ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 52

[EPA–R09–OAR–2013–0588; FRL–9912–97–OAR]

Promulgation of Air Quality Implementation Plans; Arizona; Regional Haze and Interstate Visibility Transport Federal Implementation Plan

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: This final action promulgates a Federal Implementation Plan (FIP) addressing the requirements of the Regional Haze Rule (RHR) and interstate visibility transport for the disapproved portions of Arizona's Regional Haze (RH) State Implementation Plan (SIP) as described in a final rule published in the **Federal Register** on July 30, 2013. In that action, we partially approved and partially disapproved the State's plan to implement the regional haze program for the first planning period. This final action includes our responses to comments on our proposed FIP published in the **Federal Register** on February 18, 2014. This final rule, together with a final rule published in the **Federal Register** on December 5, 2012, completes our FIP for the disapproved portions of Arizona's RH SIP. This final rule addresses the RHR's requirements for Best Available Retrofit Technology (BART), Reasonable Progress (RP), and a Long-term Strategy (LTS) as well as the interstate visibility transport requirements of the Clean Air Act (CAA) for pollutants that affect visibility in Arizona's 12 Class I areas and areas in nearby states. The BART sources addressed in this final FIP are Tucson Electric Power (TEP) Sundt Generating Station Unit 4, Lhoist North America (LNA) Nelson Lime Plant Kilns 1 and 2, ASARCO Incorporated Hayden Smelter, and Freeport-McMoRan Incorporated (FMMI) Miami Smelter. The reasonable progress sources addressed in the FIP are Phoenix Cement Company (PCC) Clarkdale Plant Kiln 4 and CalPortland Cement (CPC) Rillito Plant Kiln 4. EPA is prepared to work with the State on a SIP revision that would replace some or all elements of the FIP.

DATES: *Effective Date:* This rule is effective October 3, 2014.

ADDRESSES: EPA has established docket number EPA–R09–OAR–2013–0588 for this action. Generally, documents in the docket are available electronically at *http://www.regulations.gov* or in hard copy at EPA Region 9, 75 Hawthorne Street, San Francisco, California. Please note that while many of the documents in the docket are listed at *http://www.regulations.gov,* some information may not be specifically listed in the index to the docket and may be publicly available only at the hard copy location (e.g., copyrighted material, large maps, multi-volume reports, or otherwise voluminous materials), and some may not be available at either locations (e.g., confidential business information). To inspect the hard copy materials, please schedule an appointment during normal business hours with the contact listed directly below.

FOR FURTHER INFORMATION CONTACT: Thomas Webb, U.S. EPA, Region 9, Planning Office, Air Division, Air-2, 75 Hawthorne Street, San Francisco, CA 94105. Thomas Webb may be reached at telephone number (415) 947–4139 and via electronic mail at *r9azreghaze@epa.gov.*

SUPPLEMENTARY INFORMATION:

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Definitions

(1) The words or initials *Act* or *CAA* mean or refer to the Clean Air Act, unless the context indicates otherwise.

(2) The initials *ADEQ* mean or refer to the Arizona Department of Environmental Quality.

(3) The words *Arizona* and *State* mean the State of Arizona.

(4) The initials *BACT* mean or refer to Best Available Control Technology.

(5) The initials *BART* mean or refer to Best Available Retrofit Technology.

(6) The initials *BOD* mean or refer to boiler operating day.

(7) The initials *CAMD* mean or refer to Clean Air Markets Division at EPA.

(8) The initials *CBI* mean or refer to confidential business information.

(9) The term *Class I area* refers to a mandatory Class I Federal area.

(10) The initials *CEMS* refers to continuous emission monitoring system or systems.

(11) The initials *CRP* mean or refer to converter retrofit project.

(12) The initials *dv* mean or refer to deciview, a measure of visual range.

(13) The initials *DOE* mean or refer to United States Department of Energy.

(14) The initials *ESECA* mean or refer to Energy Supply and Environmental Coordination Act of 1974.

