requirements to demonstrate compliance with operational limits in O&M plan.**

- 18) Comment: EPA recommends that both rules be revised in subsection (G) to include more recordkeeping requirements that are sufficient to demonstrate that the facility is operating within the O&M plan established under (D)(2), including the operational limits in (D)(2)(b).

*(Comment submitted by U.S. EPA, Region IX)*

Response: ADEQ concludes that the rules already supply sufficient recordkeeping requirements, including those O&M plans and



plan revisions, as well as related manufacturer/engineer/operator recommendations or instructions that are used (see subsections (G) and (D)(2)(e)(i)). Additionally, subsection (G) requires recordkeeping for maintenance activities and inspections, which can be used to confirm compliance with the operational limits. Furthermore, reporting requirements in subsection (H) require the owner/operator to submit such notifications and reports of excess SO<sub>2</sub> emissions and exceedances of Pb emissions limits. This supplies a mechanism to either identify the cause of excess emissions or to confirm, via the absence of excess emissions, that the O&M plan is being implemented accordingly.

#### **Comments on only R18-2-B1302, Hayden SO<sub>2</sub> Rule**

##### **XV. Proposed Dual SO<sub>2</sub> Emissions Limit**

- 19) **Comment:** The rule states “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.” Asarco asserts this dual limit satisfies all Clean Air Act requirements and agency guidance as well as providing necessary flexibility. The Supreme Court has explained “so long as the ultimate effect of a State’s choice of emission limitations is compliance with the national standard for ambient air, the State is at liberty to adopt whatever mix of emission limitation it deems best suited to its particular situation.” *Train v. Nat. Res. Def. Council, Inc.*, 421 U.S. 60, 79 (1975). Moreover, in Guidance for 1-Hour SO<sub>2</sub> Nonattainment Area SIP Submissions (April 2014), the U.S. Environmental Protection Agency (EPA) approved the use of the critical emission value (CEV) as well as averaging periods to meet the NAAQS. States may “develop control strategies that account for variability in 1-hour emissions rates through emission limits with averaging times that are longer than 1 hour, using averaging times as long as 30-days, but still provide for attainment of the 2010 SO<sub>2</sub> NAAQS.” EPA Guidance at 24.

Asarco’s proposed limit requires it to meet the 14-operating day limit (which assures attainment of the NAAQS). If that is not feasible (i.e. due to malfunction), it still is not a violation if emission in every hour of that same period never exceed the CEV, which EPA agrees is protective of the NAAQS. EPA Guidance at 23. Thus during all periods Asarco is complying with a limit that is protective of the NAAQS. If Asarco has an exceedance of the 14-operating day limit and any hour in that period exceeds 1,518 pound per hour, then Asarco is in violation.

*Comment submitted by ASARCO LLC*

- 20) **Comment:** The proposed emissions limit in R18-2-B1302(C)(1) is inconsistent with the criteria for setting long-term emissions limit outlined in EPA’s Guidance for 1-Hour SO<sub>2</sub> Nonattainment Area SIP Submissions, April 23, 2014 (2014 Guidance), section V.D.2.b. (p. 27). In order to assure that the SIP includes a limit that provides for attainment of the 1-hour SO<sub>2</sub> NAAQS, revise this language to require continuous compliance with the 1-hour emission limit set at the CEV, or else continuous compliance with the 14-day limit set consistent with the 2014 Guidance, rather than allowing an exceedance of either of these limits at different times. After this revision is made, revise recordkeeping and monitoring requirement to be consistent with the final rule limit.

*Comment submitted by U.S. EPA, Region IX*

**Response:** ADEQ’s technical support documents demonstrate that the proposed rules and controls for the Hayden smelter will provide for attainment of the NAAQS with a high degree of certainty. While the dual limit is not specifically prescribed in EPA guidance, ADEQ has found no reason to believe this dual limit will not provide for attainment of the NAAQS. The 14-day limit was derived following EPA guidance methodology and the rule requires Asarco to meet this 14-day limit. The dual limit is triggered if Asarco exceeds the 14-day limit and ensures that no single hour during that 14-day period exceeds the critical emissions value, which is the one-hour modeled emission rate that ensures NAAQS compliance. This approach gives Asarco operational flexibility while providing for attainment of the SO<sub>2</sub> NAAQS.

##### **XVI. Stack Testing Alternative Provision**

- 21) **Comment:** Under R18-2-1302(E)(6), Asarco may petition the department to substitute annual stack testing in lieu of operating the CEMS for the tertiary ventilation or the anode furnace baghouse stack under certain conditions. Based on the current language of this provision, it is unclear if the five-percent SO<sub>2</sub> contribution must be met individually or collectively by the tertiary ventilation system emissions and anode furnace baghouse stack emissions before substitution is permitted. We propose that the rule language be modified to clarify that contribution is evaluated individually.

*Comment submitted by ASARCO LLC*

**Response:** It is ADEQ’s interpretation of the rule language as written that the tertiary ventilation or anode furnace baghouse stack CEMS can be substituted by annual stack testing provided that either source individually contributes less than 5% of total facility-wide SO<sub>2</sub>. ADEQ has revised the rule language to further clarify this interpretation.

- 22) **Comment:** Asarco believes that the criteria governing approval of the request identified in R18-2-B1302(E)(6) regarding the substitution of annual stack testing in lieu of operating the CEMS for the tertiary ventilation or the anode furnace baghouse stack if either is found to contribute less than five percent of the total sulfur dioxide emissions. Asarco suggests adding language to clarify that if the owner or operator makes the demonstration required by the provisions, the department shall approved the request to substitute annual stack testing for the respective CEMS.

*Comment submitted by ASARCO LLC*

**Response:** As noted in the response to comment 24, ADEQ interprets the rule language as such that the contribution from the tertiary ventilation and anode furnace baghouse stack would be evaluated individually, not collectively. If the Agency determines that the evaluation submitted by the owner or operator is adequate, it will approve the request to substitute annual stack testing for the respective CEMS. ADEQ has revised the rule language to clarify that it will approve the request if the demonstration is adequate.

- 23) **Comment:** In subsection (E)(6), the underlined text in the following paragraph should be added.



...Annual stack testing shall use EPA Methods 1, 4, 6C in 40 C.F.R. 60 Appendix A or an approved alternative method 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.

*Comment submitted by U.S. EPA, Region IX*

**Response:** ADEQ agrees with the inclusion of “EPA” and “40 C.F.R. 60 Appendix A” to clarify the references to the appropriate test methods. To be consistent with R18-2-B1301, Section E, Performance Test Requirements, ADEQ will add the Department and EPA Region IX as approving alternative test methods.

#### XVII. Clarification of Primary Hood Measurement/Infiltration Ratio Monitoring

- 24) **Comment:** Under R18-2-B1302(D)(2)(b)(iv), Asarco must maintain a “minimum air infiltration ratio for the converter primary hoods of 1:1 average over 24 converter Blowing hours, rolled hourly measured as volumetric flow in primary hood less the volumetric flow of tuyere Blowing compared to the volumetric flow of tuyere Blowing.” Asarco understands this language to require it to track Blowing hours and determine the infiltration ration on a 24-Blowing hour basis, rolled each Blowing hour. Blowing hours will rarely, if ever, correspond to calendar hours.

*Comment submitted by ASARCO LLC; same comment was submitted for R18-2B1301*

**Response:** ADEQ notes that the rule is consistent with Asarco’s understanding, and states “24 converter *Blowing hours*, rolled hourly...” (emphasis added). The rule already implies that the Blowing hours be rolled each Blowing hour, as Asarco explains in its comment above.

- 25) **Comment:** Asarco asserts that the exhaust rate in the primary hood cannot be directly measured due to space and process constraints. Asarco says the primary hood gas flow rate will be calculated as follows: “by a differential pressure-based flow meter located in the common duct downstream of the converter spray chambers. Spray system air and water flow rates will be measured for the blowing converter. The exhaust flow rate of gas exiting the blowing converter’s primary hood will be calculated based on the primary gas flow rate measured downstream of the spray chamber and subtracting the spray air flow rate and spray water flow rate. It will be assumed that all of the spray water flow will be evaporated to water vapor into the gas stream.”

*(Comment submitted by ASARCO LLC)*

**Response:** ADEQ, EPA, and Asarco collaborated on this rule’s development, most notably the list of operational parameters in R18-2-B1302(D)(2)(b). As the operator of the copper smelter, Asarco provided extensive knowledge and expertise on the technology and feasibility of such operational parameters. ADEQ appreciates Asarco’s input on the rule, while in development and as proposed, and its insight in the space and process constraints for the primary hood exhaust rate measurement. ADEQ commits to work with Asarco to ensure compliance with the rule.

- 26) **Comment:** Asarco maintains there will be technical issues in tracking the start and finish of Blowing and tying together all the necessary measurements, such as differential pressure-based flow meter, spray flow rate, spray water flow rate, delta T, to determine the air infiltration ratio. Asarco requests that EPA and ADEQ recognize these issues and allow “some latitude in the development and implementation of the necessary measurement systems.”

*(Comment submitted by ASARCO LLC)*

**Response:** ADEQ commits to work with Asarco and EPA on ensuring the development and implementation of the necessary measurement systems to meet requirements of the rule. Asarco is also required to maintain the minimum air infiltration ratio of 1:1 under the Consent Decree.

#### XVIII. Ambient Air Boundary for the Hayden SO<sub>2</sub> Nonattainment Area

- 27) **Comment:** Asarco has made an agreement to purchase 40 acres at the SE ¼, SW ¼, S12, T5S R15E G&SR meridian, which is land immediately north of the slag dump at the Hayden Smelter. As with other areas on the each side of the Smelter, Asarco has the practical ability to exclude intruders from the 40 acres due to a combination of fencing, patrols, and physical barriers as set forth in its prior submittal. Asarco requests that the SIP change the ambient air boundary/process area boundary to reflect this property purchase. While there is no impact on the proposed regulatory language, the anode furnace fugitive emission rate in the SIP modeling demonstration can increase to 40.1 pounds per hour (from 32.2 pounds per hour in the current demonstration) without causing an exceedance of the NAAQS using the ADEQ modeling protocol.

*Comment submitted by ASARCO LLC*

**Response:** As noted by Asarco, the extension of the ambient air boundary does not affect the SO<sub>2</sub> rule language. Once the land purchase has been finalized, ADEQ is willing to submit a supplemental demonstration to the EPA showing that the anode furnace fugitive SO<sub>2</sub> emission rate in the SIP modeling demonstration can increase to 40.1 pounds per hour without causing a NAAQS exceedance.

#### XIX. General Comments

- 28) **Comment:** The CFR reference in Subsection (C)(2) is incorrect. The correct reference is to 40 C.F.R. 60 Subpart P.

*Comment submitted by U.S. EPA, Region IX*

**Response:** ADEQ agrees with the comment and has made the correction in the final rulemaking.

#### XX. Justification for no CEMS on shutdown ventilation flue

- 29) **Comment:** Based on the rule language in subsection (E)(1) a CEMS does not exist on the shutdown ventilation flue. Per subsection (G)(2)(e), emission from shutdown ventilation flue utilization events will be calculated rather than directly monitored. Our understanding of the shutdown ventilation flue is that it is activated during periods of smelting and converting cessation, and serves isolate certain segments of process equipment from strong residual process gas, protecting personnel to exposure as they perform maintenance activities and other duties on process equipment. It instead directs these strong residual process gasses from source such as the INCO flash furnace into the atmosphere. While we would not necessarily consider this a bypass duct. It has the end



effect of allowing strong SO<sub>2</sub> process gas to migrate into the atmosphere without control.

We note that the rule language for the Freeport McMoRan Miami Smelter requires a SO<sub>2</sub> CEMS on a process stream that serves a similar, although not identical function (i.e., the Miami Smelter's bypass duct.) please discuss why it is appropriate for the rule text to not require a SO<sub>2</sub> CEMS on the shutdown ventilation flue for the Hayden Smelter, noting any particular technical or economic challenges associated with monitoring emission from the flue, as well as process differences between the two smelters.

*(Comment submitted by U.S. EPA, Region IX)*

**Response:** ADEQ notes that EPA's comment was submitted in reference to the SO<sub>2</sub> and Pb rules. ADEQ notes that there are no CEMS for monitoring Pb emissions and this comment pertains to R18-2-B1302 only.

The primary process difference is that Asarco's shutdown ventilation flue does not see process gas as the damper only opens upon process shutdown. Unlike the Miami bypass stack, the shutdown ventilation flue at the Hayden facility is used to allow ventilation of the furnace during off-line maintenance work. During planned outages, the duct work system is ventilated to the gas plant until cleared of significant sulfur dioxide before the shutdown ventilation flue is opened. In an unplanned shutdown, the most sulfur dioxide it would see is the volume of gas that may have been in the ductwork after the interlock activates, which is one volume and was previously submitted to EPA and ADEQ. In this situation, applying a CEMS to monitor the shutdown ventilation flue is a meaningless exercise. The shutdown ventilation duct does not see any sulfur dioxide during normal operation. It does not see any process sulfur dioxide during ventilation when the unit is off-line. The only sulfur dioxide it would see is the small residual amount of sulfur dioxide in ductwork in the event of an unplanned shutdown. This can be estimated by engineering principles with as much or more precision than a CEMS. Further, there is no effective way to RATA the CEMS when there is no anticipated sulfur dioxide during normal operations. Asarco is strongly opposed to intentionally adding any sulfur dioxide to this system for the sole purpose of monitoring. *(Justification provided by Asarco LLC.)*

#### **XXI. The SIP is protective of the NAAQS and should be approved**

- 30) **Comment:** The purpose of a state implementation plan is to "provide for implementation, maintenance, and enforcement" of the NAAQS. 42 U.S.C. § 7410(a)(1). So long as the plan achieves this result, the state has wide latitude to select the measures and form of limits that go into it. In this case, Asarco believes that the measures that the State has proposed amply achieve the goal of the Clean Air Act, which is to assure that the NAAQS is attained.

*(Comment submitted by ASARCO LLC)*

**Response:** ADEQ's technical support documents demonstrate that the proposed rules and controls for the Hayden smelter will provide for attainment of the NAAQS with a high degree of certainty. ADEQ's technical support documents demonstrate that with rules and controls fully implemented there is a 0.40 percent probability of a SO<sub>2</sub> NAAQS violation in the Hayden area.

#### **Comments on only R18-2-C1302, Miami SO<sub>2</sub> Rule**

#### **XXII. Revision of FMMI references**

- 31) **Comment:** References to "Freeport McRoRan" and "Freeport McMoRan-Miami" throughout the Notice of Proposed Rulemaking should be revised to "Freeport-McMoRan Miami Inc."

*(Comment submitted by Freeport-McMoRan Miami Inc.)*

**Response:** ADEQ agrees with the comment and has made the appropriate edits throughout the rulemaking.

#### **XXIII. Edit description of control measures in preamble**

- 32) **Comment:** On page 3287 of the Notice of Proposed Rulemaking, the description of sulfur dioxide emission control measures in the second sentence of the third paragraph would be more accurately described as "The Miami Smelter emission control upgrades include new converter mouth cover, a new Aisle Scrubber, additional capture systems, and upgrades to the Acid Plant Tail Gas and Vent Fume Scrubbers to use caustic for SO<sub>2</sub> removal to ensure attainment of EPA's more stringent SO<sub>2</sub> NAAQS."

*(Comment submitted by Freeport-McMoRan Miami Inc.)*

**Response:** ADEQ agrees with the comment and has revised the description in the rulemaking to accurately reflect the emission control measures.

#### **XXIV. Addition of "or"**

- 33) **Comment:** In subsection R18-2-C1302(B)(6)(f), the word "or" should be added after the text and semicolon.

*(Comment submitted by Freeport-McMoRan Miami Inc.)*

**Response:** ADEQ agrees with the comment and had revised the rule language.

#### **XXV. Edit cross references**

- 34) **Comment:** In subsection R18-2-C1302(F)(2)(a) and (d), the reference to "subsection (F)(3)(c)" should be "subsection (F)(2)(c).

*(Comment submitted by Freeport-McMoRan Miami Inc.)*

**Response:** ADEQ agrees with the comment and has revised the rule language.

#### **Comments on R18-2-715, R18-2-715.01, and R18-2-715.02**

#### **XXVI. Language to Differentiate the Copper Smelters**

- 35) **Comment:** In subsection R18-2-715(I), the language should be revised to differentiate between the Hayden and Miami areas and to clarify applicability based on the relevant effect date of R18-2-B1302 and R18-2-C1302 and the respect SIP revision for the Hayden and Miami SO<sub>2</sub> nonattainment areas. For example, the R18-2-715 provisions related to SO<sub>2</sub> emissions (i.e., those that are part of the current Miami area maintenance SIP addressing the 1971 SO<sub>2</sub> standard) should no longer apply once R18-2-C1302 and the SIP revision for the Miami SO<sub>2</sub> Nonattainment Area (addressing the 2010 SO<sub>2</sub> standard) become effective. The status of R18-



2-B1302 and the Hayden SO<sub>2</sub> Nonattainment Area is not relevant to the applicability of the R18-2-715 SO<sub>2</sub> provisions to the owner or operator of the primary copper smelter once R18-2-C1302 and SIP revision for the Miami SO<sub>2</sub> Nonattainment Area become effective.

*(Comment submitted by Freeport-McMoRan Miami Inc.)*

**Response:** ADEQ agrees that it is appropriate to revise the rule language to clarify the applicability according to the relevant effective date. ADEQ has made the appropriate revisions in the rule language.

36) **Comment:** In subsection R18-2-715.01(V), the rule language should be revised as explained in Comment 38.

