

NOTICES OF FINAL RULEMAKING

The Administrative Procedure Act requires the publication of the final rules of the state's agencies. Final rules are those which have appeared in the *Register* first as proposed rules and have been through the formal rulemaking process including approval by the Governor's Regulatory Review Council or the Attorney General. The Secretary of State shall publish the notice along with the Preamble and the full text in the next available issue of the *Register* after the final rules have been submitted for filing and publication.

NOTICE OF FINAL RULEMAKING

TITLE 18. ENVIRONMENTAL QUALITY

CHAPTER 2. DEPARTMENT OF ENVIRONMENTAL QUALITY AIR POLLUTION CONTROL

[R05-187]

PREAMBLE

1. Sections Affected

R18-2-609
R18-2-612
R18-2-612
R18-2-613
R18-2-614
R18-2-614

Rulemaking Action

Amend
Re-number
New Section
New Section
Re-number
Amend

2. The statutory authority for the rulemaking, including both the authorizing statute (general) and the statutes the rules are implementing (specific):

Authorizing statutes: A.R.S. §§ 49-104(A)(1) and (A)(11) and 49-425

Implementing statutes: A.R.S. §§ 49-404 and 49-406

3. The effective date of the rules:

July 18, 2005

4. A list of all previous notices appearing in the *Register* addressing the final rule:

Notice of Rulemaking Docket Opening: 10 A.A.R. 3092, August 6, 2004

Notice of Proposed Rulemaking: 10 A.A.R. 4837, December 3, 2004

5. The name and address of agency personnel with whom persons may communicate regarding the rulemaking:

Name: Kevin Force

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1110 W. Washington Ave.
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6. An explanation of the rule, including the agency's reason for initiating the rule:

Summary. These rules establish agricultural best management practices (BMPs) for the Yuma planning area to reduce emissions of PM₁₀ (particulate matter 10 or less micrometers in aerodynamic diameter) from regulated agricultural activities.

Background. The Yuma planning area is a federally designated moderate PM₁₀ nonattainment area, corresponding roughly to the urban area of western Yuma County. It is about 456 square miles in size with a population of approximately 110,000. The boundaries of the Yuma planning area are listed in 40 CFR 81.303 and a map exists on ADEQ's web site, at www.azdeq.gov. The federal Clean Air Act requires state and local authorities to implement stricter particulate pollution controls in PM₁₀ nonattainment areas. Arizona currently has six other moderate PM₁₀ nonattainment areas, and one serious PM₁₀ nonattainment area (the Phoenix metropolitan planning area). Two other former PM₁₀ nonattainment areas have already been redesignated to attainment.

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History. EPA designated the Yuma area nonattainment for PM₁₀ in 1990, based upon violations that occurred from 1985 to 1990. ADEQ submitted a PM₁₀ State Implementation Plan (SIP) to EPA in 1994 that did not contain any rules affecting agricultural particulate pollution. EPA has not acted on that SIP submittal.

On August 18, 2002, a dust storm caused a violation of the federal 24-hour ambient dust standard at the Yuma monitor. This was the first violation of either the annual or 24-hour standard in more than 10 years. The Yuma community and ADEQ developed a Natural Events Action Plan (NEAP) to prevent this and future natural events from causing the area to remain nonattainment. Under federal policy, NEAPs are required to include Best Available Control Measures (BACM) for sources contributing to the violation, which need to be implemented within 18 months after plan submittal. The Yuma NEAP contained a commitment to work with local farmers to develop an Agricultural Best Management Practices (BMP) rule.

An Agricultural BMP rule (R18-2-610 and R18-2-611) has been used in Maricopa County as a dust control measure with some success since May of 2000. Although agriculture in Yuma County is different from that in the Phoenix area, the Maricopa County Agricultural BMP rule was approved as BACM by EPA, and has been upheld in federal court, which found the flexible format uniquely suited to widely varying farming situations. As the Court noted, “[a]gricultural sources are unlike other stationary sources and are unlike sources such as automobiles that have common design features and may be subject to a common or uniform control measure.” [*Vigil v. Leavitt*, (381 F.3d 826, Sept. 1, 2004)]. Agricultural BMPs, therefore, are appropriate to Yuma County, as they are in Maricopa County, so long as the BMP rule adapts to the unique farming conditions of Yuma County. Yuma’s topography, soil conditions, crops, and irrigation methods differ substantially from Maricopa’s, and any Best Management Practices Rule would have to be able to adopt those differences to be effective.

Yuma agriculture. Agriculture in Yuma County, Arizona, is made possible primarily by large quantities of irrigation water from the Colorado River, as well as groundwater. Yuma agriculture employs some of the most sophisticated and unique systems of crop production in the world. Yuma area farming is so independent of rainfall, rain is sometimes considered a nuisance.

The three biggest crops in Yuma County are lettuce, broccoli, and cauliflower. (In Maricopa County, they are upland cotton, durum wheat, and alfalfa.) Yuma County is the nation’s winter salad bowl, producing 85-90% of the country’s winter vegetables. There are times during midwinter, and extending into early spring, when fully 90-95% of the iceberg lettuce crop for the United States and Canada comes from Yuma County fields. The cash receipts value for Yuma County crops during 2003 was well over half a billion dollars, nearly as much as the other 14 Arizona counties combined.

Section by Section explanation of rules.

R18-2-609. Agricultural Practices. This Section is the general agricultural dust rule that applies throughout the state unless otherwise specified. It has been amended so that, in addition to not applying in the Phoenix PM₁₀ nonattainment area, it would not apply in the Yuma PM₁₀ nonattainment area.

R18-2-612. Definitions for R18-2-613. This Section contains definitions of the terms used in the Yuma Agricultural BMP rule. These definitions, including those of various BMPs, include terms specific to the unique circumstances of agriculture in Yuma County.

R18-2-613. Yuma PM₁₀ nonattainment areas; Agricultural Best Management Practices. This Section directs each Yuma commercial farmer to implement at least one BMP for each of three categories: tillage and harvest, noncropland, and cropland. It then lists a number of best management practices appropriate to each category that a farmer may choose to implement. R18-2-613 allows any person to develop different practices than those listed, and submit them to the Director for review. It also directs the farmer to maintain records demonstrating compliance with the BMP rule, and lists several elements that must be included in these records.