(15) The words *EPA, we, us* or *our* mean or refer to the United States Environmental Protection Agency.

(16) The initials *FGD* mean or refer to flue gas desulfurization.

(17) The initials *FIP* mean or refer to Federal Implementation Plan.

(18) The initials *FLM* mean or refer to Federal Land Managers.
(19) The initials *FUA* mean or refer to Fuel Use Act of 1978.
(20) The initials *IMPROVE* mean or refer to Interagency Monitoring of Protected Visual Environments monitoring network.
(21) The initials *IPM* mean or refer to Integrated Planning Model.
(22) The term *lb/MMBtu* means or refers to pounds per one million British thermal units.
(23) The initials *LDSCR* and *HDSCR* mean or refer to low and high dust Selective Catalytic Reduction, respectively.
(24) The initials *LNB* mean or refer to low NO_X burners.
(25) The initials *LTS* mean or refer to Long-term Strategy.
(26) The initials *MACT* mean or refer to Maximum Achievable Control Technology.
(27) The initials *MW* mean or refer to megawatts.
(28) The initials *NAAQS* mean or refer to National Ambient Air Quality Standard or Standards.
(29) The initials *NEI* mean or refer to National Emissions Inventory.
(30) The initials *NESCAUM* mean or refer to Northeast States for Coordinated Air Use Management.
(31) The initials *NESHAP* mean or refer to National Emission Standards for Hazardous Air Pollutants.
(32) The initials *NO_X* mean or refer to nitrogen oxides.
(33) The initials *NP* mean or refer to National Park.
(34) The initials *NPS* mean or refer to the National Park Service.
(35) The initials *NSCR* mean or refer to Non-Selective Catalytic Reduction.
(36) The initials *NSPS* mean or refer to new source performance standards.
(37) The initials *OFA* mean or refer to Over Fire Air.
(38) The initials *PM* mean or refer to particulate matter.
(39) The initials *$PM_{2.5}$* mean or refer to fine particulate matter with an aerodynamic diameter of less than 2.5 micrometers.
(40) The initials *PM_{10}* mean or refer to particulate matter with an aerodynamic diameter of less than 10 micrometers.
(41) The initials *PSD* mean or refer to Prevention of Significant Deterioration.
(42) The initials *PTE* mean or refer to potential to emit.
(43) The initials *RH* mean or refer to regional haze.
(44) The initials *RHR* mean or refer to the Regional Haze Rule, originally promulgated in 1999 and codified at 40 CFR 51.308–309.
(45) The initials *RMC* mean or refer to Regional Modeling Center.
(46) The initials *RP* mean or refer to Reasonable Progress.
(47) The initials *RPG* or *RPGs* mean or refer to Reasonable Progress Goal(s).
(48) The initials *SCR* mean or refer to Selective Catalytic Reduction.
(49) The initials *SIP* mean or refer to State Implementation Plan.
(50) The initials *SNCR* mean or refer to Selective Non-catalytic Reduction.
(51) The initials *SO_2* mean or refer to sulfur dioxide.
(52) The initials *SOFA* mean or refer to Separated Over Fire Air.
(53) The initials *SRP* mean or refer to Salt River Project Agricultural Improvement and Power District.
(54) The initials *tpy* mean tons per year.
(55) The initials *TSD* mean or refer to Technical Support Document.
(56) The initials *TSF* mean or refer to tons of stone feed.
(57) The initials *ULNB* mean or refer to ultra-low NO_X burners.
(58) The initials *URP* mean or refer to Uniform Rate of Progress.
(59) The initials *VOC* mean or refer to volatile organic compounds.
(60) The initials *VRP* mean or refer to Visibility Restoration Plan.
(61) The initials *WRAP* mean or refer to the Western Regional Air Partnership.