*(Comment submitted by Freeport-McMoRan Miami Inc.)*

**Response:** ADEQ agrees that it is appropriate to revise the rule language to clarify the applicability according to the relevant effective date. ADEQ has made the appropriate revisions in the rule language.

37) **Comment:** In subsection R18-2-715.02, the rule language should be revised as explained in Comment #13.

*(Comment submitted by Freeport-McMoRan Miami Inc.)*

**Response:** ADEQ agrees that it is appropriate to revise the rule language to clarify the applicability according to the relevant effective date. ADEQ has made the appropriate revisions in the rule language.

38) **Comment:** The version of R18-2-715 being revised by ADEQ is not the same as the version EPA has approved into the Arizona SIP. The SIP-approved version was last amended with an effective date of July 18, 2002. Please ensure the analysis includes any changes in the intervening time, and please provide a version of this draft rule with markup indicating differences between the SIP-approved version and this draft version.

*(Comment submitted by U.S. EPA, Region IX)*

**Response:** U.S. EPA Region IX stated that this comment was included in an internal agency draft and was inadvertently left in the final comments. Region IX indicated that ADEQ may disregard the comment. ADEQ agrees with Region IX and will disregard the comment.

**Comments on Appendix 15, Soil Stabilization Methods for Unpaved Roads**

**XXVII. Changing opacity observation interval for unpaved roads from five seconds to 15 seconds**

39) **Comment:** Appendix 15 details specific opacity observation methods to be used to determine compliance with the unpaved road requirements in R18-2-B1301.01(D)(10). The opacity method requires a certified individual to observe emissions from an unpaved road in five-second intervals. Two observations per vehicle must be made, beginning with the first reading at zero seconds and the second reading at five seconds. The observer must not look continuously at the dust plume, but rather observe the plume briefly at zero seconds and then again at five seconds.

Rather than doing five seconds, Asarco requests that the requirements be changed to 15 seconds to be consistent with EPA Methods 9 and 203A. (Method 203A is virtually identical to Method 9, except for data reduction procedures, which provide for averaging times other than six minutes.) Asarco personnel are already trained for Methods 9 and 203A, and these are the methods that have traditionally been used to observe processes throughout the plant. Asarco asserts, “Requiring a different interval for the observations required by this rule will cause confusion and is not otherwise necessary.”

*(Comment submitted by ASARCO LLC)*

**Response:** ADEQ maintains that the five-second observation is, on the contrary, necessary, as it is the only method to determine compliance with the opacity limit for unpaved roads in R18-2-B1301.01(D)(10)(c). As noted earlier, ADEQ is keeping the chemical dust suppressant requirements for unpaved roads. In order to ensure the dust suppressants are being applied according to schedule and intensity, opacity readings must be conducted accordingly.

The opacity observation requirements in Appendix 15 are virtually identical to EPA Methods 9 and 203A, however the five-second interval is unique for *unpaved roads*, whereas the 15-second interval is used for stacks or open baghouses. Furthermore, the requirements in Appendix 15 and R18-2-B1301.01(D)(10)(c) are consistent with EPA-approved methods in other jurisdictions, including Maricopa County, AZ (*Phoenix PM<sub>10</sub> Nonattainment Area FIP*, codified at 40 CFR Part 52, particularly § 52.128, Appendix A, Subsection I.A.); Imperial County, CA (See *Rule 800*, Appendix A, Section A, “Test Method for Unpaved Roads and Unpaved Traffic Areas.” Approved at 40 CFR § 52.220); San Joaquin Valley, CA (See *Rule 801I*, Appendix A, “Visual Determination of Opacity, Section 1, “Test Method for Unpaved Roads and Unpaved Traffic Areas.” Approved at 40 CFR § 52.220); and Clark County, NV (See *Section 9I*, “Fugitive Dust from Unpaved Roads, Unpaved Alleys, and Unpaved Easement Roads,” at section 91.4.1, “Stabilization Test Methods for Unpaved Roads and Unpaved Alleys.” Approved at 40 CFR § 52.1470).

**XXVIII. Changing opacity observation certification requirements to match Method 9**

40) **Comment:** Asarco asserts that the certification process and procedures at A15.4 are equivalent to Method 9 training requirements and that “Asarco is not in the business of conducting Method 9 or smoke school training.” Asarco already sends personnel to a certified third party to receive such training. Therefore, Asarco deems these requirements unnecessary. Asarco proposes that the language at A15.4 is amended to say “Individuals who perform opacity observations must be certified according to EPA Reference Method 9.”

*(Comment submitted by ASARCO LLC)*

**Response:** ADEQ notes that because Asarco already sends personnel to receive Method 9 training, and because those training requirements are the same as those in A15.4 (as noted in Section XXVII above), then personnel who is trained in Method 9 can conduct the opacity observations in A15.2. ADEQ notes however, that the opacity observations must be conducted in five-second intervals as opposed to the 15-second intervals in Method 9, due to the fact that the source is unpaved roads. Appendix 15 of the rule requires that “this method can only be conducted by an individual who has received certification as a qualified observer. Qual-



ifications and testing requirements can be found in Section A15.4 of this appendix” (see section A15.2). Appendix 15 does not required Asarco to conduct the actual training, so therefore, a certified third party can remain the continued approach. The certification process and procedures in A15.4 are included in Appendix 15 for ease of use.

ADEQ thanks Asarco, Freeport McMoRan, and EPA for participating in the public comment process, and additionally for their contributions to the development of the rules.

**12. All agencies shall list other matters prescribed by statute applicable to the specific agency or to any specific rule or class of rules. Additionally, an agency subject to Council review under A.R.S. §§ 41-1052 and 41-1055 shall respond to the following questions:**

There are no other matters prescribed by statute applicable specifically to ADEQ or this specific rulemaking.

**a. Whether the rule requires a permit, whether a general permit is used and if not, the reasons why a general permit is not used:**

The rules subject of this rulemaking do not inherently require a permit. As Class I Major Sources pursuant to A.A.C. R18-2-101.61, Asarco and Freeport-McMoRan Miami Inc. are permitted in accordance with Title V of the CAA and Title 49, Chapter 3 of the Arizona Revised Statutes. Therefore, the rules will be incorporated into a revision of Asarco and Freeport-McMoRan Miami Inc. Title V permit.

**b. Whether a federal law is applicable to the subject of the rule, whether the rule is more stringent than federal law and if so, citation to the statutory authority to exceed the requirements of federal law:**

The federal Clean Air Act and implementing regulations adopted by EPA apply to the subject of this rulemaking. The rules are designed to bring the nonattainment areas (as designated by EPA) into attainment of the federal National Ambient Air Quality Standards (NAAQS) for lead and sulfur dioxide. This rulemaking is no more stringent than required by federal law.

**c. Whether a person submitted an analysis to the agency that compares the rule’s impact of the competitiveness of business in this state to the impact on business in other states:**

No such analysis was submitted.

**13. A list of any incorporated by reference material as specified in A.R.S. § 41-1028 and its location in the rule:**

There are no incorporations by reference added to the rules in this action.

**14. Whether the rule was previously made, amended or repealed as an emergency rule. If so, cite the notice published in the Register as specified in R1-1-409(A). Also, the agency shall state where the text was changed between the emergency and the final rulemaking packages:**

Not applicable

**15. The full text of the rules follows:**

**TITLE 18. ENVIRONMENTAL QUALITY**

**CHAPTER 2. DEPARTMENT OF ENVIRONMENTAL QUALITY  
AIR POLLUTION CONTROL**

**ARTICLE 7. EXISTING STATIONARY SOURCE PERFORMANCE STANDARDS**

Section

- R18-2-715. Standards of Performance for Existing Primary Copper Smelters; Site-specific Requirements
- R18-2-715.01. Standards of Performance for Existing Primary Copper Smelters; Compliance and Monitoring
- R18-2-715.02. Standards of Performance for Existing Primary Copper Smelters; Fugitive Emissions

**ARTICLE 13. STATE IMPLEMENTATION PLAN RULES FOR SPECIFIC LOCATIONS**

**PART A. RESERVED**

**PART B. HAYDEN, ARIZONA, PLANNING AREA**

- R18-2-B1301. Limits on Lead Emissions from the Hayden Smelter
- R18-2-B1301.01. Limits on Lead-Bearing Fugitive Dust from the Hayden Smelter
- R18-2-B1302. Limits on SO<sub>2</sub> Emissions from the Hayden Smelter

**PART C. MIAMI, ARIZONA, PLANNING AREA**

- R18-2-C1301. Reserved
- R18-2-C1302. Limits on SO<sub>2</sub> Emissions from the Miami Smelter
- A14. Appendix 14. Procedures for Sulfur Dioxide and Lead Fugitive Emissions Studies for the Hayden Smelter
- A15. Appendix 15. Test Methods for Determining Opacity and Stabilization of Unpaved Roads

**ARTICLE 7. EXISTING STATIONARY SOURCE PERFORMANCE STANDARDS**

**R18-2-715. Standards of Performance for Existing Primary Copper Smelters; Site-specific Requirements**

- A. No change
  - 1. No change
  - 2. No change



- B. No change
- C. No change
- D. No change
- E. No change
  - 1. No change
  - 2. No change
  - 3. No change
  - 4. No change
- F. No change
  - 1. No change
    - a. No change
    - b. No change
  - 2. No change
    - a. No change
    - b. No change
- G. No change
- H. No change
- I. The owner and operator of the copper smelter located near Hayden, Arizona at the latitude and longitude provided in R18-2-715(F)(1) shall comply with Section R18-2-715(F)(1) and R18-2-715(G) until the effective date of R18-2-B1302 as determined by R18-2-B1302(A)(2). The owner and operator of the copper smelter located near Miami, Arizona at the latitude and longitude provided in R18-2-715(F)(2) shall comply with Section R18-2-715(F)(2) and R18-2-715(H) until the effective date of R18-2-C1302 as determined by R18-2-C1302(A)(2).

**R18-2-715.01. Standards of Performance for Existing Primary Copper Smelters; Compliance and Monitoring**

- A. No change
- B. No change
- C. No change
  - 1. No change
    - a. No change
    - b. No change
  - 2. No change
- D. No change
  - 1. The compliance date for the cumulative occurrence and emissions limits in R18-2-715(F)(1) and R18-2-715(G)(~~1~~) is January 15, 2002, and
  - 2. The compliance date for the cumulative occurrence and emissions limits in R18-2-715(F)(2), (F)(3), (G)(~~2~~), and (H) is the effective date of this rule.
- E. No change
  - 1. No change
  - 2. No change
- F. No change
- G. No change
- H. No change
- I. No change
- J. No change
- K. No change
  - 1. No change
  - 2. No change
  - 3. No change
  - 4. No change
  - 5. No change
    - a. No change
    - b. No change
    - c. No change
    - d. No change
    - e. No change
- L. No change
- M. No change
- N. No change
- O. No change
- P. No change
  - 1. No change
  - 2. No change
  - 3. The number of three-hour emissions averages that exceeded each of the applicable emissions levels listed in R18-2-715(F) and (G)(~~1~~)(~~b~~) for the compliance periods ending on each day of the month being reported;
  - 4. The date on which a cumulative occurrence limit listed in R18-2-715(F) or (G)(~~1~~)(~~b~~) was exceeded if the exceedance occurred during the month being reported; and
  - 5. No change



- Q.** No change
- R.** The owner or operator shall determine compliance with the cumulative occurrence and fugitive emission limits contained in R18-2-715(G)(+) as follows:
1. The owner or operator shall calculate annual average emissions at the end of each day by averaging the emissions for all hours measured during the compliance period, as defined in subsection (R)(8), ending on that day. An annual emissions average in excess of the allowable annual average emission limit is a violation of R18-2-715(G)(+)(a) if either:
    - a. No change
    - b. No change
  2. No change
  3. For purposes of subsection (R)(2), a three-hour emissions average in excess of an emission level  $E_f$  violates the associated cumulative occurrence limit  $n$  listed in R18-2-715(G)(+)(b) if:
    - a. No change
    - b. No change
  4. No change
  5. Multiple violations of the same cumulative occurrence limit on the same day and violations of different cumulative occurrence limits on the same day constitute a single violation of R18-2-715(G)(+)(b).
  6. The violation of any cumulative occurrence limit and an annual average emission limit on the same day constitutes only a single violation of the requirements of R18-2-715(G)(+).
  7. Multiple violations of a cumulative occurrence limit by different three-hour emissions averages containing any common hour constitutes a single violation of R18-2-715(G)(+)(b).
  8. No change
- S.** To determine compliance with R18-2-715(G)(+), the owner or operator of the smelter subject to R18-2-715(G)(+) shall install, calibrate, maintain, and operate a measurement system for continuously monitoring sulfur dioxide concentrations of the converter roof fugitive emissions.
1. No change
  2. No change
- T.** The emission limit in R18-2-715(G)(2) 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. The owner or operator shall determine compliance with the emission limit contained in R18-2-715(G)(2) as follows:
1. No change
  2. An annual emissions average in excess of the allowable annual average emission limit violates R18-2-715(G)(2) if the fugitive annual average computed at the end of each month exceeds the allowable annual average emission limit.
- U.** No change
1. No change
  2. No change
  3. No change
- V.** The owner and operator of the copper smelter located near Hayden, Arizona at the latitude and longitude provided in R18-2-715(F)(1) shall comply with Section R18-2-715.01 until the effective date of R18-2-B1302 as determined by R18-2-B1302(A)(2). The owner and operator of the copper smelter located near Miami, Arizona at the latitude and longitude provided in R18-2-715(F)(2) shall comply with Section R18-2-715.01 until the effective date of R18-2-C1302 as determined by R18-2-C1302(A)(2).

**R18-2-715.02. Standards of Performance for Existing Primary Copper Smelters; Fugitive Emissions**

- A.** No change
- B.** No change
1. No change
  2. No change
  3. No change
  4. No change
- C.** No change
- D.** No change
1. No change
  2. No change
- E.** No change
1. No change
  2. No change
- F.** The owner and operator of the copper smelter located near Hayden, Arizona at the latitude and longitude provided in R18-2-715(F)(1) shall comply with Section R18-2-715.02 until the effective date of R18-2-B1302 as determined by R18-2-B1302(A)(2). The owner and operator of the copper smelter located near Miami, Arizona at the latitude and longitude provided in R18-2-715(F)(2) shall comply with Section R18-2-715.02 until the effective date of R18-2-C1302 as determined by R18-2-C1302(A)(2).



**ARTICLE 13. STATE IMPLEMENTATION PLAN RULES FOR SPECIFIC LOCATIONS**

**PART A. RESERVED**

**PART B. HAYDEN, ARIZONA, PLANNING AREA**

**R18-2-B1301. Limits on Lead Emissions from the Hayden Smelter**

**A. Applicability.**

1. This Section applies to the owner or operator of the Hayden Smelter.
2. Effective date. Except as otherwise provided, the requirements of this Section 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. Definitions.** In addition to general definitions contained in R18-2-101, the following definitions apply to this Section:

1. “ACFM” means actual cubic feet per minute.
2. “Anode furnace baghouse stack” means the dedicated stack that vents controlled off-gases from the anode furnaces to the Main Stack.
3. “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.
4. “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.
5. “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.
6. “Hayden Smelter” means the primary copper smelter located in Hayden, Gila County, Arizona at latitude 33°0’15”N and longitude 110°46’31”W.
7. “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.
8. “SCFM” means standard cubic feet per minute.
9. “SLAMS monitor” means an ambient air monitor part of the State and Local Air Monitoring Stations network operated by State or local agencies for the purpose of demonstrating compliance with the National Ambient Air Quality Standards.
10. “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.

**C. Emission limit.** Main Stack lead emissions shall not exceed 0.683 pound of lead per hour.

**D. Operational Standards.**

1. Process equipment and control device operations. At all times, including periods of startup, shutdown, and malfunction, the owner or operator 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 to the level required by subsection (C). 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.
2. Capture system and control device operations and maintenance plan. The owner or operator shall develop and implement an operations and maintenance plan for 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. The operations and maintenance plan must address the following requirements as applicable to each capture system and/or control device.
  - a. Monitoring devices. The plan shall provide for installation, operation, calibration, and maintenance of appropriate monitoring devices to measure and record operating limit values or settings at all times the required capture and control system is operating, except during periods of monitor calibration, repair, and malfunction. The initial plan shall provide for volumetric flow monitoring on the vent gas baghouse (inlet or outlet), each converter primary hood, each converter secondary hood, the tertiary ventilation system, and the anode furnace baghouse (inlet or outlet). All monitoring devices shall be accurate within +/- 10 percent and calibrated according to manufacturer’s instructions. If direct measurement of the exhaust flow is infeasible due to physical limitations or exhaust characteristics, the owner or operator may propose a reliable equivalent method for approval. Initial monitoring may be adjusted as provided in subsection (D)(2)(e). Dampers that are manually set and remain in the same position while the capture system is operating are exempt from these monitoring requirements. Capture system damper position setting(s) shall be specified in the plan.
  - b. Operational limits. The owner or operator shall establish operating limits in the operations and maintenance plan for the capture systems and/or control devices that are representative and reliable indicators of the performance of the capture system and control device operations. Initial operating limits may be adjusted as provided in subsection (D)(2)(e). Initial operating limits shall include the following:
    - i. A minimum air flow for the furnace ventilation system and associated damper positions for each matte tapping hood or slag skimming hood when operating to ensure that the operation(s) are within the confines or influence of the capture system.
    - ii. A minimum air flow for the secondary hood baghouse and associated damper positions for each slag return hood to ensure that the operation is within the confines or influence of the capture system’s ventilation draft during times when the associated process is operating.