7. A reference to any study relevant to the rule that the agency reviewed and either relied on in its evaluation of or justification for the rule 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:

None

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

Not applicable

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

Rule Identification

This rulemaking amends A.A.C. R18-2-609, “Agricultural Practices,” and adds A.A.C. R18-2-612, “Definitions for R18-2-613,” and A.A.C. R18-2-613, “Yuma PM₁₀ Nonattainment Area; Agricultural Best Management Practices.”

Costs

In terms of compliance costs, ADEQ expects this rulemaking to have a minimal to moderate economic impact on commercial farmers. This is because farmers must implement a minimum of one best management practice (BMP)

from each of three categories: tillage and harvest, noncropland, and cropland. Equipment modifications, track-out controls, and constructing wind barriers, representing examples of BMPs from each category, could result in increased costs to commercial farmers. Another compliance cost associated with this rulemaking is recordkeeping. Commercial farmers must demonstrate compliance with the rule by documenting which BMP is being implemented for tillage, harvest, cropland, and noncropland.

Because many of the BMPs listed in rule already are being used by farmers, costs associated with implementing those techniques would represent sunk costs; hence, they would not be considered incremental compliance costs under this rulemaking. Nonetheless, information provided by the Yuma Farm Bureau suggests that potential compliance costs could be as much as \$5.00 to \$10.00 per acre; depending on which BMPs are implemented, compliance costs might be either recurring or one-time costs. This estimate includes recordkeeping.

Although the number of acres farmed in the Yuma nonattainment area is not available at this time, ADEQ estimates that one-half of the 231,125 acres of farmland in Yuma County are in the nonattainment area. This proportion would represent about 40 percent of the total acreage in the Yuma PM₁₀ nonattainment area, and includes approximately 250 farms.

If the acres farmed in the Yuma nonattainment area total 115,562 the estimated cost would be, at most, \$577,810 to \$1,155,620. According to the Yuma Farm Bureau, commercial farmers already are implementing many of the proposed BMPs, and as such, compliance costs resulting solely from these rules would be considerably lower. Additionally, farmers can choose BMPs that would be the most economically feasible, which would tend to significantly reduce compliance costs. If the low end of the estimate is more probable, and the \$577,810 cost is to be divided among 250 farms, the cost per farm would average \$2,310. Due to the market for agricultural commodities, it is unlikely to be feasible to pass on to consumers the increase in operating costs.

For ADEQ, the impact due to the review of records submitted by commercial farmers is expected to be very minimal. The current FTEs are expected to handle the increase in the workload.

Agricultural commodity groups may be impacted minimally as they educate and provide technical assistance to commercial farmers.

ADEQ does not expect this rulemaking to significantly impact business revenues, payroll expenditures, or employment. ADEQ does not anticipate an impact upon state revenues.

Benefits

The impact to businesses that provide services, supplies, or equipment needed to implement BMPs would represent an increase in revenues, or a benefit to those businesses. This also would increase sales taxes paid.

It is expected that the general public in the Yuma PM₁₀ nonattainment area will gain from this rulemaking through health-related benefits due to reduced PM₁₀ emissions from agricultural activities. PM not only causes irritation to the respiratory system, but it can cause damage, resulting in difficult breathing, inducement of bronchitis, and aggravation of existing respiratory diseases. Certain population subgroups are more susceptible to PM emissions, such as children, the elderly, and persons with respiratory and cardiovascular diseases. Other harmful effects include soiling, damage to materials, and impairment of visibility. As a result, probable benefits are expected to exceed probable costs for implementing this rulemaking.

Small Businesses

State statutes require agencies to reduce the impact of rules on small businesses by using certain methods when they are legal and feasible in supporting the statutory objectives of the rulemaking (A.R.S. §§ 41-1055 and 41-1035).

Although the proportion of commercial farmers that could be classified as small businesses is unknown, ADEQ believes that potentially as many as 80 percent of these farmers could be considered small businesses. To be defined as a small business, the entity would have to be independently owned and operated, not dominant in its field and employ fewer than 100 full-time employees, or have gross annual receipts of less than four million dollars (A.R.S. § 41-1001).¹

Because an objective of this rulemaking is to reduce the impact of PM₁₀, ADEQ could not exempt small businesses from the rule requirements. Under federal law, Agriculture BMPs must meet Best Available Control Measure requirements. Thus, the BMPs for the Yuma planning area must be no less stringent than the BMPs for Maricopa County.

In addition, under this rule, commercial farmers must implement at least one method of a variety of BMPs involving three categories (tillage and harvest, noncropland, and cropland). It would not be legal or feasible to implement less than one BMP. Due to the flexibility of the rule requirements, the impact upon small businesses already has been reduced.

ADEQ expects compliance costs to be minimal per commercial farmer due to the fact that each farmer may select a BMP that is most economically feasible. Also, ADEQ expects recordkeeping costs to be very minimal. Therefore, ADEQ could not implement any less intrusive or less costly alternatives methods that would be applicable only to small businesses.

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Any small business that provides services, supplies, or equipment to commercial farmers to implement BMPs would benefit economically in the form of additional revenues.

10. A description of the changes between the proposed rules, including supplemental notices, and final rules (if applicable):

Minor technical and grammatical changes to improve the rules' clarity, conciseness, and understandability

11. A summary of the comments made regarding the rule and the agency response to them:

Comment 1: A commenter at the oral proceeding wanted to know what was meant by the phrase "high-wind event" in R18-2-613(E)(7).

Response: The term "Limited activity during a high-wind event" is defined in the previous Section at R18-2-612(19) as "performing no tillage or soil preparation activity when the measured wind speed at 6 feet in height is more than 25 mph at the commercial farm site." This is the same definition that is used in the rule for Maricopa County commercial farmers.

Comment 2: A commenter at the oral proceeding wanted to know why the term "commercial farmer" is used throughout the rule but not in subsection (H).

Response: Subsection (H) deals with who may develop and submit to the Director Best Management Practices that are not contained in the rule. The term "person" was used to allow more than just "commercial farmers," as defined in the rule, to develop and submit such practices. The same distinction is made in the rule for Maricopa County.

12. Any other matters prescribed by statute that are applicable to the specific agency or to any specific rule or class of rules:

Not applicable

13. Incorporations by reference and their location in the rules:

None

14. Was this rule previously made as an emergency rule?

No.