I. Introduction

The purpose of the Federal and state regional haze plans is to achieve a national goal, declared by Congress, of restoring and protecting visibility at 156 Federal class I areas across the United States, most of which are national parks and wilderness areas with scenic vistas enjoyed by the American public. The national goal as described in CAA Section 169A is ''the prevention of any future, and the remedying of any existing, impairment of visibility in mandatory class I Federal areas which impairment results from man-made air pollution.'' Arizona has 12 Class I areas, including some of the most magnificent natural areas in our country. Five other Class I areas are close by in neighboring states. Please refer to our previous rulemaking on the Arizona RH SIP for additional background information regarding the CAA, regional haze and EPA's RHR.[1]

EPA has previously acted to approve a number of elements of the Arizona RH SIP, and to disapprove others. In today's final action, EPA is reducing harmful emissions from six facilities that contribute to visibility impairment in 17 protected national parks and wilderness areas in Arizona and neighboring states. Four of the facilities are subject to Best Available Retrofit Technology (BART) controls for emissions of nitrogen oxides (NO_X), sulfur dioxide (SO_2), and particulate matter (PM). The other two facilities are subject to limits on their NO_X emissions pursuant to the Reasonable Progress (RP) provisions of the Regional Haze Rule (RHR). The BART sources are Sundt Generating Station Unit 4, Nelson Lime Plant Kilns 1 and 2, Hayden Smelter, and Miami Smelter. The RP sources are the Phoenix Cement Clarkdale Plant Kiln 4 and CalPortland Cement Rillito Plant Kiln 4. EPA is promulgating this partial FIP because we found that Arizona had failed to submit a complete RH SIP, and later disapproved portions of Arizona's RH SIP for not meeting all the requirements of the CAA and EPA's RHR.

EPA has worked with the owners and operators of the facilities regulated by today's rule to ensure we have the most up-to-date information for making decisions on BART, RP, and the Long-Term Strategy (LTS), the three major requirements of the RHR. In today's notice, we respond to comments on our proposed rule, present our analysis, and indicate where we have made adjustments based on the comments and additional information. The required emission limits, compliance methods, and deadlines for compliance in our final rule are compatible with each facility's operations, and provide sufficient flexibility for achieving compliance in a reasonable period of time. In several instances we have adjusted the emission limits, averaging times and/or compliance deadlines in response to additional information supplied by the facilities' owners or operators. Further, in the case of TEP Sundt Unit 4, we have included an alternative to BART controls suggested by the facility's owner, which provides better emission reductions to improve visibility.

Given the combination of State and Federal plans to implement the regional haze program in Arizona, EPA and the Arizona Department of Environmental Quality (ADEQ) must continue to rely on their historically strong partnership under the CAA to protect the environment and human health. We would welcome a State plan to replace some or all of the Federal plan. Moreover, we commit our resources to ensuring a successful regional haze program for Arizona. EPA estimates today's action will result in annual emission reductions of about 2,900 tons/year of NO_X and 29,300 tons/year of SO_2. These reductions are expected to benefit at least 17 Class I areas in four states, including Arizona.

II. History of State and Federal Plans

A. State Submittals and EPA Actions

EPA made a finding on January 15, 2009, that 37 states, including Arizona, had failed to make all or part of the required SIP submissions to address regional haze.[2] Specifically, EPA found that Arizona failed to submit the plan elements required by 40 CFR 51.309(d)(4) and (g). In 2011 ADEQ submitted a SIP under section 308 of the

[1] 77 FR 75704, 75707–75702 (December 21, 2012).

[2] 74 FR 2392.