- iii. A minimum air infiltration ratio for the converter primary hoods of 1:1 averaged over 24 converter Blowing hours, rolled hourly measured as volumetric flow in primary hood less the volumetric flow of tuyere Blowing compared to the volumetric flow of tuyere Blowing.
  - iv. A minimum secondary hood exhaust rate of 35,000 SCFM during converter Blowing, averaged over 24 converter Blowing hours, rolled hourly.
  - v. A minimum secondary hood exhaust rate of 133,000 SCFM during all non-Blowing operating hours, averaged over 24 non-Blowing hours, rolled hourly.
  - vi. A minimum negative pressure drop across the secondary hood when the doors are closed equivalent to 0.007 inches of water.
  - vii. A minimum exhaust rate on the tertiary hooding of 400,000 ACFM during all times material is processed in the converter aisle, averaged over 24 hours and rolled hourly.
  - viii. Fan amperes or minimum air flow for the anode furnace baghouse and associated damper positions for each anode furnace hood to ensure that the anode furnace off-gas port is within the confines or influence of the capture system's ventilation draft during times when the associated furnace is operating.
  - ix. The anode furnace charge mouth shall be kept covered when the tuyeres are submerged in the metal bath except when copper is being charged to or transferred from the furnace.
  - c. Preventative maintenance. The owner or operator shall perform preventative maintenance on each capture system and control device according to written procedures specified in the operations and maintenance plan. The procedures must include a preventative maintenance schedule that is consistent with the manufacturer's or engineer's instructions, or operator's experience working with the equipment, and frequency for routine and long-term maintenance. This provision does not prohibit additional maintenance beyond that required by the plan.
  - d. Inspections. The owner or operator shall perform inspections in accordance with written procedures in the operations and maintenance plan for each capture system and control device that are consistent with the manufacturer's, engineer's, or operator's instructions for each system and device.
  - e. Plan development and revisions.
    - i. The owner or operator shall develop and keep current the plan required by this Section. Any plan or plan revision shall be consistent with this Section, shall be designed to ensure that the capture and control system performance conforms to the attainment demonstration in the Hayden 2008 Lead National Ambient Air Quality Standards Nonattainment Area State Implementation Plan (SIP), and shall be submitted to the Department for review. Any plan or plan revision submitted shall include the associated manufacturer's, engineer's or operator's recommendations and/or instructions used for capture system and control device operations and maintenance.
    - ii. The owner or operator shall submit the initial plan to the Department no later than May 1, 2018 and shall include the initial volumetric flow monitoring provisions in subsection (D)(2)(a), the initial operational limits in subsection (D)(2)(b), the preventative maintenance procedures in subsection (D)(2)(c), and the inspection procedures in subsection (D)(2)(d).
    - iii. The owner or operator shall submit to the Department for approval a plan revision with changes, if any, to the initial volumetric flow monitoring provisions in subsection (D)(2)(a) and initial operational limits in subsection (D)(2)(b) not later than six months after completing a fugitive emissions study conducted in accordance with Appendix 14. The Department shall submit the approved changes to the volumetric flow monitoring provisions and operational limits pursuant to this subsection to EPA Region IX as a SIP revision not later than 12 months after completion of a fugitive emissions study.
    - iv. 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. Except for changes to the volumetric flow monitoring provisions in subsection (D)(2)(a) and operational limits in subsection (D)(2)(b), 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.
3. Emissions from the anode furnace baghouse stack shall be routed to the Main Stack.
- E. Performance Test Requirements.**
- 1. Main stack performance tests. No later than 180 calendar days after completion of all Converter Retrofit Project improvements authorized by Significant Permit Revision No. 60647, the owner or operator shall conduct initial performance tests on the following:
    - 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 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.
  - 2. Subsequent performance tests on the gas streams specified in subsection (E)(1) shall be conducted at least annually.
  - 3. Performance tests shall be conducted under such conditions as the Department specifies to the owner or operator based on representative performance of the affected sources and in accordance with 40 CFR 60, Appendix A, Reference Method 29.
  - 4. At least 30 calendar days prior to conducting a performance test pursuant to subsection (E)(1), the owner or operator shall submit a test plan, in accordance with R18-2-312(B) and the Arizona Testing Manual, to the Department for approval. The test plan must include the following:
    - a. Test duration;
    - b. Test location(s);



- c. Test method(s), including those for test method performance audits conducted in accordance with subsection (E)(6); and
- d. Source operation and other parameters that may affect the test result.
- 5. The owner or operator 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.
- 6. The owner or operator shall include a test method performance audit during every performance test in accordance with 40 CFR § 60.8(g).

**E. Compliance Demonstration Requirements.**

- 1. For purposes of determining compliance with the Main Stack emission limit in subsection (C), the owner or operator shall calculate the combined lead emissions in pounds per hour from the gas streams identified in subsection (E)(1) based on the most recent performance tests conducted in accordance with subsection (E).
- 2. The owner or operator shall determine compliance with the requirements in subsection (D)(2) as follows:
  - a. Maintaining and operating the emissions capture and control equipment in accordance with the capture system and control device operations and maintenance plan required in subsection (D)(2) and recording operating parameters for capture and control equipment as required in subsection (D)(2)(b); and
  - b. Conducting a fugitive emissions study in accordance with Appendix 14 starting not later than 6 months after completion of the Converter Retrofit Project authorized by Significant Permit Revision No. 60647. The fugitive emissions study shall demonstrate, as set forth in Appendix 14, that 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.
- 3. The owner or operator shall include periods of startup, shutdown, malfunction, or other upset conditions when determining compliance with the emission limit in subsection (C).

**G. Recordkeeping.** The owner or operator shall maintain the following records for at least five years and keep on-site for at least two years:

- 1. All records as specified in the operations and maintenance plan required under subsection (D)(2).
- 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 required by subsection (D)(2).
- 3. All records of performance tests, test plans, and audits required by subsection (E).
- 4. All records of compliance calculations required by subsection (F).
- 5. All records of fugitive emission studies and study protocols conducted in accordance with Appendix 14.
- 6. 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.
- 7. All records of reports and notifications required by subsection (H).

**H. Reporting.** The owner or operator 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.
- 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 owner or operator becomes aware of any exceedance of the emission limit set forth in subsection (C), the owner or operator shall notify the Department orally or by electronic or facsimile transmission as soon as practicable, but no later than two business days after the owner or operator first knew of the exceedance.
- 5. Within 30 days after the end of each calendar-year quarter, the owner or operator 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 the operations and maintenance plan required by subsection (D)(2).
- 6. Reports from performance testing conducted pursuant to subsection (E) 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).

**R18-2-B1301.01. Limits on Lead-Bearing Fugitive Dust from the Hayden Smelter**

**A. Applicability.**

- 1. This Section applies to the owner or operator of the Hayden Smelter.
- 2. Effective Date. Except as otherwise provided, the requirements of this Section shall become applicable on December 1, 2018.

**B. Definitions.** In addition to definitions contained in R18-2-101 and R18-2-B1301, the following definitions apply to this Section:

- 1. “Acid plant scrubber blowdown drying system” means the process in which Venturi scrubber blowdown solids are dried and packaged via a thickener, filter press, electric dryer, and supersack filling stations.
- 2. “Control measure” means a piece of equipment used, or actions taken, to minimize lead-bearing fugitive dust emissions that would otherwise be released to the atmosphere. Control equipment may include, but are not limited to, wind fences, chemical dust suppressants, and water sprayers. Actions may include, but are not limited to, relocating sources, curtailing operations, or ceasing operations.
- 3. “Hayden Lead Nonattainment Area” means the townships in Gila and Pinal Counties, as identified and codified in 40 CFR § 81.303, that are designated nonattainment for the 2008 Lead National Ambient Air Quality Standards.
- 4. “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.



5. “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.
6. “Material pile” means material, including concentrate, uncrushed reverts, crushed reverts, and bedding material, that is stored in a pile outside a building or warehouse and is capable of producing lead-bearing fugitive dust.
7. “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.
8. “Ongoing visible emissions” means observed emissions to the outside air that are not brief in duration.
9. “Road” means any surface on which vehicles pass for the purpose of carrying people or materials from one place to another in the normal course of business at the Hayden Smelter.
10. “Slag” means the inorganic molten material that is formed during the smelting process and has a lower specific gravity than copper-bearing matte.
11. “Slag hauler” means any vehicle used to transport molten slag.
12. “Storage and handling” means all activities associated with the handling and storage of materials that take place at the Hayden Smelter, including, but not limited to, stockpiling, transport on conveyor belts, transport or storage in rail cars, crushing and milling, arrival and handling of offsite concentrate, bedding, and handling of reverts.
13. “Trackout/carry-out” means any materials that adhere to and agglomerate on the surfaces of motor vehicles, haul trucks, and/or equipment (including tires) and that may then fall onto the road.

**C. Operational Standards.**

1. Equipment operations. At all times, the owner or operator 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 required by subsection (C)(2) and performance and housekeeping requirements in subsection (D). 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.
2. Fugitive dust plan. The owner or operator 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 the following:
  - a. Performance and housekeeping requirements in subsection (D).
  - b. Design plans and specifications for each wind fence to be installed to control lead-bearing fugitive dust from non-smelting process sources identified in subsections (D)(11) through (D)(14). The dust plan shall contain height limits for the materials being stored in each wind fence, consistent with the design plans and specifications for that particular wind fence. Wind fence design and specifications shall:
    - i. Require full encircling of the source to be controlled, with reasonable and sufficient openings for ingress and egress;
    - ii. Consider the orientation of the wind fence to the prevailing winds;
    - iii. Consider the strength of the winds in the area where the fence will be located;
    - iv. Consider the porosity of the material to be used, which shall not exceed 50 percent; and
    - v. Consider the height of the fence relative to the height of the material being stored. At minimum, wind fence height shall be greater than or equal to the material pile height.
  - c. Design plans and specifications for each new or modified water sprayer system used to control lead-bearing fugitive dust from non-smelting process sources specified in subsections (D)(11) through (D)(14). The number, type, location, watering intensity, flow rates, and other operational parameters of the water sprayers must meet moisture content objectives for sources specified in subsections (D)(11) through (D)(14). The owner or operator may include in the dust plan an exemption to the water requirements at times when the materials are sufficiently moist or it is raining and thus there is no need for additional wetting until the next scheduled watering to meet moisture content objectives. The dust plan shall include the following for each water sprayer:
    - i. watering schedule;
    - ii. watering intensity;
    - iii. minimum flow rate or pressure drop;
    - iv. appropriate and/or continuous monitoring;
    - v. schedule for calibration based on the manufacturer’s recommended calibration schedule;
    - vi. preventative maintenance schedule; and
    - vii. other applicable operational parameters.
  - d. Necessary improvements and/or modifications to material conveyor systems, along with a schedule for implementing improvements or modifications, targeted to minimize lead-bearing fugitive dust from non-smelting process sources specified in subsections (D)(11) through (D)(14), as applicable, to the greatest extent practicable. The improvements or modifications may include, but is not limited to, hooding of transfer points, utilizing water sprayers, and employing scrapers, brushes, or cleaning systems at all points where belts loop around themselves to catch and contain material before it falls to the ground.
  - e. Design plans for the concrete pads for the non-smelting process sources specified in subsections (D)(11) and (D)(13). The concrete pads shall be designed to capture, store, and control stormwater or sprayed water to minimize emissions to the greatest extent practicable, including curbing around the outer edges of the concrete pad where feasible.
  - f. Additional controls and measures for sources specified in subsections (D)(11) through (D)(14) to be implemented during high wind events. These additional controls or measures, which must include curtailment or other alteration of activity when appropriate, must be implemented at these sources during all periods of high wind.



- g. Sample inspection sheets, checklists, or logsheets for each of the inspections identified in subsection (D)(6), and in accordance with the following:
    - i. The inspection sheets or checklists shall include:
      - (1) Specific descriptions of the equipment being inspected and the specific functions being evaluated;
      - (2) The findings of the inspection;
      - (3) The date, time, and location of inspections; and
      - (4) An identification of who performed the inspection or logged the results.
    - ii. The logsheets for high wind events shall include:
      - (1) High wind event start time;
      - (2) High wind event end time;
      - (3) Description of area or activity inspected; and
      - (4) Description of corrective action taken if necessary.
  - h. Design plans of the new acid plant scrubber blowdown drying system specified in subsection (D)(15).
  - i. The name and location of the meteorological station, which must be approved by the Department, that is to be used by the owner or operator for determining high wind events pursuant to subsection (B)(4) and for implementing control requirements pursuant to subsection (D)(5).
3. Plan development and revisions. The owner or operator shall develop and keep current the fugitive dust plan required by subsection (C)(2). Any plan or plan revision shall be consistent with this Section and shall be submitted to the Department for review. The initial plan shall be submitted to the Department for review no later than May 1, 2017. 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 pursuant to subsection (D)(5), 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.
- D. Performance and Housekeeping Requirements.** The owner or operator shall comply with these requirements at all times regardless of a fugitive dust plan.
- 1. Water sprayers. The owner or operator shall implement a recordkeeping system to capture sprayer operations, including identification of the particular operation, lead-bearing fugitive dust source, timing and intensity of watering, and data regarding the quantity of water used at each water sprayer.
  - 2. Wind fences. The owner or operator shall ensure that wind fences used to control lead-bearing fugitive dust from the non-smelting process sources specified in subsections (D)(11) through (D)(14) meet the following requirements:
    - 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. Material conveyor systems. For sources specified in subsections (D)(11) through (D)(14), as applicable, the owner or operator shall:
    - 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. Vehicle transport of materials. The owner or operator 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.
  - 5. High wind event requirements.
    - a. During high wind events, the owner or operator shall evaluate the non-smelting process sources specified in subsections (D)(11) through (D)(14) for ongoing visible emissions using the appropriate logsheet for each source.
    - b. If ongoing visible emissions are observed, the owner or operator 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 owner or operator shall postpone associated handling of the source until the high wind event has ceased.
  - 6. Physical inspections. The owner or operator shall conduct physical inspections as follows:
    - 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 subsection (D)(10)(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. Opacity limit and Method 9 readings.
    - a. 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 subsection (D)(10)(c).



- b. In the event that an employee observes ongoing visible emissions at a non-smelting process source covered by this Section, that employee shall promptly contact a Reference Method 9-certified observer, who shall promptly evaluate the emissions and conduct a Reference Method 9 reading, if possible.
- c. A Reference Method 9-certified observer shall conduct a weekly visible emissions survey of all non-smelting process sources covered by this Section and perform a Reference Method 9 reading for any plumes that on an instantaneous basis appear to exceed 15 percent opacity.
- 8. Corrective actions.
  - a. At any time that visible emissions from the non-smelting process sources covered by this Section appear to exceed 15 percent opacity, the owner or operator shall take prompt corrective action to identify the source of the emissions and abate such emissions, with the corrective action starting within 30 minutes after discovery. For any non-smelting process source that produces visible emissions that appear to exceed 15 percent opacity, the owner or operator 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 owner or operator shall modify the fugitive dust plan in subsection (C)(2) for any changes identified from the analysis differing from the current provisions of the fugitive dust plan.
  - b. At any time that the owner or operator becomes aware that provisions of the fugitive dust plan and/or performance and housekeeping provisions required by this Section are not being met, the owner or operator 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 following actions:
    - i. Return water sprayers to full operational status;
    - ii. Repair damaged conveyor hoodings or other enclosures;
    - iii. Apply additional water to ensure that sources are meeting moisture content requirements;
    - iv. Clean any trackout or spillage of dust-producing material, including dropoff of dust producing material from conveyors, using a street sweeper, vacuum, or wet broom with sufficient water and at the speed recommended by the manufacturer;
    - v. Reapplication of chemical dust suppressants in areas where the coating has broken down on unpaved roads; and
    - vi. Revisions to the fugitive dust plan to undertake improved monitoring, recordkeeping, and reporting requirements necessary to ensure that the controls contained in the fugitive dust plan are being implemented as contemplated by the fugitive dust plan.
- 9. Paved Roads. These requirements apply to all roads at the facility currently paved and roads to be paved in the future. The owner or operator shall:
  - 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:
    - i. As expeditiously as practicable, when trackout and carry-out extends a cumulative distance of 50 linear feet or more; and
    - ii. 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.
- 10. Unpaved Roads. These requirements apply to the unpaved roads identified in subsections (D)(10)(a)(i) through (D)(10)(a)(iii) below, including any access points where the unpaved roads adjoin paved roads and any areas of vehicular handling of material. The owner or operator shall:
  - a. Implement a chemical dust suppressant application intensity and schedule, which at minimum shall be:
    - i. 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.
    - ii. For the main road to the secondary crusher, chemical dust suppressant shall be applied at least once every six weeks, year-round.
    - iii. 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. Not allow visible emissions to exceed 20 percent opacity and shall not allow silt loading equal to or greater than 0.33 oz/ft<sup>2</sup>. However, if silt loading is equal to or greater than 0.33 oz/ft<sup>2</sup>, then the owner or operator shall not 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.
  - d. 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.
  - e. 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.
  - f. Reapply chemical dust suppressant within 24 hours of discovery of any area where the surface chemical dust suppressant coverage has broken down.
  - g. Collect and prevent from becoming airborne any runoff or material from rinsing or sweeping as soon as practicable.
  - h. 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.