15. The full text of the rules follows:

TITLE 18. ENVIRONMENTAL QUALITY

CHAPTER 2. DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR POLLUTION CONTROL

ARTICLE 6. EMISSIONS FROM EXISTING AND NEW NONPOINT SOURCES

Section

R18-2-609. Agricultural Practices

R18-2-612. ~~Evaluation of Nonpoint Source Emissions~~ Definitions for R18-2-613

R18-2-613. Yuma PM₁₀ Nonattainment Area; Agricultural Best Management Practices

~~R18-2-612-R18-2-614.~~ Evaluation of Nonpoint Source Emissions

ARTICLE 6. EMISSIONS FROM EXISTING AND NEW NONPOINT SOURCES

R18-2-609. Agricultural Practices

A person shall not cause, suffer, allow, or permit the performance of agricultural practices outside the Phoenix and Yuma planning ~~area areas~~, as defined in 40 CFR 81.303, which is incorporated by reference in R18-2-210, including tilling of land and application of fertilizers without taking reasonable precautions to prevent excessive amounts of particulate matter from becoming airborne.

R18-2-612. ~~Evaluation of Nonpoint Source Emissions~~ Definitions for R18-2-613

1. "Access restriction" means restricting or eliminating public access to noncropland with signs or physical obstruction.
2. "Aggregate cover" means gravel, concrete, recycled road base, caliche, or other similar material applied to noncropland.
3. "Artificial wind barrier" means a physical barrier to the wind.
4. "Bed row spacing" means increasing or decreasing the size of a planting bed area to reduce the number of passes and soil disturbance by increasing plant density.
5. "Best management practice" means a technique verified by scientific research, that on a case-by-case basis is practical, economically feasible, and effective in reducing PM₁₀ emissions from a regulated agricultural activity.

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6. “Chemical irrigation” means applying a fertilizer, pesticide, or other agricultural chemical to cropland through an irrigation system.
7. “Combining tractor operations” means performing two or more tillage, cultivation, planting, or harvesting operations with a single tractor or harvester pass.
8. “Commercial farm” means 10 or more contiguous acres of land used for agricultural purposes within the boundary of the Yuma PM₁₀ nonattainment area.
9. “Commercial farmer” means an individual, entity, or joint operation in general control of a commercial farm.
10. “Conservation irrigation” means the use of drips, sprinklers, or underground lines to conserve water, and to reduce the weed population, the need for tillage, and soil compaction.
11. “Conservation tillage” means types of tillage that reduce the number of passes and the amount of soil disturbance.
12. “Cover crop” means plants or a green manure crop grown for seasonal soil protection or soil improvement.
13. “Critical area planting” means using trees, shrubs, vines, grasses, or other vegetative cover on noncropland.
14. “Cropland” means land on a commercial farm that:
 - a. Is within the time-frame of final harvest to plant emergence;
 - b. Has been tilled in a prior year and is suitable for crop production, but is currently fallow; or
 - c. Is a turn-row.
15. “Cross-wind ridges” means soil ridges formed by a tillage operation.
16. “Cross-wind strip-cropping” means planting strips of alternating crops within the same field.
17. “Cross-wind vegetative strips” means herbaceous cover established in one or more strips within the same field.
18. “Equipment modification” means modifying agricultural equipment to prevent or reduce particulate matter generation from cropland.
19. “Limited activity during a high-wind event” means performing no tillage or soil preparation activity when the measured wind speed at six feet in height is more than 25 mph at the commercial farm site.
20. “Manure application” means applying animal waste or biosolids to a soil surface.
21. “Mulching” means applying plant residue or other material that is not produced onsite to a soil surface.
22. “Multi-year crop” means a crop, pasture, or orchard that is grown, or will be grown, on a continuous basis for more than one year.
23. “Night farming” means performing regulated agricultural activities at night when moisture levels are higher and winds are lighter.
24. “Noncropland” means any commercial farmland that:
 - a. Is no longer used for agricultural production;
 - b. Is no longer suitable for production of crops;
 - c. Is subject to a restrictive easement or contract that prohibits use for the production of crops; or
 - d. Includes a private farm road, ditch, ditch bank, equipment yard, storage yard, or well head.
25. “Permanent cover” means a perennial vegetative cover on cropland.
26. “Planting based on soil moisture” means applying water to soil before performing planting operations.
27. “Precision farming” means use of satellite navigation to calculate position in the field, to reduce overlap during field operations, and allow operations to occur during nighttime and inclement weather, thus generating less PM₁₀.
28. “Reduce vehicle speed” means operating farm vehicles or farm equipment on unpaved farm roads at speeds not to exceed 20 mph.
29. “Reduced harvest activity” means reducing the number of harvest passes using a mechanized method to cut and remove crops from a field.
30. “Regulated agricultural activity” means a commercial farming practice that may produce PM₁₀ within the Yuma PM₁₀ nonattainment area.
31. “Residue management” means managing the amount and distribution of crop and other plant residues on a soil surface.
32. “Sequential cropping” means growing crops in a sequence that minimizes the amount of time bare soil is exposed on a field.
33. “Surface roughening” means manipulating a soil surface to produce or maintain clods.
34. “Synthetic particulate suppressant” means a manufactured product such as lignosulfate, calcium chloride, magnesium chloride, and polyacrylamide, an emulsion of a petroleum product, and an enzyme product that is used to control particulate matter.
35. “Tillage and harvest” means any mechanical practice that physically disturbs cropland or crops on a commercial farm.
36. “Tillage based on soil moisture” means applying water to soil before or during tillage, or delaying tillage to coincide with precipitation.
37. “Timing of a tillage operation” means performing tillage operations at a time that will minimize the soil’s susceptibility to generate PM₁₀.
38. “Transgenic crops” means the use of genetically modified crops such as “herbicide ready” crops, which reduces the

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- need for tillage or cultivation operations, and reduces soil disturbance.
39. “Track-out control system” means a device to remove mud or soil from a vehicle before the vehicle enters a paved public road.
40. “Tree, shrub, or windbreak planting” means providing a woody vegetative barrier to the wind.
41. “Watering” means applying water to noncropland.
42. “Yuma PM₁₀ nonattainment area” means the Yuma PM₁₀ planning area as defined in 40 CFR 81.303, which is incorporated by reference in R18-2-210.