RHR, but did not withdraw its 309 SIP. EPA disapproved Arizona's 309 SIP (with the exception of several smoke management rules) on August 8, 2013.[3] Both of the Arizona RH SIPs are available to review in the docket for this final rule.[4]

As shown in Table 1, the first phase of EPA's action on the 2011 RH SIP addressed three BART sources. The final rule for the first phase (a partial approval and partial disapproval of the State's plan and a partial FIP) was published in the **Federal Register** on December 5, 2012. The emission limits on the three sources will improve visibility by reducing NO_X emissions by about 22,700 tpy. In the second phase of our action, we proposed on December 21, 2012, to approve in part and disapprove in part the remainder of the 2011 RH SIP. Subsequently, ADEQ submitted a supplement to the Arizona RH SIP (''SIP Supplement'') on May 3, 2013, to correct certain deficiencies identified in that proposal. We then proposed on May 20, 2013, to approve in part and disapprove in part the SIP Supplement. Our final rule approving in part and disapproving in part the Arizona RH SIP was published on July 30, 2013. In the third phase of our action, we proposed a FIP on February 18, 2014, to address the remaining disapproved portions of the State's plan, which we are finalizing today.

TABLE 1—EPA'S ACTIONS ON THE ARIZONA RH SIP AND FIP

EPA actions		Federal Register	
		Proposed rule	Final rule
Phase 1:			
SIP, FIP	BART determinations for Apache, Cholla and Coronado.	July 20, 2012 (77 FR 42834)	December 5, 2012 (77 FR 72512).
Phase 2:			
SIP	Partial approval and partial disapproval of remaining elements of the SIP, including SIP Supplement.	December 21, 2012 (77 FR 75704), May 20, 2013 (78 FR 29292).	July 30, 2013 (78 FR 46142).
Phase 3:			
FIP	FIP for remaining disapproved elements of the SIP.	February 18, 2014 (79 FR 9318)	Today's Final Action.

B. EPA's Authority To Promulgate a FIP

Under CAA section 110(c), EPA is required to promulgate a FIP at any time within 2 years of the effective date of a finding that a state has failed to make a required SIP submission or has made an incomplete submission, or of the date that EPA disapproves a SIP. The FIP requirement is terminated only if a state submits a SIP, and EPA approves that SIP as meeting applicable CAA requirements before promulgating a FIP. Specifically, CAA section 110(c) provides that EPA ''shall promulgate'' a FIP ''at any time within 2 years'' after finding that ''a State has failed to make a required submission'' or that the SIP or SIP revision submitted by the State does not satisfy the minimum criteria established under CAA section 110(k)(1)(A), or after disapproving a SIP in whole or in part ''unless the State corrects the deficiency'' EPA approves the plan or plan revision before promulgating a FIP.

Section 302(y) defines the term ''Federal implementation plan'' in pertinent part, as a plan (or portion thereof) promulgated EPA ''to fill all or a portion of a gap or otherwise correct all or a portion of an inadequacy'' in a SIP, and which includes enforceable emission limitations or other control measures, means or techniques (including economic incentives, such as marketable permits or auctions or emissions allowances).

In the case of the Arizona RH SIP, two different triggering events have occurred under section 110(c). EPA has made a finding that the State failed to make a required submission,[5] and we have partially disapproved the submissions that the State subsequently made. Therefore, EPA is required under CAA section 110(c) to promulgate a FIP for the portions of the Arizona RH SIP that we disapproved on July 30, 2013.

III. Summary of Proposed Rule

In this section, we provide a summary of the proposed rule that was published in the **Federal Register** on February 18, 2014,[6] as background for understanding today's final action.

A. Regional Haze

Our proposed rule included proposed BART determinations for four sources and proposed RP determinations for nine sources. These determinations resulted in proposed emission limits, compliance schedules, and other requirements for four BART sources and two of the RP sources. The proposed regulatory language was included under Part 52 at the end of that document. We also addressed the reasonable progress goals (RPGs), as well as the requirements of the LTS. Lastly, we proposed that the approved measures in the Arizona RH SIP, and measures in our previously promulgated FIP and proposed FIP, would adequately address the interstate transport of pollutants that affect visibility.