- 11. Concentrate Storage, Handling, and Unloading. The owner or operator shall:
  - a. Consolidate and manage all concentrate storage piles in one or more concrete storage pads.
  - b. Store concentrate in an area with a wind fence in accordance with requirements set forth in the fugitive dust plan and pursuant to subsection (D)(2).
  - c. Maintain water sprayers in accordance with requirements set forth in the fugitive dust plan and to ensure the surfaces of concentrate piles are wetted to maintain a nominal 10 percent surface moisture content as determined from representative samples using ASTM Method D2216-10 or other equivalent methods approved by the Department and EPA Region IX.
  - d. Minimize the footprint of the concentrate storage piles by pushing into the stockpile with a front end loader and sweeping open areas of the pads with a self-powered vacuum sweeper at least daily during use.
- 12. Uncrushed Reverts Handling and Storage. The owner or operator shall:
  - a. Manage uncrushed revert material only in areas protected by a wind fence in accordance with requirements set forth in the fugitive dust plan and pursuant to subsection (D)(2).
  - b. Maintain water sprayers in accordance with requirements set forth in the fugitive dust plan and to ensure the surface of uncrushed revert material is wetted with the objective to minimize lead-bearing fugitive dust emissions to the greatest extent practicable.
- 13. Reverts Crushing Operations and Crushed Reverts Storage. The owner or operator shall:
  - a. Crush revert and store crushed revert only on one or more concrete pads.
  - b. Crush revert and store crushed revert only within an area protected by a wind fence in accordance with requirements set forth in the fugitive dust plan and pursuant to subsection (D)(2).
  - c. Maintain water sprayers in accordance with requirements set forth in the fugitive dust plan and to ensure the surfaces of all crushed revert material, including revert managed after it is crushed, is wetted to maintain a nominal 10 percent surface moisture content as determined from representative samples using ASTM Method D2216-10 or other equivalent methods approved by the Department and EPA Region IX.
  - d. By October 2017, relocate all revert crushing operations to 33° 00' 25.84" N, 110° 46' 26.55" W and shall crush revert only at this new location.
- 14. Bedding Operations, Including Handling, Storage, and Unloading. The owner or operator shall:
  - a. Perform all bedding activities, including loading and unloading of materials to be blended, only within an area protected by a wind fence in accordance with requirements set forth in the fugitive dust plan and pursuant to subsection (D)(2). These activities include the storage and handling areas for potentially lead-bearing fugitive dust-producing material within the bedding plant area.
  - b. Maintain water sprayers in accordance with requirements set forth in the fugitive dust plan and to ensure the surfaces of material in the bedding area is wetted to maintain a nominal 10 percent surface moisture content as determined from representative samples using ASTM Method D2216-10 or other equivalent methods approved by the Department and EPA Region IX.
  - c. Maintain rumble grates at all of the bedding plant's entrances and exits to shake off material on the loader tires as they enter and exit the area. Material that is tracked out of the bedding area must be cleaned up at the end of the workday.
  - d. Operate its bedding activities in a manner designed to avoid any trackout outside an area protected by a wind fence. Areas of material spillage or trackout, whether inside or outside of an area protected by a wind fence, shall be rinsed or cleaned daily.
- 15. Acid Plant Scrubber Blowdown Drying System.
  - a. The owner or operator shall dry acid plant scrubber blowdown solids only in an enclosed system that uses a venturi scrubber, thickener, filter press, and electric dryer that is maintained under negative pressure at all times that materials are being dried.
  - b. The owner or operator 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.
  - c. The acid plant scrubber blowdown drying system shall include the following elements:
    - i. Venturi scrubber slurry that reports to a new thickener.
    - ii. Underflow from the thickener that goes to a filter press for further liquid removal, with the resulting filter cake sent to two electric dryers operating in parallel to provide final drying of the dust cake.
    - iii. Exhaust from the dryers sent to the packed gas cooling tower inlet duct.
    - iv. Dried cake discharged directly into bags.
  - d. The owner or operator shall clean all areas previously used for scrubber blowdown drying and no longer use previous areas for scrubber blowdown drying.

**E. Contingency Requirements.**

- 1. If the owner or operator does not meet the compliance schedule below in subsection (E)(3), or if the Hayden Lead Nonattainment Area does not attain the 2008 Lead National Ambient Air Quality Standards by the attainment date established in the Act, whichever occurs first, then the owner or operator shall increase the paved road cleaning frequency specified in subsection (D)(9) to twice per day.
- 2. The owner or operator shall implement the contingency measure in subsection (E)(1) within 60 days of notification by EPA Region IX of either a failure to meet the compliance schedule in subsection (E)(3) or a failure to attain by the attainment date established in the Act, whichever occurs first.
- 3. The compliance schedule is as follows. The Fugitive Dust Plan referred to in the compliance schedule shall mean the Fugitive Dust Plan submitted to the Administrator by the owner or operator to comply with requirements set forth in Consent Decree No. CV-15-02206-PHX-DLR, which became effective on December 30, 2015 in the United States District Court for the District of Arizona, as that plan may be later revised pursuant to subsection (C)(3):



<b>Control Measure</b>	<b>Date of Implementation</b>
<u>Implementation of chemical dust suppression for unpaved roads.</u>	<u>Within 30 days of Administrator approval of application intensity and schedules in Fugitive Dust Plan.</u>
<u>Implementation of wind fences for materials piles (uncrushed reverts, reverts crushing and crushed reverts, bedding materials, and concentrate).</u>	<u>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.</u>
<u>Implementation of water sprays for materials piles (uncrushed reverts, reverts crushing and crushed reverts, bedding materials, and concentrate).</u>	<u>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.</u>
<u>Implementation of new acid plant scrubber blowdown drying system.</u>	November 30, 2016
<u>Implementation of new primary, secondary, and tertiary hooding systems for converter aisle for purposes of complying with requirements in R18-2-B1301.</u>	July 1, 2018
<u>Implementation of new ventilation system for matte tapping and slag skimming for flash furnace for purposes of complying with requirements in R18-2-B1301.</u>	July 1, 2018

**E. Ambient Air and Meteorological Monitoring Requirements.**

1. The owner or operator shall conduct ambient air monitoring and sampling for lead as follows:
  - a. At minimum, the owner or operator shall continue to maintain and operate the ambient lead monitors located at ST-14 (the smelter parking lot), ST-23 (Hillcrest area), ST-26 (post office), and ST-18 (next to the concentrate handling area).
  - b. Samples must be collected continuously at all monitor sites specified in subsection (F)(1)(a). For the purposes of this requirement, “continuously” means that 24-hour filters are placed and collected at minimum, every six calendar days at all sites consistent with 40 CFR § 58.12.
  - c. The owner or operator shall follow the Hayden Smelter’s Quality Assurance Project Plan (QAPP) applicable to these monitors.
  - d. The monitors must be operated and maintained in accordance with 40 CFR 58, Appendix A.
  - e. The owner or operator shall submit each filter removed from each monitor to a certified laboratory for analysis no later than 18 calendar days after the filter’s removal. The owner or operator shall ensure that the laboratory performs its analysis and submits the results to the owner or operator no later than 21 calendar days from the lab’s receipt of the filter.
  - f. The owner or operator 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:
    - i. The total pollutants on the filters collected and analyzed; and
    - ii. 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/m<sup>3</sup>.
  - g. The owner or operator 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.
2. The owner or operator shall conduct meteorological monitoring as follows:
  - a. Continuously monitor and record wind speed and direction data using equipment and a meteorological station approved by the Department.
  - b. The owner or operator shall calculate and record average wind speed in miles per hour over 15 minutes, rolled each minute.
  - c. 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.
3. The ambient air and meteorological monitoring stations required by this Section may be discontinued at the end of three full calendar years after the Hayden Lead Nonattainment Area is redesignated attainment for the 2008 Lead National Ambient Air Quality Standards.

**G. Compliance Demonstration Requirements.** The owner or operator shall demonstrate compliance with this Section by complying with all requirements in the fugitive dust plan pursuant to subsection (C)(2) and implementing all housekeeping and performance requirements pursuant to subsection (D).

**H. Recordkeeping.**

1. The owner or operator shall maintain the following records for at least five years and keep on-site for at least two years:
  - a. Current and past fugitive dust plans required by subsection (C)(2).
  - b. Physical inspection sheets, checklists, and logsheets for inspections conducted in accordance with subsection (D)(6).
  - c. All records of opacity and stabilization tests, if any, conducted in accordance with subsection (D)(10)(c).



- d. All records of surface moisture content tests, if any, conducted in accordance with subsection (D)(11), subsection (D)(13), and subsection (D)(14).
- e. All records of major maintenance activities and inspections conducted on monitors required by subsection (F).
- f. All records of quality assurance and quality control activities for the monitors required by subsection (F).
- g. All air quality monitoring samples, rolling averages of ambient lead concentrations and necessary calculations, and data required by subsection (F).
- h. All records of wind data from the meteorological station required by subsection (F).
- i. All records of any periods during which a monitoring device required by subsection (F) is inoperative or not operating correctly.
- j. All records of reports and notifications required by subsection (I).
- 2. All of the following records maintained for the purposes of the fugitive dust plan required by subsection (C)(2) must be maintained in a recordkeeping log or recordkeeping system. As part of the records, the owner or operator shall include the dates and times for each of the following observations or activities, the name of the employee documenting each activity or observation, and the nature and location of each observation activity:
  - a. Each instance of observed visible emissions of 15 percent opacity or greater, along with a description of any corrective action undertaken and its success.
  - b. Water sprayer operations, including timing and intensity of watering to be captured in the water sprayer recordkeeping system.
  - c. Timing, location, type, and amount of chemical suppressant and water applied to unpaved roads, and a description of the nature and timing of any additional corrective action taken, as necessary, to minimize emissions to the greatest extent practicable.
  - d. Timing and location of all sweeping and cleaning of trackout or spillage material.
  - e. Timing and location of all washdown of concrete areas.
  - f. Timing and location of sump cleanouts.
  - g. Results of all visible emissions surveys and Reference Method 9 readings.
  - h. Appropriate records for operating conditions, including electric dryer ventilation fan start and stop times for the newly designed acid plant scrubber blowdown drying system.
  - i. Calibration records for all measurement devices, including maintenance of manufacturer’s manuals or other documentation for suggested calibration schedules and accuracy levels for each measurement device.
  - j. Dates, times, and descriptions of deviations when the owner or operator’s operations was carried out in a manner inconsistent with the fugitive dust plan required by subsection (C)(2).

- I. Reporting. Within 30 days after the end of each calendar-year quarter, the owner or operator shall submit a report to the Department covering the prior quarter that includes the following:
  - 1. All instances where observed fugitive emissions coming from sources covered in this Section were 15 percent or greater.
  - 2. The date of all high wind events, with an identification of the location of the reading, wind speed, and duration of the event, and a description of actions taken as a result of the event on a source-by-source basis.
  - 3. All instances where corrective action was required with identification of the emission source involved, what triggered the corrective action, what action the owner or operator undertook to abate or mitigate the problem, and whether the corrective action achieved the intended results.
  - 4. A summary of all times when the electronic recordkeeping system was not recording data, and a summary and indication of the period when recorded data was outside of established operating parameters.
  - 5. A summary of progress of all new construction, installation, upgrades, or modifications to equipment or structures at the facility required by the fugitive dust plan and subsection (D), including dates of commencement and completion of construction, dates of operations of new or modified equipment or structures, and dates old or outdated equipment or structures were permanently retired.
  - 6. Raw monitoring data and calculated ambient lead concentrations from the ambient air monitoring stations required by subsection (F).

**R18-2-B1302. Limits on SO<sub>2</sub> Emissions from the Hayden Smelter**

**A. Applicability.**

- 1. This Section applies to the owner or operator of the Hayden Smelter. It establishes limits on sulfur dioxide emissions from the Hayden Smelter and monitoring, recordkeeping and reporting requirements for those limits.
- 2. Effective date. Except as otherwise provided, the requirements of this Section 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. Definitions. In addition to definitions contained in R18-2-101 and R18-2-B1301, the following definitions apply to this rule.**

- 1. “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. “Operating day” means any calendar day in which any of the following occurs:
  - a. Concentrate is smelted in the smelting furnace;
  - b. Copper or sulfur bearing materials are processed in the converters;
  - c. Blister or scrap copper is processed in the anode furnaces;
  - d. Molten metal, including slag, matte or blister copper, is transferred between vessels; or
  - e. Molten metal is cast into anodes or other intermediate or final products.
- 3. “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 allow-



able 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. Sulfur Dioxide Emissions Limitations.**

1. 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.
2. The owner and operator shall not cause to be discharged into the atmosphere from any affected unit subject to 40 CFR 60 subpart P any gases which contain sulfur dioxide in excess of the limit set forth in 40 CFR § 60.163(a) (as in effect on July 1, 2016 and no later editions).

**D. Operational Standards.**

1. Process equipment and control device operations. At all times, including periods of startup, shutdown, and malfunction, the owner or operator 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<sub>2</sub> emissions to the levels required by subsection (C). 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.
2. Capture system and control device operations and maintenance plan. The owner or operator shall develop and implement an operations and maintenance plan for 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. The operations and maintenance plan must address the following requirements as applicable to each capture system and/or control device.
  - a. Monitoring devices. The plan shall provide for installation, operation, calibration, and maintenance of appropriate monitoring devices to measure and record operating limit values or settings at all times the required capture and control system is operating, except during periods of monitor calibration, repair and malfunction. The initial plan shall provide for volumetric flow monitoring on the vent gas baghouse (inlet or outlet), each converter primary hood, each converter secondary hood, the tertiary ventilation system and the anode furnace baghouse (inlet or outlet). All monitoring devices shall be accurate within +/-10 percent and calibrated according to manufacturer's instructions. If direct measurement of the exhaust flow is infeasible due to physical limitations or exhaust characteristics, the owner or operator may propose a reliable equivalent method for approval. Initial monitoring may be adjusted as provided in subsection (D)(2)(e). Dampers that are manually set and remain in the same position while the capture system is operating are exempt from these monitoring requirements. Capture system damper position setting(s) shall be specified in the plan.
  - b. Operational limits. The owner or operator shall establish operating limits in the operations and maintenance plan for the capture systems and/or control devices that are representative and reliable indicators of the performance of the capture system and control device operations. The initial operating limits may be adjusted as provided in subsection (D)(2)(e). Initial operating limits shall include the following:
    - i. Identification of those modes of operation when the double dampers between the flash furnace vessel and the vent gas system will be closed and the interstitial space evacuated to the acid plant.
    - ii. A minimum air flow for the furnace ventilation system and associated damper positions for each matte tapping hood or slag skimming hood when operating to ensure that the operation(s) are within the confines or influence of the capture system.
    - iii. A minimum air flow for the secondary hood baghouse and associated damper positions for each slag return hood to ensure that the operation is within the confines or influence of the capture system's ventilation draft during times when the associated process is operating.
    - iv. A minimum air infiltration ratio for the converter primary hoods of 1:1 averaged over 24 converter Blowing hours, rolled hourly measured as volumetric flow in primary hood less the volumetric flow of tuyere Blowing compared to the volumetric flow of tuyere Blowing.
    - v. A minimum secondary hood exhaust rate of 35,000 SCFM during converter Blowing, averaged over 24 converter Blowing hours, rolled hourly.
    - vi. A minimum secondary hood exhaust rate of 133,000 SCFM during all non-Blowing operating hours, averaged over 24 non-Blowing hours, rolled hourly.
    - vii. A minimum negative pressure drop across the secondary hood when the doors are closed equivalent to 0.007 inches of water.
    - viii. A minimum exhaust rate on the tertiary hooding of 400,000 ACFM during all times material is processed in the converter aisle, averaged over 24 hours and rolled hourly.
    - ix. Fan amperes or minimum air flow for the anode furnace baghouse and associated damper positions for each anode furnace hood to ensure that the anode furnace off-gas port is within the confines or influence of the capture system's ventilation draft during times when the associated furnace is operating.
    - x. The anode furnace charge mouth shall be kept covered when the tuyeres are submerged in the metal bath except when copper is being charged to or transferred from the furnace.
    - xi. The temperatures of the acid plant catalyst bed, which shall at minimum, meet the manufacturer's recommendations.
    - xii. The acid plant catalyst replenishment criteria, which shall at minimum, meet the manufacturer's recommendations.
  - c. Preventative maintenance. The owner or operator must perform preventative maintenance on each capture system and control device according to written procedures specified in the operation and maintenance plan. The procedures must include a preventative maintenance schedule that is consistent with the manufacturer's or engineer's instructions, or operator's experience working with equipment, and frequency for routine and long-term maintenance. This provision does not prohibit additional maintenance beyond that required by the plan.



- d. Inspections. The owner or operator must perform inspections in accordance with written procedures in the operations and maintenance plan for each capture system and control device that are consistent with the manufacturer's, engineer's or operator's instructions for each system and device.
- e. Plan development and revisions.
  - i. The owner or operator shall develop and keep current the plan required by this Section. Any plan or plan revision shall be consistent with this Section, shall be designed to ensure that the capture and control system performance conforms to the attainment demonstration in the Hayden 2010 Sulfur Dioxide National Ambient Air Quality Standards Nonattainment Area State Implementation Plan (SIP), and shall be submitted to the Department for review. Any plan or plan revision submitted shall include the associated manufacturer's recommendations and/or instructions used for capture system and control device operations and maintenance.
  - ii. The owner or operator shall submit the initial plan to the Department no later than May 1, 2018 and shall include the initial volumetric flow monitoring provisions in subsection (D)(2)(a), the initial operational limits in subsection (D)(2)(b), the preventative maintenance procedures in subsection (D)(2)(c), and the inspection procedures in subsection (D)(2)(d).
  - iii. The owner or operator shall submit to the Department for approval a plan revision with changes, if any, to the initial volumetric flow monitoring provisions in subsection (D)(2)(a) and initial operational limits in subsection (D)(2)(b) not later than six months after completing a fugitive emissions study conducted in accordance with Appendix 14. The Department shall submit the approved changes to the volumetric flow monitoring provisions and operational limits pursuant to this subsection to EPA Region IX as a SIP revision not later than 12 months after completion of a fugitive emissions study.
  - iv. 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. Except for changes to the volumetric flow monitoring provisions in subsection (D)(2)(a) and operational limits in subsection (D)(2)(b), 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.
- 3. Emissions from the anode furnace baghouse stack shall be routed to the Main Stack.