R18-2-613. Yuma PM₁₀ Nonattainment Area: Agricultural Best Management Practices

- A.** A commercial farmer shall comply with this Section by August 1, 2005.
- B.** A commercial farmer who begins a regulated agricultural activity after August 1, 2005, shall comply with this Section within 60 days after beginning the regulated agricultural activity.
- C.** A commercial farmer shall implement at least one of the best management practices from each of the following categories at each commercial farm:
1. Tillage and harvest, subsection (E);
 2. Noncropland, subsection (F); and
 3. Cropland, subsection (G).
- D.** A commercial farmer shall ensure that the implementation of each selected best management practice does not violate any other local, state, or federal law.
- E.** A commercial farmer shall implement at least one of the following best management practices to reduce PM₁₀ emissions from tillage and harvest:
1. Bed row spacing,
 2. Chemical irrigation,
 3. Combining tractor operations,
 4. Conservation irrigation,
 5. Conservation tillage,
 6. Equipment modification,
 7. Limited activity during a high-wind event,
 8. Multi-year crop,
 9. Night farming,
 10. Planting based on soil moisture,
 11. Precision farming,
 12. Reduced harvest activity,
 13. Tillage based on soil moisture,
 14. Timing of a tillage operation, or
 15. Transgenic crops.
- F.** A commercial farmer shall implement at least one of the following best management practices to reduce PM₁₀ emissions from noncropland:
1. Access restriction;
 2. Aggregate cover;
 3. Artificial wind barrier;
 4. Critical area planting;
 5. Manure application;
 6. Reduce vehicle speed;
 7. Synthetic particulate suppressant;
 8. Track-out control system;
 9. Tree, shrub, or windbreak planting; or
 10. Watering.
- G.** A commercial farmer shall implement at least one of the following best management practices to reduce PM₁₀ emissions from cropland:
1. Artificial wind barrier;
 2. Cover crop;
 3. Cross-wind ridges;
 4. Cross-wind strip-cropping;
 5. Cross-wind vegetative strips;
 6. Manure application;
 7. Mulching;
 8. Multi-year crop;
 9. Permanent cover;
 10. Planting based on soil moisture;

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- 11. Precision farming;
- 12. Residue management;
- 13. Sequential cropping;
- 14. Surface roughening; or
- 15. Tree, shrub, or windbreak planting.

H. A person may develop different practices not contained in subsections (E), (F), or (G) that reduce PM₁₀. A person may submit practices that are proven effective through on-farm demonstration trials to the Director. The Director shall review the submitted practices.

I. A commercial farmer shall maintain records demonstrating compliance with this Section. The commercial farmer shall provide the records to the Director within two business days of written notice to the commercial farmer. The records shall contain:

- 1. The name of the commercial farmer.
- 2. The mailing address or physical location of the commercial farm, and
- 3. The best management practices selected for tillage and harvest, noncropland, and cropland by the commercial farmer, and the date each best management practice was implemented.

~~R18-2-612, R18-2-614.~~ **Evaluation of Nonpoint Source Emissions**

Opacity of an emission from any nonpoint source shall not be greater than 40% measured ~~in accordance with~~ according to the Arizona Testing Manual, Reference Method 9. ~~An open fire~~ fire permitted under R18-2-602 ~~and or regulated under R18-2-603 Article 15~~ are is exempt from this requirement.

NOTICE OF FINAL RULEMAKING

TITLE 18. ENVIRONMENTAL QUALITY

CHAPTER 2. DEPARTMENT OF ENVIRONMENTAL QUALITY

AIR POLLUTION CONTROL

[R05-186]

PREAMBLE

- | | |
|---|--|
| 1. <u>Sections Affected</u> | <u>Rulemaking Action</u> |
| Appendix 8 | Amend |
| 2. <u>The statutory authority for the rulemaking, including both the authorizing statute (general) and the statutes the rules are implementing (specific):</u> | |
| Authorizing statutes: A.R.S. §§ 49-104(A)(10) and 49-425 | |
| Implementing statutes: A.R.S. §§ 49-404 and 49-406 | |
| 3. <u>The effective date of the rules:</u> | |
| July 18, 2005 | |
| 4. <u>A list of all previous notices appearing in the Register addressing the final rule:</u> | |
| Notice of Rulemaking Docket Opening: 10 A.A.R. 2945, July 23, 2004 | |
| Notice of Proposed Rulemaking: 10 A.A.R. 3944, October 1, 2004 | |
| 5. <u>The name and address of agency personnel with whom persons may communicate regarding the rulemaking:</u> | |
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6. An explanation of the rule, including the agency's reason for initiating the rule:

Summary.

The Arizona Department of Environmental Quality (ADEQ) has made several technical and administrative changes to AAC 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; one located in Miami, Gila County; and one located in San Manuel, Pinal County.

Background.

The Hayden, Miami, and San Manuel areas were designated nonattainment for SO₂ in 1979 due to measured exceedances of the national ambient air quality standards for sulfur dioxide (SO₂). Because local copper smelters were determined to be the principal sources of SO₂ emissions in these areas, stack emission limits were adopted into Arizona rules in 1979 as a means of lowering SO₂ emissions from the smelters. As a result of installation of emission controls, violations of the SO₂ standards have not been measured in any of these areas since 1989. To meet Clean Air Act redesignation requirements and demonstrate continued attainment of the air quality standards, updated air quality impact analyses were performed for the three smelters during the period 2001-2002. These analyses, based on new limits for both stack and fugitive emissions, demonstrate future air quality protection and show that the smelters are not expected to cause or contribute to a violation of the air quality standards for SO₂. In 2002, in two separate rulemakings, the new SO₂ emission limits for all three smelters were finalized in R18-2-715(F), (G), and (H) along with corresponding changes to compliance and monitoring procedures in R18-2-715.01. The revised rules were submitted to the U.S. Environmental Protection Agency (EPA) in June 2002 for review and approval as federally enforceable control measures in State Implementation Plan (SIP) revisions and redesignation to attainment requests for each of the SO₂ nonattainment areas.

The sulfur balance procedures in Appendix 8 were submitted to EPA for approval as a component of the SIP in 1998. The Appendix 8 procedures are used to determine compliance with certain of the emission limits contained in R18-2-715 and to determine overall emissions as required under R18-2-715.01. On May 14, 2004, EPA proposed full approval of the revised smelter rules R18-2-715(F), (G), and (H), R18-2-715.01, and R18-2-715.02 (previously submitted). At the same time, EPA also proposed "limited approval/limited disapproval" of Appendix 8 (69 FR 26786; May 14, 2004). Final EPA action was published on November 1, 2004 (69 FR 63321; November 1, 2004). In the proposed and final actions, EPA requested several changes and clarifications to Appendix 8 to make it a fully approvable component of the SIP. State adoption and submittal to EPA of the current Appendix 8 revisions will complete the necessary steps for EPA to consider redesignating the Hayden, Miami, and San Manuel areas to attainment.

Explanation of rule changes.