1. Proposed BART Determinations

Sundt Generating Station Unit 4: EPA proposed to find that Sundt Unit 4 is BART-eligible and subject to BART for NO_X, SO_2, and particulate matter of less than 10 micrometers (PM_{10}). For NO_X, we proposed an emission limit of 0.36 lb/MMBtu as BART, which is consistent with the use of Selective Non-Catalytic Reduction (SNCR) as a control technology. For SO_2, we proposed an emission limit of 0.23 lb/MMBtu as BART on a 30-day boiler operating day (BOD) rolling basis, which is consistent with the use of dry sorbent injection (DSI) as a control technology. For PM_{10}, we proposed a filterable PM_{10} emission limit of 0.030 lb/MMBtu as BART based on the use of the unit's existing fabric filter baghouse. We also proposed a switch to natural gas as a better-than-BART alternative to the proposed BART controls for all three pollutants.

Nelson Lime Plant Kilns 1 and 2: EPA proposed to find that Nelson Lime Kilns 1 and 2 are subject to BART for NO_X, SO_2, and PM_{10}. For NO_X, we proposed a BART emission limit at Kiln 1 of 3.80

[3] 78 FR 48326.

[4] ''Arizona State Implementation Plan, Regional Haze under Section 308 of the Federal Regional Haze Rule,'' February 28, 2011.

[5] 74 FR 2392–93 (January 15, 2009).

[6] 79 FR 9318–9378.

lb/ton of lime and at Kiln 2 of 2.61 lb/ton of lime on a 30-day rolling basis as verified by continuous emission monitoring systems (CEMS). These emission limits are consistent with the use of low-NO_X burners (LNB) and SNCR as control technologies. We proposed that BART for SO_2 is an emission limit of 9.32 lb/ton of lime for Kiln 1 and 9.73 lb/ton of lime for Kiln 2 on a 30-day rolling basis, which is consistent with the use of a lower sulfur fuel blend. For PM_{10}, we proposed a BART emission limit of 0.12 lb/tons of stone feed (TSF) at Kilns 1 and 2 based on the use of the unit's existing fabric filter baghouses.

Hayden Smelter: EPA proposed that the Hayden Smelter is subject to BART for NO_X, and we proposed BART emission limits for NO_X and SO_2. We previously approved the State's determination that the Hayden Smelter is subject to BART for SO_2, but disapproved the State's SO_2 BART determination. For NO_X, we proposed an annual emission limit of 40 tons per year (tpy) of NO_X emissions from the BART-eligible units, which is consistent with current emissions from these units. For SO_2 from the converters, we proposed a BART control efficiency of 99.8 percent on a 30-day rolling basis on all SO_2 captured by primary and secondary control systems, which can be achieved with a new double contact acid plant. For SO_2 from the anode furnaces, we proposed a work practice standard requiring that the furnaces be charged only with blister copper or higher purity copper. We previously approved Arizona's determination that BART for PM_{10} at the Hayden Smelter is no additional controls. In order to ensure the enforceability of this determination, we proposed to incorporate the emission limits and associated compliance requirements of the Maximum Achievable Control Technology (MACT),[7] Subpart QQQ, as part of the LTS.

Miami Smelter: EPA proposed that the Miami Smelter is subject to BART for NO_X, and we proposed BART emission limits for NO_X and SO_2. EPA previously approved the State's determination that the Miami Smelter is subject to BART for SO_2, but disapproved the State's SO_2 BART determination. For NO_X, we proposed an annual emission limit of 40 tpy NO_X emissions from the BART-eligible units, which is consistent with current emissions. For SO_2 from the converters, we proposed a BART control efficiency of 99.7 percent on a 30-day rolling basis on all SO_2 emissions captured by the primary and secondary control systems as verified by CEMS. This control efficiency could be met through improvements to the primary capture system, construction of a secondary capture system, and application of the MACT Subpart QQQ requirements to the capture systems. For SO_2 emissions from the electric furnace, we proposed as BART a work practice standard to prohibit active aeration. We previously approved Arizona's determination that BART for PM_{10} at the Miami Smelter is the MACT for Primary Copper Smelting. We proposed to find that the federally enforceable provisions of the MACT, which apply to the Miami Smelter and are incorporated into its Title V Permit, are sufficient to ensure the enforceability of this determination.