**E. Monitoring.**

- 1. To determine compliance with subsection (C)(1) the owner or operator of the Hayden Smelter shall install, calibrate, maintain, and operate a CEMS for continuously monitoring and recording SO<sub>2</sub> concentrations and stack gas volumetric flow rates at the following locations.
  - a. The exit of the acid plant;
  - b. The exit of the secondary hood particulate control device after the High Surface Area (HSA) lime injection system;
  - c. The exit of the flash furnace particulate control device after the HSA lime injection system;
  - d. The tertiary ventilation system prior to mixing with any other exhaust streams; and
  - e. The anode furnace baghouse stack prior to mixing with any other exhaust streams.
- 2. Except during periods of systems breakdown, repairs, maintenance, out-of-control periods, calibration checks, and zero and span adjustments, the owner or operator shall continuously monitor SO<sub>2</sub> concentrations and stack gas volumetric flow rates at each location in subsection (E)(1).
- 3. For purposes of this section, continuous monitoring means the taking and recording of at least one measurement of SO<sub>2</sub> 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 required by subsection (E)(1) shall complete at least one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period.
- 4. If the owner or operator can demonstrate to the Director that measurement of stack gas volumetric flow rate in the outlet of any particular piece of SO<sub>2</sub> control equipment would yield inaccurate results or would be technologically infeasible, then the Director may allow measurement of the flow rate at an alternative sampling point.
- 5. The owner or operator shall demonstrate that the CEMS required by subsection (E)(1) meet all of the following requirements:
  - a. The SO<sub>2</sub> CEMS installed and operated under this Section meets the requirements of 40 CFR 60, Appendix B, Performance Specification 2 and Performance Specification 6. 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.
  - b. The SO<sub>2</sub> CEMS installed and operated under this Section meets the quality assurance requirements of 40 CFR 60, Appendix E.
  - c. The owner or operator shall notify the Director in writing at least 30 days in advance of the start of the relative accuracy test audit (RATA) performed on the CEMS.
  - d. The Director shall approve the location of all sampling points for monitoring SO<sub>2</sub> 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.
  - e. The measurement system installed and used under this subsection 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 owner or operator shall follow those specifications or recommendations. The



owner or operator shall make available a record of these procedures that clearly shows instrument readings before and after zero adjustment and calibration.

f. The owner or operator 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.

6. The owner or operator of the Hayden Smelter may petition the Department to substitute annual stack testing for the tertiary ventilation or the anode furnace baghouse stack CEMS if the owner or operator 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 owner or operator 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 owner or operator 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 in subsection (F)(1). Except as provided herein, the owner or operator shall otherwise comply with section R18-2-312 in conducting such testing.

**E. Compliance Demonstration Requirements.**

1. For purposes of determining compliance with the emission limit in subsection (C)(1) the owner or operator shall calculate emissions for each operating day as follows:

a. Sum the hourly pounds of SO<sub>2</sub> vented to each uncontrolled shutdown ventilation flue and through each monitoring point listed in subsection (E)(1) for the current operating day and the preceding 13-operating days to calculate the total pounds of SO<sub>2</sub> emissions over the 14-operating day averaging period, as applicable.

b. Divide the total amount of SO<sub>2</sub> emissions calculated from subsection (F)(1)(a) by 336 to calculate the 14-operating day average SO<sub>2</sub> emissions.

c. If the calculation in subsection (F)(1)(b) exceeds 1069.1 pounds per hour, then the owner or operator shall sum the hourly pounds of SO<sub>2</sub> 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.

2. When no valid hour or hours of data have been recorded by a continuous monitoring system required by subsections (E)(1) and (E)(2) and the associated process unit is operating, the owner or operator shall calculate substitute data for each such period according to the following procedures:

a. For a missing data period less than or equal to 24 hours, substitute the average of the hourly SO<sub>2</sub> concentrations recorded by the system for the hour before and the hour after the missing data period.

b. For a missing data period greater than 24 hours, substitute the greater of:

i. The 90th percentile hourly SO<sub>2</sub> concentrations recorded by the system during the previous 720 quality-assured monitor operating hours.

ii. The average of the hourly SO<sub>2</sub> concentrations recorded by the system for the hour before and the four hours after the missing data period.

c. Notwithstanding subsections (F)(3)(a) and (F)(3)(b), the owner or operator may present any credible evidence as to the quantity or concentration of emissions during any period of missing data.

3. The owner or operator shall determine compliance with the requirements in subsection (D)(2) as follows:

a. Maintaining and operating the emissions capture and control equipment in accordance with the capture system and control device operations and maintenance plan required in subsection (D)(2) and recording operating parameters for capture and control equipment as required in subsection (D)(2)(b); and

b. Conducting a fugitive study in accordance with Appendix 14 starting not later than 6 months after completion of the Converter Retrofit Project authorized by Significant Permit Revision No. 60647. The fugitive study shall demonstrate, as set forth in Appendix 14, 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.

4. The owner or operator shall include periods of startup, shutdown, malfunction, or other upset conditions when determining compliance with the emission limits in subsection (C).

5. The owner and operator shall demonstrate compliance with the limit in subsection (C)(2) in accordance with 40 CFR §§ 60.165 and 60.166 (as in effect on July 1, 2016 and not later editions).

**G. Recordkeeping.**

1. The owner or operator shall maintain a record of each operation and maintenance plan required under subsection (D)(2).

2. The owner or operator shall maintain the following records for at least five years:

a. All measurements from the continuous monitoring system required by subsection (E)(1), including the date, place, and time of sampling or measurement; parameters sampled or measured; and results. All measurements will be calculated daily.

b. All records of quality assurance and quality control activities for emissions measuring systems required by subsection (E)(1).

c. All records of calibration checks, adjustments, maintenance, and repairs conducted on the continuous monitoring systems required by subsection (E); including records of all compliance calculations required by subsection (F).

d. 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 required by subsection (E)(1) is inoperative or not operating correctly.



- e. 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 owner or operator chooses to use the alternative compliance determination method.
- f. 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 required by subsection (D)(2).
- g. All records of operating days and production records required for calculations in subsection (F).
- h. All records of fugitive emissions studies and study protocols conducted in accordance with Appendix 14.
- i. All records of reports and notifications required by subsection (H).

**H. Reporting.**

- 1. The owner or operator 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 required by subsection (E)(1).
- 2. Within 30 days after the end of each calendar quarter, the owner or operator shall submit a data assessment report to the Director in accordance with 40 CFR Part 60, Appendix F for the continuous monitoring systems required by subsection (E).
- 3. The owner or operator 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 continuous monitoring systems required by subsection (E)(1). Excess emissions means any 14-operating day average as calculated in subsection (F) in excess of the emission limit in subsection (C)(1), 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 in subsection (D)(2). For any 14-operating day period exceeding 1069.1 pounds per hour that the owner or operator claims does not exceed the limit in subsection (C)(1) because all hours in the operating period are below 1,518 pounds per hour, the owner or operator 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.
- 4. The owner or operator shall provide the following to the Director:
  - a. The owner or operator shall notify the Director of commencement of construction of any equipment necessary to comply with the operational or emission limits.
  - b. The owner or operator 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.
  - c. The owner or operator shall submit notification of initial startup of any such equipment within 15 business days of such startup.

- I. Preconstruction review. This Section is determined to be Reasonably Available Control Technology (RACT) for SO<sub>2</sub> emissions from the operations subject to subsection (C) for purposes of minor source NSR requirement addressed in R18-2-334.

**PART C. MIAMI, ARIZONA, PLANNING AREA**

**R18-2-C1301. Reserved**

**R18-2-C1302. Limits on SO<sub>2</sub> Emissions from the Miami Smelter**

**A. Applicability.**

- 1. This Section applies to the owner or operator of the Miami Smelter. It establishes limits on SO<sub>2</sub> emissions from the Miami Smelter and monitoring, recordkeeping and reporting requirements for those limits.
- 2. Effective date. Except as otherwise provided, the provisions of this Section shall take effect on the later of the effective date of the Administrator’s action approving it as part of the state implementation plan or January 1, 2018.

**B. Definitions. In addition to general definitions contained in R18-2-101, the following definitions apply to this rule.**

- 1. “Capture system” means the collection of components used to capture gases and fumes released from one or more emission points, and to convey the captured gases and fumes to one or more control devices. 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.
- 2. “Electric furnace” means a furnace in which copper matte and slag are heated by electrical resistance without the mechanical introduction of air or oxygen.
- 3. “IsaSmelt<sup>®</sup> furnace” means a furnace in which air, oxygen, and fuel are injected through a top-submerged lance into a molten slag bath to produce slag and copper matte.
- 4. “Miami Smelter” means the primary copper smelter located near Miami, Gila County, Arizona at latitude 33°24’50”N and longitude 110°51’25”W.
- 5. “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.
- 6. “Operating day” means any calendar day in which any of the following occurs:
  - a. Concentrate is smelted in the Electric furnace or IsaSmelt<sup>®</sup> furnace;
  - b. Copper or sulfur bearing materials are processed in the converters;
  - c. Blister or scrap copper is processed in the anode furnaces or mold vessel;
  - d. Molten metal, including slag, matte or blister copper, is transferred between vessels;
  - e. Molten metal is cast into molds, anodes, or other intermediate or final products;
  - f. Power is provided to the electric furnace to make or maintain a molten bath; or
  - g. The anode furnace is heated to make or maintain a molten bath.

- C. Sulfur Dioxide Emission Limitations. Combined SO<sub>2</sub> emissions from the tail gas stack, vent fume stack, aisle scrubber stack, bypass stack, and smelter roofline fugitives shall not exceed 142.45 pounds per hour on a 30-day rolling average basis.

**D. Operational Standards.**

1. Process Equipment and control device operations. At all times, including periods of startup, shutdown, and malfunction, the owner or operator shall, to the extent practicable, maintain and operate smelter processes and associated emission control devices in a manner consistent with good air pollution control practices for minimizing SO<sub>2</sub> emissions from the process gases associated with the IsaSmelt<sup>®</sup> furnace, electric furnace, and converters at least to the levels required by subsection (C). Determination of whether acceptable operating and maintenance procedures are being used will be based on 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.
2. Capture system and control device operations and maintenance plan. The owner or operator shall develop and implement an operations and maintenance plan for each capture system and control device used to ventilate or control process gas or emissions associated with the IsaSmelt<sup>®</sup> furnace, electric furnace, and converters. The owner or operator shall submit the initial plan to the Department and EPA Region IX for review and approval by July 1, 2017.
  - a. The operations and maintenance plan must address the following requirements as applicable to each capture system and control device:
    - i. Monitoring devices. The plan shall provide for installation, operation, calibration, and maintenance of appropriate monitoring devices to measure and record operating limit or range values at all times the required system is operating. Dampers that are manually set and remain in the same position while the capture system is operating are exempt from these monitoring requirements.
    - ii. Operational limits and ranges. The owner or operator shall establish operating limits and ranges in the plan for each capture system and control device that are representative and reliable indicators of capture system performance and control device operation. If selected as an operational limit or range, capture system damper position settings shall be specified in the plan.
    - iii. Preventative maintenance. The owner or operator must perform preventative maintenance for each capture system and control device according to written procedures in the plan. The procedures must include a preventative maintenance schedule that is consistent with the manufacturer's or engineer's instructions and specified frequency for routine and long-term maintenance.
    - iv. Inspections. The owner or operator must perform inspections in accordance with written procedures in the plan for each capture system and control device, including position verification of any manual damper settings specified in the plan, that are consistent with the manufacturer's or engineer's instructions for each system and device.
  - b. The owner or operator shall operate and maintain each capture system and each control device in accordance with the plan required by subsection (D)(2) and as approved by the Department and EPA Region IX, except as provided herein. Until receiving initial approval of the plan, the owner or operator shall operate and maintain each capture system and each control device in accordance with the plan as initially submitted pursuant to subsection (D)(2). The owner or operator shall submit plan revisions for review by the Department and EPA Region IX. At any time, the Department and/or EPA Region IX may require the owner or operator to revise the plan if determined to be inconsistent with subsection (D)(2)(a). Within 60 days of receiving written notification from the Department or EPA Region IX specifying such inconsistency, the owner or operator shall submit a proposal to the Department and EPA Region IX that addresses the inconsistency. The owner or operator shall maintain a current copy of the plan onsite and available for review and inspection upon request.

**E. Monitoring.**

1. To determine compliance with subsection (C), the owner or operator shall install, calibrate, maintain, and operate continuous monitoring systems to monitor and record SO<sub>2</sub> concentrations and stack gas volumetric flow rates at the following locations:
  - a. The acid plant tail gas stack;
  - b. The vent fume stack;
  - c. The aisle scrubber stack; and
  - d. The bypass stack.
2. To determine compliance with the emission limit in subsection (C), the owner or operator shall install, calibrate, maintain, and operate a continuous monitoring system to monitor and record fugitive SO<sub>2</sub> concentrations at the Miami Smelter roofline.
3. Except during periods of continuous monitoring system breakdown, repairs, maintenance, out-of-control periods, calibration checks, and zero and span adjustments, the owner or operator shall continuously monitor SO<sub>2</sub> concentrations and stack gas volumetric flow rates at each location specified in subsection (E)(1) and use the monitored concentrations and volumetric flow rates when demonstrating compliance with the SO<sub>2</sub> emission limit in subsection (C) in accordance with subsection (F).
4. Except during periods of continuous monitoring system breakdown, repairs, maintenance, out-of-control periods, calibration checks and zero and span adjustments, the owner or operator shall continuously monitor fugitive SO<sub>2</sub> emissions at the Miami Smelter roofline and use the monitored concentrations and volumetric flow rates when demonstrating compliance with the SO<sub>2</sub> emission limit in subsection (C) in accordance with subsection (F).
5. For purposes of subsections (E)(3) and (E)(4), continuous monitoring means the taking and recording of at least one measurement of SO<sub>2</sub> 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 continuous monitoring systems required by subsection (E)(1) shall complete at least one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period.
6. If the owner or operator can demonstrate to the Director and EPA Region IX that measurement of stack gas volumetric flow rate in the outlet of any particular piece of SO<sub>2</sub> control equipment would yield inaccurate results or would be technologically infeasible, then the Director and EPA Region IX may allow measurement of the flow rate at an alternative sampling point.
7. The owner or operator shall demonstrate that the continuous monitoring systems required by subsection (E)(1) meet all of the following requirements:



- a. Each SO<sub>2</sub> continuous monitoring system shall meet the specifications under 40 CFR 60, Appendix B, Performance Specification 6.
- b. Each SO<sub>2</sub> continuous monitoring system installed and operated under this Section shall also meet the quality assurance requirements of 40 CFR 60, Appendix F, Procedure 1.
- c. The owner or operator shall notify the Director in writing at least 30 days in advance of the start of the relative accuracy test audit (RATA) procedures performed on each continuous monitoring system.
- d. The Director shall approve the location of all sampling points for monitoring SO<sub>2</sub> concentrations and stack gas volumetric flow rates in writing before installation and operation of measurement instruments.
- e. The span of each continuous monitoring system for the acid plant tail stack, vent fume stack, and aisle scrubber stack shall be set at a SO<sub>2</sub> concentration of zero to 0.20 percent by volume.
- f. The span of the continuous monitoring system for the bypass stack shall be set at a SO<sub>2</sub> concentration of zero to 20 percent by volume.
- g. The zero (or low-level value between 0 and 20 percent of the span value) and span (50 to 100 percent of span value) calibration drifts shall be checked at least once each operating day in accordance with a written procedure. The zero and span must, at a minimum, be adjusted whenever either the 24-hour zero drift or the 24-hour span drift exceeds two times the limit in 40 CFR Part 60, Appendix B, Performance Specification 2. The system must allow the amount of the excess zero and span drift to be recorded and quantified.
- h. The owner or operator shall maintain on hand and ready for immediate installation sufficient spare parts or duplicate systems for the continuous monitoring system equipment required by this Section to allow for the replacement within six hours of any monitoring system equipment part that fails or malfunctions during operation.
- 8. The owner or operator shall develop and implement a roofline fugitive emissions monitoring plan for the continuous monitoring system required by subsection (E)(2). The owner or operator shall submit the initial plan to the Department and EPA Region IX for review and approval by July 1, 2017.
  - a. The roofline fugitive emissions monitoring plan must address the following requirements:
    - i. The continuous monitoring system required by subsection (E)(2) must include measurement of fugitive emissions from, at a minimum, the Converter, Electric Furnace, Anode Furnace, and IsaSmelt<sup>®</sup> systems that is representative of total fugitive emissions.
    - ii. Each measurement system shall include at least one SO<sub>2</sub> analyzer and sufficient sampling locations that ensure collection of a representative sample along the roof monitor for each monitor system. The number of sample probes and their locations for each monitoring system shall account for the physical configuration of the vent, the locations of emitting activities relative to the vent, and heat generated by the equipment served by the vent.
    - iii. Each measurement system shall include validation of adequate velocity for flow measurements and sufficient flow and temperature sensors to ensure calculation of representative exhaust flows through each vent. The number of such sensors and their locations for each monitoring system shall account for the physical configuration of the vent, the locations of emitting activities relative to the vent, and heat generated by the equipment served by the vent.
    - iv. Each measurement system shall include an on-site data collection system that continuously logs and stores the measured SO<sub>2</sub> concentration, the measured flow velocity, and the measured temperature.
    - v. An appropriate range for zero-span drift shall be established for all SO<sub>2</sub> analyzers to ensure proper calibration and operation. Unless otherwise provided in the roofline fugitive emissions monitoring plan required by subsection (E)(8), the zero (or low-level) value determination shall be made using a gas containing between zero to 20 percent of the span value for SO<sub>2</sub> and the span (or high-level) value determination shall be made using a certified gas with a value between 50 and 100 percent of the span value for SO<sub>2</sub>. For each SO<sub>2</sub> analyzer, a daily zero-span check shall be performed by introducing zero gas and a known concentration of span gas to the analyzer. If the zero or span drift for an analyzer is greater than five percent of the span gas concentration for five consecutive days or greater than 10 percent of the span gas concentration for one day, the analyzer shall be found to be operating improperly and appropriate measures shall be taken to return the analyzer to proper operation. The zero-span check shall be repeated after any such corrective action is taken.
    - vi. All SO<sub>2</sub> analyzers shall be inspected quarterly by the owner or operator and inspected annually by an independent auditor. The inspections shall be conducted in accordance with the data accuracy assessment requirements of 40 CFR 60, Appendix F, Procedure 1, Section 5 or as otherwise provided in the roofline fugitive emissions monitoring plan required by subsection (E)(8). The quarterly inspections consist of two certified concentrations of SO<sub>2</sub> to each sample probe system and comparing the known concentrations to the concentrations logged by the corresponding on-site data collection system to generate a relative error for each system.
    - vii. The flow and temperature data shall be checked daily for proper operation of flow and temperature sensors in accordance with the roofline fugitive emissions monitoring plan required by subsection (E)(8). If a flow or temperature sensor is found to be operating improperly, appropriate measures shall be taken to return the sensor to proper operation.
    - viii. All temperature sensors shall be inspected annually. The inspection shall be conducted according to the manufacturer's specification. A temperature sensor tolerance range representative of proper sensor operation shall be established in the roofline fugitive emissions monitoring plan required by subsection (E)(8). If a temperature sensor is found to measure outside of an established tolerance range, the sensor shall be found to be operating improperly and appropriate measures shall be taken to return the sensor to proper operation.
    - ix. All flow sensors shall be calibrated semi-annually with calibration tools according to the manufacturer's specifications. A calibration tool range representative of proper sensor operation shall be established in the roofline fugitive emissions monitoring plan required by subsection (E)(8). If a flow sensor is found to measure outside of an established range, the sensor shall be found to be operating improperly and appropriate measures shall be taken to return the sensor to proper operation.



- b. The owner or operator shall operate and maintain the continuous monitoring system required by subsection (E)(2) in accordance with the roofline fugitive emissions monitoring plan required by subsection (E)(2) and as approved by the Department and EPA Region IX, except as provided herein. Until receiving initial approval of the plan, the owner or operator shall operate and maintain the continuous monitoring system required by subsection (E)(2) in accordance with the plan as initially submitted pursuant to subsection (E)(2). The owner or operator shall keep the plan current and consistent with subsection (E)(8)(a). The owner or operator shall maintain a current copy of the plan onsite and available for review and inspection upon request. The Department and/or EPA Region IX may require the owner or operator to revise the plan if determined to be inconsistent with subsection (E)(8)(a). Within 60 days of receiving written notification from the Department or EPA Region IX specifying such inconsistency, the owner or operator shall submit a proposal to the Department and EPA Region IX that addresses the inconsistency.

**F. Compliance Demonstration Requirements.**

1. Within 180 days of the effective date set forth in subsection (A)(2), the owner or operator shall demonstrate compliance with the emission limit in subsection (C) by calculating SO<sub>2</sub> emissions for each operating day as follows:
  - a. Sum the hourly pounds of SO<sub>2</sub> measured by the continuous monitoring systems required by subsection (E)(1) and (E)(2) for the current operating day and the preceding 29 operating days to calculate the total pounds of SO<sub>2</sub> emissions over the 30-operating day averaging period.
  - b. Multiply the operating days occurring during a 30-day averaging period by 24 to calculate the total operating hours over the most recent 30-operating day period.
  - c. Divide the total amount of SO<sub>2</sub> emissions calculated from subsection (F)(1)(a) by the total operating hours calculated from subsection (F)(1)(b) to calculate the 30-day rolling hourly average SO<sub>2</sub> emissions.
2. For the continuous monitoring systems required by subsections (E)(1) and (E)(2), hourly emissions shall be computed as follows:
  - a. Except as provided under subsection (F)(2)(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.
  - b. Except as provided under subsection (F)(2)(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.
  - c. For any operating hour in which required maintenance or quality-assurance activities are performed:
    - i. 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
    - ii. If the unit operates in only one quadrant of the hour, at least one valid data point is required to calculate the hourly average.
  - 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 subsection (F)(2)(c) are met, based solely on valid data recorded after the successful calibration.
  - e. For each full or partial operating hour, all valid data points shall be used to calculate the hourly average.
  - 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 subsection (F)(3).
  - 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.
3. When no valid hour or hours of data have been recorded by a continuous monitoring system required by subsections (E)(1) and (E)(2) and the associated process unit is operating, the owner or operator shall calculate substitute data for each such period according to the following procedures:
  - a. For a missing data period less than or equal to 24 hours, substitute the average of the hourly SO<sub>2</sub> concentrations recorded by the system for the hour before and the hour after the missing data period.
  - b. For a missing data period greater than 24 hours, substitute the greater of:
    - i. The 90th percentile hourly SO<sub>2</sub> concentrations recorded by the system during the previous 720 quality-assured monitor operating hours; or
    - ii. The average of the hourly SO<sub>2</sub> concentrations recorded by the system for the hour before and the hour after the missing data period.
4. The owner or operator shall include periods of startup, shutdown, malfunction, or other upset conditions when determining compliance with the emission limit in subsection (C).

**G. Recordkeeping.**

1. The owner or operator shall maintain records as specified in the capture system and control device operations and maintenance plan required under subsection (D)(2) and the roofline fugitive emissions monitoring plan required under subsection (E)(8).
2. The owner or operator shall maintain the following records for at least five years:
  - a. All measurements from the continuous monitoring systems required by subsection (E)(1) and (E)(2); including the date, place, and time of sampling or measurement, parameters sampled or measured, and results.
  - b. All records of all compliance calculations required by subsection (F).
  - c. All records of quality assurance and quality control activities conducted on the continuous monitoring systems required by subsection (E)(1) and (E)(2).
  - 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 subsection (E)(1) and (E)(2).



- 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 subsection (E)(1) and (E)(2) is inoperative.
- f. All records of all major maintenance activities conducted on emission units, capture system, air pollution control equipment, and continuous monitoring systems; including those set forth in the operations and maintenance plan required by subsection (D)(2).
- g. All records of reports and notifications required by subsection (H).

**H. Reporting**

- 1. Within 30 days after the end of each calendar quarter, the owner or operator 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 subsection (E).
- 2. The owner or operator 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 subsection (E)(1) and (E)(2). All reports shall be postmarked by the 30th day following the end of each six-month period.
- 3. The owner or operator 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. 53592 to comply with the operational or emission limits in this Section no later than 30 days after such date.
  - 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.
  - c. Notification of initial startup of any such improvements and equipment within 15 days after such date.

- I. Preconstruction review. This Section is determined to be Reasonably Available Control Technology (RACT) for SO<sub>2</sub> emissions from the operations subject to subsection (C) for purposes of minor source NSR requirements addressed in R18-2-334.

**A14. APPENDIX 14.**

**PROCEDURES FOR SULFUR DIOXIDE AND LEAD FUGITIVE EMISSIONS STUDIES FOR THE HAYDEN SMELTER**

**A14.1. Applicability**

This appendix applies to the owner or operator of the primary copper smelter located in Hayden, Arizona at latitude 33°0'15"N and longitude 110°46'31"W.

**A14.2. Study Objectives**

The owner or operator shall conduct fugitive emissions studies to derive a measurement or accurate estimate of total fugitive sulfur dioxide and lead emissions from the Hayden smelter during operations, including planned and unplanned start-up and shutdown periods and malfunctions, for the processes identified in A14.3 below. The studies shall include uncaptured fugitive sulfur dioxide emissions from the smelter processing units, but not emissions due solely to the use of fuel for space heating or steam generation, burners at anode casting, or slag pouring at the slag dump. The studies shall evaluate the extent to which correlations may exist between fugitive sulfur dioxide, lead, and particulate matter (PM/PM10/PM2.5) emissions, and shall develop such correlations as feasible.

The studies shall also be used to help validate that the operating conditions or ranges specified in the capture and control device maintenance and operations plans required in R18-2-B1301(D)(2) and R18-2-B1302(D)(2) are consistent with operating conditions demonstrating attainment of the 2008 Lead National Ambient Air Quality Standards (NAAQS) in the Hayden 2008 Lead NAAQS Nonattainment Area State Implementation Plan (SIP) and the 2010 Sulfur Dioxide NAAQS in the Hayden 2010 Sulfur Dioxide NAAQS Nonattainment Area SIP.

**A14.3. Processes Evaluated**

From the fugitive emissions studies, the owner or operator shall develop an emission factor or accurate estimate of fugitive emissions for sulfur dioxide and lead during operations, including planned and unplanned start-up and shutdown periods and malfunctions, produced by each of the following smelting processes:

- i. Flash furnace building, including flash furnace and dryer operations
- ii. Converter aisle, including converter and related operations
- iii. Anode furnace aisle, including oxidizing, poling and related operations

**A14.4. Averaging Periods**

The emission estimate shall include the average pounds per hour emission factor for the fugitive lead and sulfur dioxide emissions from each step in the smelting process identified in A14.3. The estimate shall include all time periods, including planned and unplanned start-up and shutdown periods and malfunctions.

**A14.5. Methods and Study Protocols**

The owner or operator shall submit to the Department and EPA Region IX for review and approval study protocols at least six months prior to conducting fugitive emission studies. Study protocols must be approved by the Department and EPA Region IX prior to commencement of fugitive emissions studies. Study protocols shall specify the method(s) used to meet the study objectives as described in A14.2, including during all recurring operating scenarios from all processes identified in A14.3.

Each fugitive emissions measurement system shall include validation of adequate velocity for flow measurements (i.e., the expected exhaust velocity is within the measurement range of the instrument), and have a sufficient number of flow and temperature sensors to ensure calculation of representative exhaust flows through each roof monitor vent. The number of such sensors and their locations for each



monitoring system shall account for the physical configuration of the roof monitor vent, the locations of emitting activities relative to the roof monitor vent, and heat generated by the equipment served by the roof monitor vent.

The fugitive emissions studies shall include operation and process information to help understand the emission impacts of startup, shut-down, malfunctions, and significant changes in process operations. This shall include, for example, dates, times and duration of these events, cause of malfunctions, and descriptions of process changes.

After the completion of each fugitive emissions study, the owner or operator shall modify study methods based on data and lessons learned from previous studies, and submit such modified methods in the proceeding study protocols prior to conducting future emissions studies.

#### A14.6. Study Duration, Frequency, and Submission Schedule

The first fugitive emissions study must commence not later than six months after the completion of the Converter Retrofit Project authorized by Significant Permit Revision No. 60647. The second study commencement date shall occur within the same calendar quarter, but five years later from the date of commencement of the first study. The owner or operator shall submit the results of each fugitive emissions study in a report to the Department and EPA Region IX for review and approval not later than six months after completing a study. The data collection portion of the first and second fugitive emissions studies shall be conducted for a period of 12 months to assess the content and quantity of fugitive sulfur dioxide and lead emissions.

#### A14.7. Study Reports and Subsequent Studies

At minimum, fugitive emission study reports submitted pursuant to A14.6 must include:

- i. Resultant emission factors used to determine fugitive emissions of sulfur dioxide and lead.
- ii. Resultant average fugitive lead emissions for each process identified in A14.3.
- iii. Resultant peak one-hour fugitive sulfur dioxide emissions for each process identified in A14.3.
- iv. Seasonal differences, if any.
- v. Comparisons of results from past studies, if any.
- vi. Descriptions and identification of volumetric flow monitoring provisions in R18-2-B1301(D)(2)(a) and R18-2-B1302(D)(2)(a) and operational limits R18-2-B1301(D)(2)(b) and R18-2-B1302(D)(2)(b) that are associated with fugitive emissions.
- vii. An analysis of whether the results from a study demonstrate that the volumetric flow monitoring provisions in R18-2-B1301(D)(2)(a) and R18-2-B1302(D)(2)(a) and the operational limits in R18-2-B1301(D)(2)(b) and R18-2-B1302(D)(2)(b) continuously ensure that actual fugitive sulfur dioxide and lead emissions are consistent with the modeled emission rates used in the attainment demonstrations in the Hayden 2008 Lead NAAQS Nonattainment Area SIP and the Hayden 2010 Sulfur Dioxide NAAQS Nonattainment Area SIP. The analysis must also identify subsequent fugitive emissions studies, if any, needed to remedy inaccurate operational limits and volumetric flow monitoring provisions and to ensure attainment of the 2008 Lead NAAQS and 2010 Sulfur Dioxide NAAQS. The scope, duration, and frequency of any subsequent fugitive emissions studies must also be identified. This provision and the report's conclusion neither require nor prohibit future fugitive emission studies.
- viii. An analysis of whether supplemental modeling is needed to demonstrate that resultant fugitive emissions from a study provide attainment of the 2008 Lead NAAQS and 2010 Sulfur Dioxide NAAQS.
- ix. A summary of methods as followed per approved study protocols.

#### A14.8. Revisions to Operations and Maintenance Plan

If an analysis conducted in accordance with A14.7(vi) demonstrates that fugitive emissions associated with volumetric flow monitoring provisions in R18-2-B1301(D)(2)(a) and R18-2-B1302(D)(2)(a) and operational limits in R18-2-B1301(D)(2)(b) and R18-2-B1302(D)(2)(b) may exceed the modeled emission rates used in the Hayden 2008 Lead NAAQS Nonattainment Area SIP attainment demonstration and/or the Hayden 2010 Sulfur Dioxide NAAQS Nonattainment Area SIP attainment demonstration, and result in an increased likelihood of a NAAQS exceedance based on modeling required under A14.9, then the owner or operator shall submit to the Department for approval, not later than six months after completing a study, recommended changes to operational limits and volumetric flow monitoring provisions as an operations and maintenance plan revision pursuant to R18-2-B1301(D)(2)(e) and R18-2-B1302(D)(2)(e) that would achieve necessary fugitive emissions levels to demonstrate attainment of the NAAQS at the same level of assurance as in the attainment demonstrations. Until receiving approval of the plan revision, the owner or operator shall operate and maintain the volumetric flow monitoring provisions and the operational limits in accordance with the plan as initially submitted pursuant to R18-2-B1301(D)(2)(e) and R18-2-B1302(D)(2)(e). Additionally, the owner or operator shall submit new attainment demonstrations pursuant to A14.9, making appropriate demonstrations of attainment at adjusted fugitive emissions levels.

Similarly, if an analysis conducted in accordance with A14.7(vi) demonstrates that fugitive emissions associated with the volumetric flow monitoring provisions in R18-2-B1301(D)(2)(a) and R18-2-B1302(D)(2)(a) and operational limits in R18-2-B1301(D)(2)(b) and R18-2-B1302(D)(2)(b) may exceed the modeled emission rates used in the Hayden 2008 Lead NAAQS Nonattainment Area SIP attainment demonstration and/or the Hayden 2010 Sulfur Dioxide NAAQS Nonattainment Area SIP attainment demonstration, and result in an increased likelihood of a NAAQS exceedance based on modeling required under A14.9, then the Department shall submit appropriate changes to the operational limits and volumetric flow monitoring provisions, and any revised attainment demonstration pursuant to A14.9, if applicable, to EPA Region IX as a SIP revision not later than 12 months after completion of a fugitive emissions study.

#### A14.9. Supplemental Modeling

If an analysis conducted in accordance with A14.7(vii) demonstrates that fugitive emissions associated with volumetric flow monitoring provisions in R18-2-B1301(D)(2)(a) and R18-2-B1302(D)(2)(a) and operational limits in R18-2-B1301(D)(2)(b) and R18-2-B1302(D)(2)(b) are greater than the modeled emission rates used in the Hayden 2008 Lead NAAQS Nonattainment Area SIP attainment demonstration and/or the Hayden 2010 Sulfur Dioxide NAAQS Nonattainment Area SIP attainment demonstration, the owner or operator



shall remodel to demonstrate whether the 2010 Sulfur Dioxide NAAQS and/or 2008 Lead NAAQS will be attained as such higher rates. The owner or operator shall submit such modeling to the Department and EPA Region IX for review and approval not later than six months after completing a fugitive emissions study.

If the revised modeling demonstrates that the 2010 Sulfur Dioxide NAAQS and/or 2008 Lead NAAQS will be attained, the Department shall submit such modeling demonstration and revised fugitive emissions assumptions as a SIP revision to EPA Region IX not later than 12 months after completion of a fugitive emissions study. Alternatively, the owner or operator shall propose additional emission control requirements to revise the SIP, or any combination of revised control measures and modeled attainment, to demonstrate attainment of the 2010 Sulfur Dioxide NAAQS and/or 2008 Lead NAAQS.