In addition to several minor clarifications, ADEQ determined the following changes are appropriate. Sections A8.1.2.3.1 and A8.1.2.3.2 are being clarified to specify methods for determining the sulfur and copper content of sulfur-bearing material introduced into the smelting process by incorporating by reference the Barium Sulfate Gravimetric Method and Potassium Iodide Titration Method procedures contained in *Standard Methods of Chemical Analysis*, Sixth Edition, 1962. These methods are considered industry standard practice methods and are appropriate to the materials being analyzed.

Section A8.2.5.5 was clarified to specify the method for determining the sulfur content of material at the casting stage of copper production by incorporating by reference the Barium Sulfate Gravimetric Method procedures contained in *Standard Methods of Chemical Analysis*, Sixth Edition, 1962. The method is considered an industry standard practice method and is appropriate to the materials being analyzed.

Because the sulfur balance procedures in Appendix 8 are included in the federally enforceable Arizona SIP, language was added in sections A8.1.2, A8.2, and A8.4.1 to require EPA approval (in addition to ADEQ approval), of any alternative method, process, or procedure used to meet the sulfur balance requirements. The changes to the rule maintain the flexibility for sources to develop alternative sulfur balance protocols specific to their operations while requiring the necessary EPA approval.

Given that the smelter's operating permits are required to contain all monitoring and analysis procedures, including sulfur balance procedures, under AAC Title 18, Chapter 2, Article 3, and 40 CFR part 70, and these permits are subject to ADEQ and EPA review, the proposed rule provided for EPA approval of any alternative method through the

permitting process. Subsequent to proposal of the current revisions, however, EPA stated that due to permit workload issues, they may not review every Title V permit thoroughly, and default approval of an alternative procedure by oversight, would not comply with the intent of Section 110 of the Clean Air Act regarding implementation plans (69 FR 63322; November 1, 2004). Therefore, since Appendix 8 will be submitted to EPA for approval as a component of the Arizona SIP, the final Appendix 8 rule requires both ADEQ and EPA approval of any alternative method separately.

In addition to the above changes, references to applicable sections of R18-2-715.01 are being corrected in sections A8.3.1 and A8.3.2.

ADEQ determined that several of the changes requested by EPA in the May 14, 2004, proposed limited disapproval of Appendix 8 were not needed, and, after further discussion, EPA concurred. EPA had requested clarification of sampling procedures for sulfur-bearing materials introduced into the smelting process in Sections A8.1.2.1.1, A8.1.2.1.2, and A8.1.2.1.3 so that the sampling process is not biased. Bias can occur when there is a large variation in the size of the material being sampled. A subsequent examination confirmed that materials introduced into the smelting processes are primarily composed of a fine homogenous mixture. As noted in EPA's November 1, 2004, action, EPA now agrees that the current methods in Appendix 8 are adequate to ensure an accurate accounting of the sulfur content of materials introduced into the smelting process.

EPA also commented in the May 14, 2004, proposal that the accuracy of a gravimetric method procedure is normally about $\pm 1\%$ not $\pm 50\%$. Of concern was Section A8.2.5.5., which addresses the analysis of sulfur content during casting operations. At the casting stage in copper production sulfur content is very low. For example, the sulfur content of anode samples taken over a one-month period at one facility ranged from 4.0 ppm to 108.0 ppm with an average value of 24.5 ppm. Because of the low sulfur content of the material being tested, an analysis of sulfur content to an accuracy of $\pm 1\%$ is not reasonable. EPA concurs (69 FR 63322; November 1, 2004); therefore, no change is being made.

7. A reference to any study relevant to the rule that the agency reviewed and either relied on in its evaluation of or justification for the rule 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:

Not applicable

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

Not applicable

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

Rule identification.

Arizona Administrative Code, Title 18, Chapter 2, Appendix 8, "Procedures for Utilizing the Sulfur Balance Method for Determining Sulfur Emissions." This rule clarifies procedures for calculating material balance for sulfur for determining sulfur emissions applicable to three smelters in Gila and Pinal Counties.

Entities directly impacted.

This is a source-specific rulemaking that pertains to three smelters located in Hayden and Miami in Gila County and San Manuel in Pinal County. The Hayden smelter is currently owned and operated by ASARCO Incorporated, the Miami smelter is currently owned and operated by Phelps Dodge Corporation, and the San Manuel smelter is currently owned and operated by BHP Copper Incorporated. These three facilities are all classified as major sources for sulfur dioxide, and all three areas are designated as nonattainment for sulfur dioxide.

The general public is expected to be positively impacted due to the improved air quality associated with implementation and enforcement of the rule. No other entities are expected to be directly impacted.

Probable costs and benefits associated with the revisions to Appendix 8.

The Arizona Department of Environmental Quality (ADEQ) anticipates that the rule changes will generate minimal, if any, economic impact to the regulated smelters, the public, or ADEQ because the rule changes primarily codify industry standard practice methods.

The current rule revisions are not expected to result in significant additional costs to the owners and operators of the smelters. No additional labor needs will be generated by the rule. Sections A1.2.3.1, A1.2.3.2, and A8.2.5.5 are being clarified to specify methods for determining the sulfur and copper content of sulfur-bearing material introduced into the smelting process and at the casting stage of copper production. The infrastructure for material sampling and testing technology necessary to meet the requirements of Appendix 8 are already in place at the smelting facilities; therefore, expenditures have already been incurred and are not attributed to the current rulemaking.

In the final rule, subsections A8.1.2, A8.2, and A8.4.1 were changed to require U.S. Environmental Protection Agency (EPA) approval of any alternative method, process, or procedure used to meet the sulfur balance requirements of Appendix 8. The requirements of Appendix 8 only apply to the three existing primary copper smelters in Arizona. Because all three of these facilities are required to obtain and maintain a Title V (Class I) operating permit

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under Arizona rules that include any sulfur balance requirements contained in Appendix 8, and these permits are subject to ADEQ and EPA review, the proposed rule provided for EPA approval of any alternative method through the permitting process. Subsequent to proposal of the current revisions, however, EPA determined that due to workload issues, they may not review every Title V permit thoroughly, and default approval of an alternative procedure by oversight, would not comply with the intent of Section 110 of the Clean Air Act regarding implementation plans (69 FR 63322; November 1, 2004). Therefore, since Appendix 8 will be submitted to EPA for approval as a component of the Arizona State Implementation Plan (SIP), the final Appendix 8 rule requires both ADEQ and EPA approval of any alternative method through a separate process.