2. Proposed RP Determinations

Point Sources of NO_X: EPA conducted source-specific RP analyses of potential NO_X controls for non-BART units at nine different sources. Based on these analyses, we proposed to require controls on two cement kilns: PCC Clarkdale Kiln 4 and CPC Rillito Kiln 4. Specifically, EPA proposed an emission limit of 2.12 lb/ton on Kiln 4 of the Clarkdale Plant based on a 30-day rolling average, which is consistent with SNCR as a control technology. We proposed an emission limit of 2.67 lb/ton on Kiln 4 of the Rillito Plant based on a 30-day rolling average, which also is consistent with SNCR as a control technology. We also requested comment on the possibility of requiring a rolling 12-month limit on NO_X emissions in lieu of a lb/ton emission limit at these facilities. For the remaining seven sources, as well as other units at CPC, we proposed to find that it was reasonable not to require NO_X controls during this planning period. These sources are the CPC Rillito Plant (Kilns 1–3); Arizona Public Service (APS) Cholla (Unit 1); El Paso Natural Gas (EPNG) Tucson, Flagstaff, and Williams Compressor Stations; TEP Sundt (Units 1–3); Ina Road Sewage Plant; and TEP Springerville (Units 1 and 2).

Area Sources of NO_X and SO_2: We proposed to find that it is reasonable not to require additional controls on area sources at this time. Primarily, these area source categories are distillate fuel oil combustion in industrial and commercial boilers and in internal combustion engines, and residential natural gas combustion. While the State's area sources currently contribute a relatively small percentage of the visibility impairment at impacted Class I areas, we recommended better emission inventories and an improved RP analysis in the next planning period for area sources.

Reasonable Progress Goals: EPA proposed RPGs consistent with a combination of control measures that include those in the approved portion of the Arizona RH SIP and in EPA's finalized and proposed FIPs. While not quantifying a new set of RPGs based on these control measures, we proposed that it is reasonable to assume improved levels of visibility at Arizona's 12 Class I areas by 2018 because the measures in the FIPs produce emissions reductions that are significantly beyond those required by the State.

Demonstration of Reasonable Progress: EPA proposed to find that it is reasonable not to provide for rates of progress at the 12 Class I areas consistent with the uniform rate of progress (URP) in this planning period.[8] We also proposed to find that the RP analyses underlying our actions on the Arizona RH SIP [9] and FIP are sufficient to demonstrate that it is reasonable not to provide for rates of progress in this planning period that would attain natural conditions by 2064.[10] Lastly, we approved the State's decision not to require additional controls (i.e., controls beyond what the State or we determine to be BART) on point sources of SO_2.[11]

3. Long-Term Strategy

EPA proposed to find that provisions in the Arizona RH SIP and FIP fulfill the requirements of 40 CFR 51.308(d)(3)(ii), (v)(C) and (v)(F). These requirements are to include in the LTS measures needed to achieve emission reductions for out-of-state Class I areas, emission limitations and schedules for compliance to achieve the RPGs, and enforceability provisions for emission limitations and control measures.[12] We proposed to promulgate emission limits, compliance schedules, and other requirements for four BART sources and two RP sources to complete this part of the FIP for these requirements.

B. Interstate Transport of Pollutants That Affect Visibility

We have proposed that a combination of SIP and FIP measures will satisfy the FIP obligation for the visibility requirement of CAA section 110(a)(2)(D)(i)(II) for the 1997 8-hour ozone, 1997 $PM_{2.5}$, and 2006 $PM_{2.5}$ NAAQS. CAA section 110(a)(2)(D)(i)(II) requires that all SIPs contain adequate

[7] National Emission Standard for Hazardous Air Pollutants for Primary Copper Smelting at 40 CFR Part 63.

[8] 40 CFR 51.308(d)(1)(ii).

[9] See proposed actions at 77 FR 75727–75730, 78 FR 29297–292300 and final action at 78 FR 46172.