#### **A15. APPENDIX 15.**

#### **TEST METHODS FOR DETERMINING OPACITY AND STABILIZATION OF UNPAVED ROADS**

##### A15.1. Applicability

This appendix applies to unpaved roads at the primary copper smelter located in Hayden, Arizona at latitude 33°0'15"N and longitude 110°46'31"W.

##### A15.2. Opacity Test Method

The purpose of this test method is to estimate the percent opacity of fugitive dust plumes caused by vehicle movement on unpaved roads. This method can only be conducted by an individual who has received certification as a qualified observer. Qualification and testing requirements can be found in Section A15.4 of this appendix.

##### A15.2.1. Step 1

Stand at least 16.5 feet from the fugitive dust source in order to provide a clear view of the emissions with the sun oriented in the 140° sector to the back. Following the above requirements, make opacity observations so that the line of vision is approximately perpendicular to the dust plume and wind direction. If multiple plumes are involved, do not include more than one plume in the line of sight at one time.

##### A15.2.2. Step 2

Record the fugitive dust source location, source type, method of control used, if any, observer's name, certification data and affiliation, and a sketch of the observer's position relative to the fugitive dust source. Also record the time, estimated distance to the fugitive dust source location, approximate wind direction, estimated wind speed, description of the sky condition (presence and color of clouds), observer's position to the fugitive dust source, and color of the plume and type of background on the visible emission observation from both when opacity readings are initiated and completed.

##### A15.2.3. Step 3

Make opacity observations, to the extent possible, using a contrasting background that is perpendicular to the line of vision. Make opacity observations approximately 1 meter above the surface from which the plume is generated. Note that the observation is to be made at only one visual point upon generation of a plume, as opposed to visually tracking the entire length of a dust plume as it is created along a surface. Make two observations per vehicle, beginning with the first reading at zero seconds and the second reading at five seconds. The zero-second observation should begin immediately after a plume has been created above the surface involved. Do not look continuously at the plume but, instead, observe the plume briefly at zero seconds and then again at five seconds.

##### A15.2.4. Step 4

Record the opacity observations to the nearest 5 percent on an observational record sheet. Each momentary observation recorded represents the average opacity of emissions for a 5-second period. While it is not required by the test method, EPA recommends that the observer estimate the size of vehicles which generate dust plumes for which readings are taken (e.g. midsize passenger car or heavy-duty truck) and the approximate speeds the vehicles are traveling when readings are taken.

##### A15.2.5. Step 5

Repeat Step 3 (Section A15.2.3 of this appendix) and Step 4 (Section A15.2.4 of this appendix) until you have recorded a total of 12 consecutive opacity readings. This will occur once six vehicles have driven on the source in your line of observation for which you are able to take proper readings. The 12 consecutive readings must be taken within the same period of observation but must not exceed 1 hour. Observations immediately preceding and following interrupted observations can be considered consecutive.

##### A15.2.6. Step 6

Average the 12 opacity readings together. If the average opacity reading equals 20 percent or lower, the source is in compliance.

##### A15.3. Silt Content Test Method

The purpose of this test method is to estimate the silt content of the trafficked parts of unpaved roads. The higher the silt content, the more fine dust particles that are released when cars and trucks drive on unpaved roads.

##### A15.3.1. Equipment

A15.3.1.1. A set of sieves with the following openings: 4 millimeters (mm), 2 mm, 1 mm, 0.5 mm and 0.25 mm (or a set of standard/commonly available sieves), a lid, and collector pan.



A15.3.1.2. A small whisk broom or paintbrush with stiff bristles and dustpan 1 ft. in width. (The broom/brush should preferably have one thin row of bristles no longer than 1.5 inches in length).

A15.3.1.3. A spatula without holes.

A15.3.1.4. A small scale with half-ounce increments (e.g., postal/package scale).

A15.3.1.5. A shallow, lightweight container (e.g., plastic storage container).

A15.3.1.6. A sturdy cardboard box or other rigid object with a level surface.

A15.3.1.7. A basic calculator.

A15.3.1.8. Cloth gloves (optional for handling metal sieves on hot, sunny days).

A15.3.1.9. Sealable plastic bags (if sending samples to a laboratory).

A15.3.1.10. A pencil/pen and paper.

#### A15.3.2. Step 1

Look for a routinely traveled surface, as evidenced by tire tracks. (Only collect samples from surfaces that are not damp due to precipitation or dew. This statement is not meant to be a standard in itself for dampness where watering is being used as a control measure. It is only intended to ensure that surface testing is done in a representative manner.) Use caution when taking samples to ensure personal safety with respect to passing vehicles. Gently press the edge of a dustpan (1 foot in width) into the surface four times to mark an area that is 1 square foot. Collect a sample of loose surface material using a whiskbroom or brush and slowly sweep the material into the dustpan, minimizing escape of dust particles. Use a spatula to lift heavier elements such as gravel. Only collect dirt/gravel to an approximate depth of 3/8 inch or 1 cm in the 1 square foot area. If you reach a hard, underlying subsurface that is < 3/8 inch in depth, do not continue collecting the sample by digging into the hard surface. In other words, you are only collecting a surface sample of loose material down to 1 cm. In order to confirm that samples are collected to 1 cm in depth, a wooden dowel or other similar narrow object at least one foot in length can be laid horizontally across the survey area while a metric ruler is held perpendicular to the dowel.

At this point, you can choose to place the sample collected into a plastic bag or container and take it to an independent laboratory for silt content analysis. A reference to the procedure the laboratory is required to follow is at the end of this section.

#### A15.3.3. Step 2

Place a scale on a level surface. Place a lightweight container on the scale. Zero the scale with the weight of the empty container on it. Transfer the entire sample collected in the dustpan to the container, minimizing escape of dust particles. Weigh the sample and record its weight.

#### A15.3.4. Step 3

Stack a set of sieves in order according to the size openings specified above, beginning with the largest size opening (4 mm) at the top. Place a collector pan underneath the bottom (0.25 mm) sieve.

#### A15.3.5. Step 4

Carefully pour the sample into the sieve stack, minimizing escape of dust particles by slowly brushing material into the stack with a whiskbroom or brush. (On windy days, use the trunk or door of a car as a wind barricade.) Cover the stack with a lid. Lift up the sieve stack and shake it vigorously up, down and sideways for at least 1 minute.

#### A15.3.6. Step 5

Remove the lid from the stack and disassemble each sieve separately, beginning with the top sieve. As you remove each sieve, examine it to make sure that all of the material has been sifted to the finest sieve through which it can pass (e.g., material in each sieve [besides the top sieve that captures a range of larger elements] should look the same size). If this is not the case, re-stack the sieves and collector pan, cover the stack with the lid, and shake it again for at least 1 minute. (You only need to reassemble the sieve(s) that contain material, which requires further sifting.)

#### A15.3.7. Step 6

After disassembling the sieves and collector pan, slowly sweep the material from the collector pan into the empty container originally used to collect and weigh the entire sample. Take care to minimize escape of dust particles. You do not need to do anything with material captured in the sieves; only the collector pan. Weigh the container with the material from the collector pan and record its weight.

#### A15.3.8. Step 7

If the source is an unpaved road, multiply the resulting weight by 0.38. The resulting number is the estimated silt loading. Then, divide by the total weight of the sample you recorded earlier in Step 2 (Section A15.3.3 of this appendix) and multiply by 100 to estimate the percent silt content.

#### A15.3.9. Step 8



Select another two routinely traveled portions of the unpaved road and repeat this test method. Once you have calculated the silt loading and percent silt content of the 3 samples collected, average your results together.

#### A15.3.10. Step 9

Examine results. If the average silt loading is less than 0.33 oz/ft<sup>2</sup>, the surface is STABLE. If the average silt loading is greater than or equal to 0.33 oz/ft<sup>2</sup>, then proceed to examine the average percent silt content. If the source is an unpaved road and the average percent silt content is 6 percent or less, the surface is STABLE. If your field test results are within 2 percent of the standard (for example, 4–8 percent silt content on an unpaved road), it is recommended that you collect 3 additional samples from the source according to Step 1 (Section A15.3.2 of this appendix) and take them to an independent laboratory for silt content analysis.

#### A15.3.11. Independent Laboratory Analysis

You may choose to collect 3 samples from the source, according to Step 1 (Section A15.3.2 of this appendix), and send them to an independent laboratory for silt content analysis rather than conduct the sieve field procedure. If so, the test method the laboratory is required to use is: U.S. Environmental Protection Agency (1995), “Procedures for Laboratory Analysis of Surface/Bulk Dust Loading Samples”, (AP-42 Fifth Edition, Volume I, Appendix C.2.3 “Silt Analysis”), Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina.

### A15.4. Qualification and Testing

#### A15.4.1. Certification Requirements

To receive certification as a qualified observer, a candidate must be tested and demonstrate the ability to assign opacity readings in 5 percent increments to 25 different black plumes and 25 different white plumes, with an error not to exceed 15 percent opacity on any one reading and an average error not to exceed 7.5 percent opacity in each category. Candidates shall be tested according to the procedures described in Section A15.4.2 of this appendix. Any smoke generator used pursuant to Section A15.4.2 of this appendix shall be equipped with a smoke meter which meets the requirements of Section A15.4.3 of this appendix. Certification tests that do not meet the requirements of Sections A15.4.2 and A15.4.3 of this appendix are not valid. The certification shall be valid for a period of 6 months, and after each 6-month period the qualification procedures must be repeated by an observer in order to retain certification.

#### A15.4.2. Certification Procedure

The certification test consists of showing the candidate a complete run of 50 plumes, 25 black plumes and 25 white plumes, generated by a smoke generator. Plumes shall be presented in random order within each set of 25 black and 25 white plumes. The candidate assigns an opacity value to each plume and records the observation on a suitable form. At the completion of each run of 50 readings, the score of the candidate is determined. If a candidate fails to qualify, the complete run of 50 readings must be repeated in any retest. The smoke test may be administered as part of a smoke school or training program, and may be preceded by training or familiarization runs of the smoke generator, during which candidates are shown black and white plumes of known opacity.

#### A15.4.3. Smoke Generator Specifications

Any smoke generator used for the purpose of Section A15.4.2 of this appendix shall be equipped with a smoke meter installed to measure opacity across the diameter of the smoke generator stack. The smoke meter output shall display in-stack opacity, based upon a path length equal to the stack exit diameter on a full 0 percent to 100 percent chart recorder scale. The smoke meter optical design and performance shall meet the specifications shown in Table 1 of this appendix. The smoke meter shall be calibrated as prescribed in Section A15.4.3.1 of this appendix prior to conducting each smoke reading test. At the completion of each test, the zero and span drift shall be checked, and if the drift exceeds plus or minus 1 percent opacity, the condition shall be corrected prior to conducting any subsequent test runs. The smoke meter shall be demonstrated, at the time of installation, to meet the specifications listed in Table 1 of this appendix. This demonstration shall be repeated following any subsequent repair or replacement of the photocell or associated electronic circuitry, including the chart recorder or output meter, or every 6 months, whichever occurs first.

##### A15.4.3.1. Calibration

The smoke meter is calibrated after allowing a minimum of 30 minutes warm-up by alternately producing simulated opacity of 0 percent and 100 percent. When stable response at 0 percent or 100 percent is noted, the smoke meter is adjusted to produce an output of 0 percent or 100 percent, as appropriate. This calibration shall be repeated until stable 0 percent and 100 percent readings are produced without adjustment. Simulated 0 percent and 100 percent opacity values may be produced by alternately switching the power to the light source on and off while the smoke generator is not producing smoke.

##### A15.4.3.2. Smoke Meter Evaluation

The smoke meter design and performance are to be evaluated as follows:

###### A15.4.3.2.1. Light Source

Verify, from manufacturer's data and from voltage measurements made at the lamp, as installed, that the lamp is operated within plus or minus 5 percent of the nominal rated voltage.

###### A15.4.3.2.2. Spectral Response of Photocell

Verify from manufacturer's data that the photocell has a photopic response (i.e., the spectral sensitivity of the cell shall closely approximate the standard spectral-luminosity curve for photopic vision which is referenced in (b) of Table 1 of this appendix).

###### A15.4.3.2.3. Angle of View



Check construction geometry to ensure that the total angle of view of the smoke plume, as seen by the photocell, does not exceed 15°. Calculate the total angle of view ( $\phi_v$ ) as follows:

$$\text{Total Angle of View} = 2 \tan^{-1} (d/2L)$$

where:

d = The photocell diameter + the diameter of the limiting aperture; and

L = The distance from the photocell to the limiting aperture. The limiting aperture is the point in the path between the photocell and the smoke plume where the angle of view is most restricted. In smoke generator smoke meters, this is normally an orifice plate.

**A15.4.3.2.4. Angle of Projection**

Check construction geometry to ensure that the total angle of projection of the lamp on the smoke plume does not exceed 15°. Calculate the total angle of projection ( $\phi_p$ ) as follows:

$$\text{Total Angle of Projection} = 2 \tan^{-1} (d/2L)$$

where:

d = The sum of the length of the lamp filament + the diameter of the limiting aperture; and

L = The distance from the lamp to the limiting aperture.

**A15.4.3.2.5. Calibration Error**

Using neutral-density filters of known opacity, check the error between the actual response and the theoretical linear response of the smoke meter. This check is accomplished by first calibrating the smoke meter, according to Section A15.4.3.1 of this appendix, and then inserting a series of three neutral-density filters of nominal opacity of 20 percent, 50 percent, and 75 percent in the smoke meter path length. Use filters calibrated within plus or minus 2 percent. Care should be taken when inserting the filters to prevent stray light from affecting the meter. Make a total of five nonconsecutive readings for each filter. The maximum opacity error on any one reading shall be plus or minus 3 percent.

**A15.4.3.2.6. Zero and Span Drift**

Determine the zero and span drift by calibrating and operating the smoke generator in a normal manner over a 1-hour period. The drift is measured by checking the zero and span at the end of this period.

**A15.4.3.2.7. Response Time**

Determine the response time by producing the series of five simulated 0 percent and 100 percent opacity values and observing the time required to reach stable response. Opacity values of 0 percent and 100 percent may be simulated by alternately switching the power to the light source off and on while the smoke generator is not operating.

**Table 1: Smoke Meter Design and Performance Specifications**

<b><u>Parameter</u></b>	<b><u>Specification</u></b>
<u>a. Light source</u>	<u>Incandescent lamp operated at nominal rated voltage</u>
<u>b. Spectral response of photocell</u>	<u>Photopic (daylight spectral response of the human eye)</u>
<u>c. Angle of view</u>	<u>15° maximum total angle</u>
<u>d. Angle of projection</u>	<u>15° maximum total angle</u>
<u>e. Calibration error</u>	<u>Plus or minus 3 percent opacity, maximum</u>
<u>f. Zero and span drift</u>	<u>Plus or minus 1 percent opacity, 30 minutes</u>
<u>g. Response time</u>	<u>Less than or equal to 5 seconds</u>



GOVERNOR EXECUTIVE ORDERS

The Administrative Procedure Act (APA) requires the full-text publication of Governor Executive Orders.

With the exception of egregious errors, content (including spelling, grammar, and punctuation) of these orders has been reproduced as submitted.

In addition, the Register shall include each statement filed by the Governor in granting a commutation, pardon or reprieve, or stay or suspension of execution where a sentence of death is imposed.

EXECUTIVE ORDER 2017-02

Internal Review of Administrative Rules; Moratorium to Promote Job Creation and Customer-Service-Oriented Agencies

[M17-23]

Editor's Note: This Executive Order is being reproduced in each issue of the Administrative Register until its expiration on December 31, 2017, as a notice to the public regarding state agencies' rulemaking activities.

WHEREAS, burdensome regulations inhibit job growth and economic development;

WHEREAS, job creators and entrepreneurs are especially hurt by red tape and regulations;

WHEREAS, all government agencies of the State of Arizona should promote customer-service-oriented principles for the people that it serves;

WHEREAS, each State agency should undertake a critical and comprehensive review of its administrative rules and take action to reduce the regulatory burden, administrative delay, and legal uncertainty associated with government regulation;

WHEREAS, overly burdensome, antiquated, contradictory, redundant, and nonessential regulations should be repealed;

WHEREAS, Article 5, Section 4 of the Arizona Constitution and Title 41, Chapter 1, Article 1 of the Arizona Revised Statutes vests the executive power of the State of Arizona in the Governor;

NOW, THEREFORE, I, Douglas A. Ducey, by virtue of the authority vested in me by the Constitution and laws of the State of Arizona hereby declare the following:

- 1. A State agency subject to this Order, shall not conduct any rulemaking except as permitted by this Order.
2. A State agency subject to this Order, shall not conduct any rulemaking, whether informal or formal, without the prior written approval of the Office of the Governor. In seeking approval, a State agency shall address one or more of the following as justification for the rulemaking:
a. To fulfill an objective related to job creation, economic development, or economic expansion in this State.
b. To reduce or ameliorate a regulatory burden while achieving the same regulatory objective.
c. To prevent a significant threat to the public health, peace, or safety.
d. To avoid violating a court order or federal law that would result in sanctions by a court of the federal government against an agency for failure to conduct the rulemaking action.
e. To comply with a federal statutory or regulatory requirement if such compliance is related to a condition for the receipt of federal funds or participation in any federal program.
f. To comply with a state statutory requirement.
g. To fulfill an obligation related to fees or any other action necessary to implement the State budget that is certified by the Governor's Office of Strategic Planning and Budgeting.
h. To promulgate a rule or other item that is exempt from Title 41, Chapter 6, Arizona Revised Statutes, pursuant to section 41-1005, Arizona Revised Statutes.
i. To address matters pertaining to the control, mitigation, or eradication of waste, fraud, or abuse within an agency or wasteful, fraudulent, or abusive activities perpetrated against an agency.
j. To eliminate rules that are antiquated, redundant or otherwise no longer necessary for the operation of state government.
3. All directors of state agencies subject to this Order shall engage their respective regulated or stakeholder communities to solicit comment on which rules the regulated community believes to be overly burdensome and not necessary to protect consumers, public health, or public safety. Each agency shall submit a report regarding the aforementioned information to the Governor's Office no later than September 1, 2017.
4. For the purposes of this Order, the term "State agencies," includes without limitation, all executive departments, agencies, offices, and all state boards and commissions, except for: (a) any State agency that is headed by a single elected State official, (b) the Corporation Commission and (c) any board or commission established by ballot measure during or after the November 1998 general election. Those State agencies, boards and commissions excluded from this Order are strongly encouraged to voluntarily comply with this Order in the context of their own rulemaking processes.
5. This Order does not confer any legal rights upon any persons and shall not be used as a basis for legal challenges to rules, approvals, permits, licenses or other actions or to any inaction of a State agency. For the purposes of this Order, "person," "rule," and "rulemaking" have the same meanings prescribed in Arizona Revised Statutes Section 41-1001.