All three smelters currently maintain operating permits that contain ADEQ and EPA approved sulfur balance procedures specific to each facility. The procedures required as part of the sulfur balance methods in the respective Title V permits are consistent with this final rule. Consequently, ADEQ does not expect that any additional approval process or permit revision for the current procedures will be necessary as a result of these revisions to Appendix 8.

For future changes to a facility's sulfur balance procedures under the revised rule, smelters will have to first obtain SIP approval, and then have their permits revised to include applicable SIP requirements. ADEQ expects the separate application and approval process to generate only minimal incremental administrative costs to the smelters. Any other costs associated with a change to a facility's sulfur balance protocol would be due to any needed technology upgrades, additional personnel, or expenditures attributed to the permit revision process. Although ADEQ deems the additional SIP approval costs to be minimal, these costs could be offset because of the potential for reduced time for analysis and review for a subsequent permit revision. Since an alternative analysis method would already have ADEQ and EPA approval, it could streamline the permitting process.

In summary, ADEQ expects only minimal economic impact, and any costs associated with this rulemaking are expected to be less than the potential benefits expected to accrue to the general public. In all cases, the local citizens may continue to benefit because of improved air quality due to implementation of the rules. In addition, areas redesignated to attainment have less restrictions on economic development.

Impact on Small Business.

A.R.S. § 41-1055(B)(5) requires agencies to state the probable impact of a rulemaking on small businesses. A.R.S. § 41-1035 requires agencies to reduce the impact of a rule on small businesses by using certain methods when they are legal and feasible in meeting the statutory objectives for the rulemaking. "Small business" is defined in A.R.S. § 41-1001 as "a concern, including its affiliates, which is independently owned and operated, which is not dominant in its field and which 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. For purposes of a specific rule, an agency may define small business to include more persons if it finds that such a definition is necessary to adapt the rule to the needs and problems of small businesses and organizations." Based on the number and size of Arizona copper smelters, ADEQ has determined that this rule does not impact any small businesses.

10. A description of the changes between the proposed rules, including supplemental notices, and final rules (if applicable):

1) In subsection A8.3.1 the reference to R18-2-715.01(O) was omitted to reflect the applicability of A8.3.1 only to continuous emissions monitoring systems:

A8.3.1. The sulfur dioxide emissions monitoring and recording system required under R18-2-715.01(K) through ~~R18-2-715.01(O)~~ R18-2-715.01(N) shall meet the following specifications:

2) In response to EPA comments, subsection A8.4.1 was changed to require explicit approval of alternative methods, through a process independent of permitting procedures, as follows:

A8.4.1. For purposes of this Appendix, an approved alternative method, process, or procedure, must be approved in writing by the Director and the U.S. Environmental Protection Agency, ~~as a condition within the Class I permit issued according to Article 3 of this Chapter.~~

3) Minor grammatical and technical changes were made to improve the rule's clarity, conciseness, and understandability.

11. A summary of the comments made regarding the rule and the agency response to them:

Comment 1: Two commenters noted that two options are available for obtaining U.S. Environmental Agency (EPA) approval of any alternative test method and suggested the addition of a second procedure in subsection A8.4.1. Commenters believe that while the proposed changes to subsection A8.4.1 address EPA's objection to the previous rule by requiring both ADEQ and EPA approval of any alternative test method (69 FR 63321, November 1, 2004), the inclusion of the second option provides additional advantage. Because the second method incorporates specific criteria preapproved by EPA that will be used by the Director to determine the approvability of an alternative analytical

method under Appendix 8, sources will not have to wait for EPA's approval on a case-by-case basis. Commenters recommend revising A8.4.1 as follows:

"For purposes of this Appendix, an approved alternative method, process, or procedure must be either (a) approved by the Director and the U.S. Environmental Protection Agency, as a condition in the Class I permit issued according to Article 3 of this Chapter; or (b) approved by the Director as having an accuracy that is within or more accurate than the accuracy of the standard method, process or, or procedure based on a comparison of the results for thirty (30) samples, and after the Director's approval is received the alternative is added to the Class I permit by a minor permit revision."

Response: ADEQ disagrees. EPA comments in its "limited approval/limited disapproval" action regarding Appendix 8 (69 FR 63321, November 1, 2004), that to correct excessive Director's discretion and make the rule an approvable component of the Arizona State Implementation Plan (SIP), the rule must either: 1) explicitly require approval of both ADEQ and EPA of an alternate analytical procedure; or 2) provide the criteria that will be used to determine approvability of an alternative method. The current revision to Appendix 8 makes use of the second approach by explicitly requiring both ADEQ and EPA approval. Regarding the first approach, EPA notes in "Guidance Document for Correcting Common VOC & Other Rule Deficiencies (A.K.A., The Little Bluebook)," August 21, 2001, that "Director's Discretion may be appropriate if explicit and replicable procedures within the rule tightly define how the discretion will be exercised to assure equivalent emission reductions." The example provided in the guidance includes both a standard, and specified test methods to determine control efficiency, assure equivalent emission reductions, and make this approach approvable. Because of the complex and varied nature of sulfur balance sampling and analytical methods, the rule cannot necessarily include all required criteria and test methods needed to tightly define how discretion will be exercised and assure equivalent emission reductions. Additionally, while the criteria approach may, under certain circumstances, mitigate the need for EPA approval for SIP purposes, under this approach, an alternative method will still be subject to review and approval for permitting purposes.

The provisions of AAC Title 18, Chapter 2, Article 3, require that a facility's permit contain all applicable monitoring and analysis procedures, and depending on the circumstances, a facility may not necessarily be allowed to implement alternative methods prior to completion of the permit application and approval process. In addition, these facilities' permit revisions are subject to review and objection by EPA. Therefore, even though the criteria option may not require EPA approval of an alternative method on a case-by-case basis before that method is implemented for SIP purposes, permit requirements may prevent implementation before completion of the final permitting process.

Because the current revision to Appendix 8 explicitly requires both ADEQ and EPA approval, the rule meets EPA's requirements to become an approvable component of the SIP and the inclusion of additional procedures for implementing alternative monitoring and test methods are not necessary.

Comment 2: Commenter notes that the citation in subsection A8.3.1 should read R18-2-715.01(K) through R18-2-715.01(N) instead of R18-2-715.01(K) through R18-2-715.01(O). Subsection A8.3.1 and the referenced subsections R18-2-715.01(K) through R18-2-715.01(N) apply to continuous emissions monitoring systems. In contrast, R18-2-715.01(O) does not refer to continuous emissions monitors, rather, it requires the smelter operator to perform material balance for sulfur according to the procedures in Appendix 8.