[10] 40 CFR 51.308(d)(1)(ii).

[11] 78 FR 46172.

[12] See 78 FR 46173 (codified at 40 CFR 52.145(e)(ii)).

provisions to prohibit emissions that will interfere with other states' required measures to protect visibility. We refer to this as the interstate transport visibility requirement.

IV. Overview of Final Action

We are promulgating a FIP to address the remaining disapproved portions of the Arizona RH SIP.[13] We include in Section V below a summary of our responses to comments on our proposed FIP,[14] and describe where comments resulted in revisions to the proposal. In this section, we provide a summary of the final BART determinations, RP determinations, RPGs and demonstration, LTS provisions, and interstate transport provisions of the FIP. This final FIP also includes emission limits, compliance schedules and requirements for equipment maintenance, monitoring, testing, recordkeeping, and reporting for all affected sources and units. The final regulatory language for the FIP is under Part 52 at the end of this notice.

A. BART Determinations

EPA conducted BART analyses and determinations for four sources: Sundt Generating Station Unit 4, Nelson Lime Plant Kilns 1 and 2, the Hayden Smelter, and the Miami Smelter. The final BART determinations are listed in Table 2, comparing the final limits to the proposed limits with short descriptions of changes in the footnotes. The exact compliance deadlines will be calculated based upon the date that this document is published in the **Federal Register**, which we anticipate will occur sometime in July 2014.

Sundt Generating Station: In this final rule, we have retained the BART determination and the final BART emission limits as proposed, as well as the option of a better-than-BART alternative that was submitted by TEP. Although the final BART determination and limits are the same, we have made some changes to the better-than-BART alternative based on comments and additional information.

Regarding BART, we are finalizing our determination that Sundt Unit 4 is BART-eligible and subject to BART for SO_2, NO_X, and PM_{10}. The final BART emission limits are the same as proposed. The NO_X emission limit is 0.36 lb/MMBtu, which is equivalent to using SNCR with the existing LNB as control technologies. The SO_2 emission limit is 0.23 lb/MMBtu on a 30-day BOD rolling basis, which is consistent with using DSI as a control technology. The PM_{10} emission limit is 0.030 lb/MMBtu based on the use of the existing fabric filter baghouse. Compliance is required within three years of the publication of this notice in the **Federal Register**, also as proposed.

Regarding the better-than-BART alternative to switch to natural gas, we are finalizing the proposed emission limit for NO_X of 0.25 lb/MMBtu, but revising the SO_2 and PM_{10} emission limits. The final SO_2 limit is increased from 0.00064 to 0.054 lb/MMBtu to allow for continued co-firing with landfill gas that has a higher sulfur content than pipeline natural gas. The final PM_{10} limit relies on a performance test due to the uncertainties related to switching from coal to gas, which now includes measuring condensable, in addition to filterable, PM_{10}. Further, we have extended the final compliance deadline by six months to December 31, 2017, consistent with the date that TEP initially included in its better-than-BART proposal. TEP is required to notify EPA regarding its selection of BART or the alternative by March 2017.

Nelson Lime Plant: EPA is finalizing its determination that Nelson Lime Plant Kilns 1 and 2 are subject to BART for NO_X, SO_2, and PM_{10}. We have revised the final emission limits for NO_X and SO_2 to account for startup and shutdown emissions, which were not considered in LNA's original BART analysis that was submitted to EPA for consideration. This change to the emission limits for NO_X and SO_2 does not change the corresponding control technologies, which are still SNCR and lower sulfur fuel, respectively. The final BART emission limit for PM_{10} is 0.12 lb/ton for each kiln as proposed, equivalent to using the existing baghouse.