6. This Executive Order expires on December 31, 2017.

**IN WITNESS WHEREOF**, I have hereunto set my hand and caused to be affixed the Great Seal of the State of Arizona.

**Douglas A. Ducey**  
**GOVERNOR**

**DONE** at the Capitol in Phoenix on this Eleventh day of January in the Year Two Thousand and Seventeen and of the Independence of the United States of America the Two Hundred and Forty-First.

**ATTEST:**

**Michele Reagan**  
**SECRETARY OF STATE**

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**REGISTER INDEXES**

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The *Register* is published by volume in a calendar year (See “General Information” in the front of each issue for more information).

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Abbreviations for rulemaking activity in this Index include:

**PROPOSED RULEMAKING**

PN = Proposed new Section  
PM = Proposed amended Section  
PR = Proposed repealed Section  
P# = Proposed renumbered Section

**SUPPLEMENTAL PROPOSED RULEMAKING**

SPN = Supplemental proposed new Section  
SPM = Supplemental proposed amended Section  
SPR = Supplemental proposed repealed Section  
SP# = Supplemental proposed renumbered Section

**FINAL RULEMAKING**

FN = Final new Section  
FM = Final amended Section  
FR = Final repealed Section  
F# = Final renumbered Section

**SUMMARY RULEMAKING****PROPOSED SUMMARY**

PSMN = Proposed Summary new Section  
PSMM = Proposed Summary amended Section  
PSMR = Proposed Summary repealed Section  
PSM# = Proposed Summary renumbered Section

**FINAL SUMMARY**

FSMN = Final Summary new Section  
FSMM = Final Summary amended Section  
FSMR = Final Summary repealed Section  
FSM# = Final Summary renumbered Section

**EXPEDITED RULEMAKING****PROPOSED EXPEDITED**

PEN = Proposed Expedited new Section  
PEM = Proposed Expedited amended Section  
PER = Proposed Expedited repealed Section  
PE# = Proposed Expedited renumbered Section

**SUPPLEMENTAL EXPEDITED**

SPEN = Supplemental Proposed Expedited new Section  
SPEM = Supplemental Proposed Expedited amended Section  
SPER = Supplemental Proposed Expedited repealed Section  
SPE# = Supplemental Proposed Expedited renumbered Section

**FINAL EXPEDITED**

FEN = Final Expedited new Section  
FEM = Final Expedited amended Section  
FER = Final Expedited repealed Section  
FE# = Final Expedited renumbered Section

**EXEMPT RULEMAKING****EXEMPT PROPOSED**

PXN = Proposed Exempt new Section  
PXM = Proposed Exempt amended Section  
PXR = Proposed Exempt repealed Section  
PX# = Proposed Exempt renumbered Section

**EXEMPT SUPPLEMENTAL PROPOSED**

SPXN = Supplemental Proposed Exempt new Section  
SPXR = Supplemental Proposed Exempt repealed Section  
SPXM = Supplemental Proposed Exempt amended Section  
SPX# = Supplemental Proposed Exempt renumbered Section

**FINAL EXEMPT RULEMAKING**

FXN = Final Exempt new Section  
FXM = Final Exempt amended Section  
FXR = Final Exempt repealed Section  
FX# = Final Exempt renumbered Section

**EMERGENCY RULEMAKING**

EN = Emergency new Section  
EM = Emergency amended Section  
ER = Emergency repealed Section  
E# = Emergency renumbered Section  
EEXP = Emergency expired

**RECODIFICATION OF RULES**

RC = Recodified

**REJECTION OF RULES**

RJ = Rejected by the Attorney General

**TERMINATION OF RULES**

TN = Terminated proposed new Sections  
TM = Terminated proposed amended Section  
TR = Terminated proposed repealed Section  
T# = Terminated proposed renumbered Section

**RULE EXPIRATIONS**

EXP = Rules have expired  
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Public records, such as Governor Office executive orders, proclamations, declarations and terminations of emergencies, summaries of Attorney General Opinions, and county notices are also listed in this section of the Index as published by volume page number.

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A.R.S. § 41-1032(A), as amended by Laws 2002, Ch. 334, § 8 (effective August 22, 2002), states that a rule generally becomes effective 60 days after the day it is filed with the Secretary of State's Office. The following table lists filing dates and effective dates for rules that follow this provision. Please also check the rulemaking Preamble for effective dates.

January		February		March		April		May		June	
Date Filed	Effective Date										
1/1	3/2	2/1	4/2	3/1	4/30	4/1	5/31	5/1	6/30	6/1	7/31
1/2	3/3	2/2	4/3	3/2	5/1	4/2	6/1	5/2	7/1	6/2	8/1
1/3	3/4	2/3	4/4	3/3	5/2	4/3	6/2	5/3	7/2	6/3	8/2
1/4	3/5	2/4	4/5	3/4	5/3	4/4	6/3	5/4	7/3	6/4	8/3
1/5	3/6	2/5	4/6	3/5	5/4	4/5	6/4	5/5	7/4	6/5	8/4
1/6	3/7	2/6	4/7	3/6	5/5	4/6	6/5	5/6	7/5	6/6	8/5
1/7	3/8	2/7	4/8	3/7	5/6	4/7	6/6	5/7	7/6	6/7	8/6
1/8	3/9	2/8	4/9	3/8	5/7	4/8	6/7	5/8	7/7	6/8	8/7
1/9	3/10	2/9	4/10	3/9	5/8	4/9	6/8	5/9	7/8	6/9	8/8
1/10	3/11	2/10	4/11	3/10	5/9	4/10	6/9	5/10	7/9	6/10	8/9
1/11	3/12	2/11	4/12	3/11	5/10	4/11	6/10	5/11	7/10	6/11	8/10
1/12	3/13	2/12	4/13	3/12	5/11	4/12	6/11	5/12	7/11	6/12	8/11
1/13	3/14	2/13	4/14	3/13	5/12	4/13	6/12	5/13	7/12	6/13	8/12
1/14	3/15	2/14	4/15	3/14	5/13	4/14	6/13	5/14	7/13	6/14	8/13
1/15	3/16	2/15	4/16	3/15	5/14	4/15	6/14	5/15	7/14	6/15	8/14
1/16	3/17	2/16	4/17	3/16	5/15	4/16	6/15	5/16	7/15	6/16	8/15
1/17	3/18	2/17	4/18	3/17	5/16	4/17	6/16	5/17	7/16	6/17	8/16
1/18	3/19	2/18	4/19	3/18	5/17	4/18	6/17	5/18	7/17	6/18	8/17
1/19	3/20	2/19	4/20	3/19	5/18	4/19	6/18	5/19	7/18	6/19	8/18
1/20	3/21	2/20	4/21	3/20	5/19	4/20	6/19	5/20	7/19	6/20	8/19
1/21	3/22	2/21	4/22	3/21	5/20	4/21	6/20	5/21	7/20	6/21	8/20
1/22	3/23	2/22	4/23	3/22	5/21	4/22	6/21	5/22	7/21	6/22	8/21
1/23	3/24	2/23	4/24	3/23	5/22	4/23	6/22	5/23	7/22	6/23	8/22
1/24	3/25	2/24	4/25	3/24	5/23	4/24	6/23	5/24	7/23	6/24	8/23
1/25	3/26	2/25	4/26	3/25	5/24	4/25	6/24	5/25	7/24	6/25	8/24
1/26	3/27	2/26	4/27	3/26	5/25	4/26	6/25	5/26	7/25	6/26	8/25
1/27	3/28	2/27	4/28	3/27	5/26	4/27	6/26	5/27	7/26	6/27	8/26
1/28	3/29	2/28	4/29	3/28	5/27	4/28	6/27	5/28	7/27	6/28	8/27
1/29	3/30			3/29	5/28	4/29	6/28	5/29	7/28	6/29	8/28
1/30	3/31			3/30	5/29	4/30	6/29	5/30	7/29	6/30	8/29
1/31	4/1			3/31	5/30			5/31	7/30		



July		August		September		October		November		December	
Date Filed	Effective Date										
7/1	8/30	8/1	9/30	9/1	10/31	10/1	11/30	11/1	12/31	12/1	1/30
7/2	8/31	8/2	10/1	9/2	11/1	10/2	12/1	11/2	1/1	12/2	1/31
7/3	9/1	8/3	10/2	9/3	11/2	10/3	12/2	11/3	1/2	12/3	2/1
7/4	9/2	8/4	10/3	9/4	11/3	10/4	12/3	11/4	1/3	12/4	2/2
7/5	9/3	8/5	10/4	9/5	11/4	10/5	12/4	11/5	1/4	12/5	2/3
7/6	9/4	8/6	10/5	9/6	11/5	10/6	12/5	11/6	1/5	12/6	2/4
7/7	9/5	8/7	10/6	9/7	11/6	10/7	12/6	11/7	1/6	12/7	2/5
7/8	9/6	8/8	10/7	9/8	11/7	10/8	12/7	11/8	1/7	12/8	2/6
7/9	9/7	8/9	10/8	9/9	11/8	10/9	12/8	11/9	1/8	12/9	2/7
7/10	9/8	8/10	10/9	9/10	11/9	10/10	12/9	11/10	1/9	12/10	2/8
7/11	9/9	8/11	10/10	9/11	11/10	10/11	12/10	11/11	1/10	12/11	2/9
7/12	9/10	8/12	10/11	9/12	11/11	10/12	12/11	11/12	1/11	12/12	2/10
7/13	9/11	8/13	10/12	9/13	11/12	10/13	12/12	11/13	1/12	12/13	2/11
7/14	9/12	8/14	10/13	9/14	11/13	10/14	12/13	11/14	1/13	12/14	2/12
7/15	9/13	8/15	10/14	9/15	11/14	10/15	12/14	11/15	1/14	12/15	2/13
7/16	9/14	8/16	10/15	9/16	11/15	10/16	12/15	11/16	1/15	12/16	2/14
7/17	9/15	8/17	10/16	9/17	11/16	10/17	12/16	11/17	1/16	12/17	2/15
7/18	9/16	8/18	10/17	9/18	11/17	10/18	12/17	11/18	1/17	12/18	2/16
7/19	9/17	8/19	10/18	9/19	11/18	10/19	12/18	11/19	1/18	12/19	2/17
7/20	9/18	8/20	10/19	9/20	11/19	10/20	12/19	11/20	1/19	12/20	2/18
7/21	9/19	8/21	10/20	9/21	11/20	10/21	12/20	11/21	1/20	12/21	2/19
7/22	9/20	8/22	10/21	9/22	11/21	10/22	12/21	11/22	1/21	12/22	2/20
7/23	9/21	8/23	10/22	9/23	11/22	10/23	12/22	11/23	1/22	12/23	2/21
7/24	9/22	8/24	10/23	9/24	11/23	10/24	12/23	11/24	1/23	12/24	2/22
7/25	9/23	8/25	10/24	9/25	11/24	10/25	12/24	11/25	1/24	12/25	2/23
7/26	9/24	8/26	10/25	9/26	11/25	10/26	12/25	11/26	1/25	12/26	2/24
7/27	9/25	8/27	10/26	9/27	11/26	10/27	12/26	11/27	1/26	12/27	2/25
7/28	9/26	8/28	10/27	9/28	11/27	10/28	12/27	11/28	1/27	12/28	2/26
7/29	9/27	8/29	10/28	9/29	11/28	10/29	12/28	11/29	1/28	12/29	2/27
7/30	9/28	8/30	10/29	9/30	11/29	10/30	12/29	11/30	1/29	12/30	2/28
7/31	9/29	8/31	10/30			10/31	12/30			12/31	3/1



**REGISTER PUBLISHING DEADLINES**

The Secretary of State's Office publishes the Register weekly. There is a three-week turnaround period between a deadline date and the publication date of the Register. The weekly deadline dates and issue dates are shown below. Council meetings and Register deadlines do not correlate. Also listed are the earliest dates on which an oral proceeding can be held on proposed rulemakings or proposed delegation agreements following publication of the notice in the Register.

<b>Deadline Date (paper only) Friday, 5:00 p.m.</b>	<b>Register Publication Date</b>	<b>Oral Proceeding may be scheduled on or after</b>
October 14, 2016	November 4, 2016	December 5, 2016
October 21, 2016	November 11, 2016	December 12, 2016
October 28, 2016	November 18, 2016	December 19, 2016
November 4, 2016	November 25, 2016	December 26, 2016
November 11, 2016	December 2, 2016	January 2, 2017
November 18, 2016	December 9, 2016	January 9, 2017
November 25, 2016	December 16, 2016	January 16, 2017
December 2, 2016	December 23, 2016	January 23, 2017
December 9, 2016	December 30, 2016	January 30, 2017
December 16, 2016	January 6, 2017	February 6, 2017
December 23, 2016	January 13, 2017	February 13, 2017
December 30, 2016	January 20, 2017	February 20, 2017
January 6, 2017	January 27, 2017	February 27, 2017
January 13, 2017	February 3, 2017	March 6, 2017
January 20, 2017	February 10, 2017	March 13, 2017
January 27, 2017	February 17, 2017	March 20, 2017
February 3, 2017	February 24, 2017	March 27, 2017
February 10, 2017	March 3, 2017	April 3, 2017
February 17, 2017	March 10, 2017	April 10, 2017
February 24, 2017	March 17, 2017	April 17, 2017
March 3, 2017	March 24, 2017	April 24, 2017
March 10, 2017	March 31, 2017	May 1, 2017
March 17, 2017	April 7, 2017	May 8, 2017
March 24, 2017	April 14, 2017	May 15, 2017
March 31, 2017	April 21, 2017	May 22, 2017
April 7, 2017	April 28, 2017	May 30, 2017
April 14, 2017	May 5, 2017	June 5, 2017
April 21, 2017	May 12, 2017	June 12, 2017



## GOVERNOR’S REGULATORY REVIEW COUNCIL DEADLINES

The following deadlines apply to all Five-Year-Review Reports and any adopted rule submitted to the Governor’s Regulatory Review Council. Council meetings and *Register* deadlines do not correlate. We publish these deadlines as a courtesy.

All rules and Five-Year Review Reports are due in the Council office by 5 p.m. of the deadline date. The Council’s office is located at 100 N. 15th Ave., Suite 402, Phoenix, AZ 85007. For more information, call (602) 542-2058 or visit [www.grrc.state.az.us](http://www.grrc.state.az.us).

### GOVERNOR’S REGULATORY REVIEW COUNCIL DEADLINES FOR 2017

[M16-300]

DEADLINE FOR PLACEMENT ON AGENDA	FINAL MATERIALS SUBMITTED TO COUNCIL	DATE OF COUNCIL STUDY SESSION	DATE OF COUNCIL MEETING
Tuesday November 22, 2016	Tuesday December 20, 2016	Wednesday December 28, 2016	Wednesday January 4, 2017
Tuesday December 27, 2016	Tuesday January 24, 2017	Tuesday January 31, 2017	Tuesday February 7, 2017
Tuesday January 24, 2017	Tuesday February 21, 2017	Tuesday February 28, 2017	Tuesday March 7, 2017
Tuesday February 21, 2017	Tuesday March 21, 2017	Tuesday March 28, 2017	Tuesday April 4, 2017
Tuesday March 21, 2017	Tuesday April 18, 2017	Tuesday April 25, 2017	Tuesday May 2, 2017
Tuesday April 25, 2017	Tuesday May 23, 2017	Wednesday May 31, 2017	Tuesday June 6, 2017
Tuesday May 23, 2017	Tuesday June 20, 2017	Tuesday June 27, 2017	Thursday July 6, 2017
Tuesday June 20, 2017	Tuesday July 18, 2017	Tuesday July 25, 2017	Tuesday August 1, 2017
Tuesday July 25, 2017	Tuesday August 22, 2017	Tuesday August 29, 2017	Wednesday September 6, 2017
Tuesday August 22, 2017	Tuesday September 19, 2017	Tuesday September 26, 2017	Tuesday October 3, 2017
Tuesday September 26, 2017	Tuesday October 24, 2017	Tuesday October 31, 2017	Tuesday November 7, 2017
Tuesday October 24, 2017	Tuesday November 21, 2017	Tuesday November 28, 2017	Tuesday December 5, 2017
Tuesday November 21, 2017	Tuesday December 19, 2017	Wednesday December 27, 2017	Wednesday January 3, 2018

\*Materials must be submitted by **5 P.M.** on dates listed as a deadline for placement on a particular agenda. Placement on a particular agenda is not guaranteed.