Response:

ADEQ agrees and has revised the rule accordingly.

Comment 3: Commenter supports the deletion of the words "in writing" in the phrase "approved in writing" in subsection A8.4.1, and the use of the permitting process to expedite approval of alternative sulfur balance methods by EPA. The commenter notes that because EPA has not always responded to previous state implementation plan (SIP) submittals in a timely manner, relying on a traditional SIP submittal process for approval of alternative methods and procedures under Appendix 8 may unduly delay the introduction of modern technology into the smelting process, but permitting procedures are subject to more rigorous processing and approval time-frames.

Response:

ADEQ disagrees. EPA notes in its final rule regarding Appendix 8 (69 FR 63322, November 1, 2004), that due to workload issues, EPA may not review every Title V permit thoroughly, and default approval of an alternative procedure by oversight, would not comply with the intent of Section 110 of the Clean Air Act regarding state implementation plans. Therefore, since Appendix 8 will be submitted to EPA for approval as a component of the Arizona SIP, the final Appendix 8 rule revision requires explicit ADEQ and EPA approval in writing, through a separate process, of any alternative method, process, or procedure used to meet the sulfur balance requirements of Appendix 8.

ADEQ understands the concerns expressed by the commenter related to EPA timeliness. The alternative method approval process, however, is not a traditional SIP approval and is handled in a much different fashion by EPA. Requests for approval of alternative methods have, historically, not been as extensive in scope or required the same degree of analysis and review as complete implementation plan revisions. For example, a recent facility request for EPA approval of alternative test methods to demonstrate compliance with the sulfur monitoring requirements for gaseous fuels contained in 40 CFR Part 60, subpart GG, Standards of Performance for Stationary Gas Turbines, was approved by EPA Region IX within 3 months.

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Finally, because the affected facility's permits are required to include all applicable monitoring and test methods, including Appendix 8 sulfur balance procedures, prior approval of any alternative method should also help streamline the final permitting process.

12. Any other matters prescribed by statute that are applicable to the specific agency or to any specific rule or class of rules:

Not applicable

13. Incorporations by reference and their location in the rules:

Standard Methods of Chemical Analysis, Volume One, *The Elements*, Sixth Edition, N. Howell Furman (ed.), D. Van Nostrand Company, Inc., Princeton, New Jersey, 1962; pages 410-411, 1006-1011, and 1342-1343 are incorporated by reference in Appendix 8, Section A8.4.3.

14. Was this rule previously made as an emergency rule?

No.

15. The full text of the rules follows:

TITLE 18. ENVIRONMENTAL QUALITY

CHAPTER 2. DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR POLLUTION CONTROL

A8. APPENDIX 8

PROCEDURES FOR UTILIZING THE SULFUR BALANCE
METHOD FOR DETERMINING SULFUR EMISSIONS

A8.1. Calculating Input Sulfur

Total sulfur input is the sum of the product of the weight of each ~~sulfur-bearing~~ sulfur-bearing material introduced into the smelting process as calculated in A8.1.1. ~~below~~ multiplied by the fraction of sulfur contained in that material as calculated in A8.1.2. ~~below~~ plus the amount of sulfur contained in fuel utilized in the smelting process as calculated in A8.1.3. ~~below~~.

A8.1.1. Material Weight

~~The owner or operator of a copper smelter shall weigh~~ All all sulfur-bearing ~~sulfur-bearing~~ materials, other than fuels, introduced into the smelting process ~~shall be weighed~~. ~~Such~~ The weighing shall be subject to the following conditions:

A8.1.1.1. Weight shall be determined on a belt scale, rail or truck scales, or other weighing device.

A8.1.1.2. Weight shall be determined within an accuracy of $\pm 5\%$.

A8.1.1.3. All devices or scales used for weighing ~~are to~~ shall be calibrated to manufacturer's specifications ~~but no less than at least~~ once a month.

A8.1.1.4. ~~Sulfur-bearing~~ Sulfur-bearing materials subject to being weighed ~~shall include but not be limited to~~ concentrate, cement copper, reverts ~~which that~~ are discarded and not part of the internal circulating load and precipitates. Materials such as limestone and silica flux ~~which that~~ are mixed with a charge of sulfur bearing sulfur-bearing materials shall be weighed and reported by the owner or operator.

A8.1.2. Sulfur Content

~~The~~ The owner or operator shall calculate the sulfur content of all ~~sulfur-bearing~~ sulfur-bearing materials introduced into the smelting process ~~shall be calculated~~ using the following steps or an equivalent method approved by the Director ~~alternative method approved according to A8.4.1~~.

A8.1.2.1. Sampling

~~The procedure to be~~ procedures followed by the owner or operator in sampling ~~is~~ are dependent upon the input vehicles for the ~~sulfur-bearing~~ sulfur-bearing material.

A8.1.2.1.1. Beltfeed

The smelter owner or operator shall collect a five-pound sample each hour. ~~Hourly~~ The owner or operator shall combine hourly samples shall be combined for a total daily sample.

A8.1.2.1.2. Railcar

The smelter owner or operator shall collect a 24-pound sample from each car by the auger method at a minimum of four points locations. The owner or operator shall combine ~~Each each~~ car sample ~~shall be combined~~ with all other car samples for a total lot sample.

A8.1.2.1.3. Truck

The ~~smelter~~ owner or operator shall collect a 12-pound sample from each truck load. ~~Samples are to be taken~~ The owner or operator shall take samples at two points locations during unloading. ~~Where~~ If more than one truck delivers a single lot, the samples from each truck shall be combined for a total lot sample.

A8.1.2.2. Sample Preparation

~~Each~~ The owner or operator shall prepare each total sample ~~shall be prepared~~ for analysis in the following manner:

A8.1.2.2.1. The sample shall be crushed to minus ¼ inch particles.

A8.1.2.2.2. 2000 gm of the sample shall be split out using a Jones Riffle Splitter or similar device.

A8.1.2.2.3. The 2000 gm sample shall be pulverized to minus 150 mesh.

A8.1.2.2.4. The pulverized mass shall be mixed using a rolling cloth.

A8.1.2.2.5. 500 gm shall be split out for sample analysis.

A8.1.2.3. Sample Analysis

A8.1.2.3.1. ~~The owner or operator shall analyze the sample shall be analyzed~~ to determine sulfur content using the Barium Sulfate (BaSO₄) Gravimetric Method according to A8.4.3. ~~Such~~ The analysis shall be accurate to within ±1%.

A8.1.2.3.2. For ~~purpose~~ purposes of comparison, ~~the owner or operator shall analyze the sample shall be analyzed~~ for copper content using the Potassium Iodine Iodide (KI) Titration Method according to A8.4.3. ~~Such~~ The analysis shall be accurate to within ±1%.

A8.1.3. Fuel Sulfur Content

The owner or operator shall calculate sulfur ~~Sulfur~~ in fuels ~~shall be calculated~~ by multiplying the amount of fuel ~~delivered that enters~~ to the process by the fraction of sulfur in the fuel, as reported to the smelter operator by the fuel's supplier. The sulfur content determination shall be accurate to within ±5%.

A8.2. Calculating Removed Sulfur

Total removed sulfur is the sum of the removed ~~removed~~ sulfur in each of the following products as determined by each process set forth below, or by other processes approved according to A8.4.1 ~~by the Director~~.

A8.2.1. Reverberatory Furnace and Converter Slags

A8.2.1.1. The owner or operator shall determine the weight of ~~the each~~ slag ~~shall be determined~~ using a scale with an accuracy within ±5%.

A8.2.1.2. The owner or operator shall collect ~~A~~ a five-pound sample ~~shall be collected~~ from each slag pot during tapping operations.

A8.2.1.3. The owner or operator shall prepare the sample shall be prepared and determine the amount of sulfur and copper ~~analyzed~~ using the procedures specified in A8.1.2.2. and A8.1.2.3. ~~above~~.

A8.2.2. Cottrell, Scrubber, and Cyclone Dusts Dust Collection Equipment Dusts

A8.2.2.1. After the owner or operator collects the dust is collected and places it ~~placed~~ in a rail car or truck ~~it~~ they shall be weighed weigh it using a scale with an accuracy within ± 5%.

A8.2.2.2. The owner or operator shall sample the dust shall be sampled, and prepare and analyze a sample ~~prepared and analyzed~~ for sulfur and copper using the procedures specified in A8.1.2.1., A8.1.2.2., and A8.1.2.3. ~~above~~.

A8.2.3. Strong Acids

A8.2.3.1. The owner or operator shall take ~~An~~ an inventory of strong acids ~~shall be taken~~ daily by means of a manometer or sight glass, and increase ~~The~~ the inventory ~~shall be increased~~ by the amounts of acid shipped or otherwise transferred during that day.

A8.2.3.2. The owner or operator shall ensure the daily inventory will be accurate to within ± 5%.

A8.2.3.3. The owner or operator shall take ~~A~~ a sample of each batch of the inventoried acid inventoried shall be taken and analyze the sample analyzed for sulfur, according to ~~in accordance with~~ the procedures in A8.1.2.3. ~~above~~.

A8.2.4. Weak Acids

A8.2.4.1. The owner or operator shall determine the amount of weak acid discharged from an acid plant and scrubber systems ~~is to be determined~~ by a time volumetric method of measurement in gallons/minute gallons per minute and to an accuracy of within ±20%.

A8.2.4.2. The owner or operator shall analyze ~~A~~ a 500 ml sample of the weak acid ~~shall be analyzed~~ daily for sulfur content according to ~~in accordance with~~ the procedures in A8.1.2.3.

A8.2.5. Sulfur in Copper Production

A8.2.5.1. The owner or operator shall determine the weight of copper produced ~~is to be determined~~ by weight of copper cast to an accuracy of within ±5%.

A8.2.5.2. The owner or operator shall record the weight and number of castings ~~shall be recorded~~.

A8.2.5.3. The owner or operator shall obtain ~~A~~ a sample of the copper, ~~is to be obtained~~ either by the grab sample method while casting, or by the use of at least three drill holes on a representative casting from each charge.

A8.2.5.4. The owner or operator shall obtain ~~At~~ at least one sample ~~must be obtained~~ from each charge.

A8.2.5.5. The owner or operator shall analyze ~~Each~~ each sample ~~is to be analyzed~~ for sulfur content using the ~~chemical~~ Barium Sulfate (BaSO₄) Gravimetric Method gravimetric means of according to A8.4.3. The analysis shall be accurate to an accuracy of within ~~+50%~~ ±50%.

A8.2.6. Materials in Process

A8.2.6.1. The owner or operator shall determine the ~~Total~~ total tonnage of materials in process ~~shall be determined~~ by physical inventory on the first or last day of each month.

A8.2.6.2. The owner or operator shall calculate ~~A~~ a monthly change in in-process inventory ~~shall be calculated~~ for each mate-

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rial in process by taking the difference between the inventory from each material in process on the first or last day of the preceding month and multiplying that difference by the monthly composite sulfur assay for that material.

A8.2.6.3. The change in monthly in-process inventory ~~must~~ shall be accurate to within $\pm 50\%$.

A8.3. Sulfur Dioxide Emissions Monitoring

A8.3.1. The sulfur dioxide emissions monitoring and recording system required under R18-2-715.01(K) through R18-2-715.01(N) ~~R18-2-715(C)(4)~~ shall meet the following specifications:

A8.3.1.1. The monitoring system ~~it~~ shall be capable of continuously monitoring sulfur dioxide emissions with an accuracy of within $\pm 20\%$ and a confidence level of 95%.

A8.3.1.2. The owner or operator shall operate and calibrate the Sulfur sulfur sulfur dioxide emission monitoring and recording equipment ~~shall be operated and calibrated according to in accordance with~~ manufacturer's specifications for the equipment except that calibration ~~must~~ shall be done at least once every 24 hours.

A8.3.2. The sulfur removal equipment bypass monitoring required under R18-2-715.01(Q) ~~R18-2-715(C)(7)(v)~~ shall consist of a detector and recorder system capable of producing a permanent record of all periods ~~in which a~~ that the bypass ~~has been operated~~ is in operation.

A8.4. General Provisions

A8.4.1. For purposes of this Appendix, an approved ~~equivalent alternative method~~, process, or procedure, must be approved in writing by the Director and the U.S. Environmental Protection Agency prior to its use by a smelter operator.

A8.4.2. The processes and procedures specified in this Appendix shall be available for inspection, review and verification by the Department at all reasonable times.

A8.4.3. The barium sulfate gravimetric test method and potassium iodide titration test method provided in *Standard Methods of Chemical Analysis*, Volume One, *The Elements*, Sixth Edition, N. Howell Furman (ed.), D. Van Nostrand Company, Inc., Princeton, New Jersey, 1962, pages 410-411, 1006-1011, and 1342-1343 (and no future editions or amendments) is incorporated by reference and available at the Department.