We are making the following revisions to the NO_X limits in response to comments received on our proposal. First, we are revising the averaging time for the lb/ton limits to a 12-month rolling average instead of a 30-day rolling average. The longer 12-month averaging time should even out the emission spikes from startup and shutdown events that would more significantly influence a 30-day average. Second, we are requiring an optimization plan to assess the final BART emission limit for NO_X based on a 12-month rolling average, which is 3.80 lb/ton for Kiln 1 and 2.61 lb/ton for Kiln 2. Third, we are adding a combined limit for Kilns 1 and 2 of 3.27 tons/day on a 30-day rolling average to ensure short-term visibility protection. Both compliance methods (lb/ton at each kiln as optimized and tons/day for both kilns) are equivalent to using SNCR control technology. The compliance deadline for the final NO_X emission limit is three years from the publication date, as proposed.

We are making the following revisions to the SO_2 limits in response to comments received on our proposal. First, as with the final limit for NO_X, we are revising the averaging time for the lb/ton limits to a 12-month rolling average instead of a 30-day rolling average to account for emission spikes from startup and shutdown events that would more significantly influence a 30-day average. The final BART emission limits for SO_2 are 9.32 lb/ton for Kiln 1 and 9.73 lb/ton for Kiln 2, as proposed. Second, we are adding a combined limit for Kilns 1 and 2 of 10.1 tons/day to ensure short-term visibility protection. Both compliance methods (lb/ton at each kiln and tons/day at both kilns) are equivalent to using lower sulfur fuel, as proposed. Finally, we have extended the compliance deadline for meeting the final limit for SO_2 from six to 18 months to allow sufficient time for installation of monitoring equipment to demonstrate compliance with the new limits.

Hayden Smelter: EPA is finalizing its determination that the Hayden Smelter is subject to BART for NO_X. We previously approved the State's determination that the Hayden Smelter is subject to BART for SO_2 and PM_{10}, and the State's determination that BART for PM_{10} is equivalent to existing controls. The final BART emission limit for NO_X is 40 tpy and applies to the converters and anode furnaces. The NO_X limit is consistent with current emissions and is the same as proposed. The final BART emission limit for SO_2 from the anode furnaces is equivalent to existing controls, as proposed. For PM_{10}, we are incorporating by reference provisions of the National Emission Standards for Hazardous Air Pollutants (NESHAP) for primary copper smelters [15] to ensure that Arizona's BART determination is made enforceable, as part of the LTS.

We are making a number of revisions to the proposed SO_2 emission limits from the converters in response to comments. For SO_2 emissions from the converters, the final BART emission limits are a 99.8 percent control efficiency on a 365-day rolling average for the primary capture system, and a 98.5 percent control efficiency on a 365-day rolling average for the secondary capture system. The BART limit for the primary capture system corresponds to the existing double contact acid plant, whereas the limit for the secondary capture system is equivalent to a new

[13] 78 FR 46142 (July 30, 2013).

[14] 79 FR 9318 (February 18, 2014).

[15] 40 CFR part 63 subpart QQQ.

amine scrubber as a control technology. We have revised our proposal by applying separate limits to the primary and secondary capture systems in recognition of significant differences in flow volume and SO_2 concentration between the two systems. We revised the averaging time from 30 to 365 days for the primary capture system in recognition that the control efficiency is based on annual acid production and annual SO_2 emissions. In addition, we are finalizing a work practice standard requiring that the primary and secondary capture systems be designed and operated to maximize capture of SO_2 emissions from the converters.

The final compliance deadline for the primary capture and control system to meet the SO_2 limit is three years from publication, as proposed. The final deadlines for the NO_X and PM_{10} limits are also three years from publication. However, we extended the final compliance deadline to meet the SO_2 limit for the secondary capture and control system from three to four years from publication to provide sufficient time to plan and build a new amine scrubber.

Miami Smelter: EPA is finalizing its determination that the Miami Smelter is subject to BART for NO_X. We previously approved the State's determination that the Miami Smelter is subject to BART for SO_2 and PM_{10}, and the State's determination that BART for PM_{10} is equivalent to the National Emission Standard for Hazardous Air Pollutants (NESHAP) for primary copper smelters. The final BART emission limit for NO_X is 40 tpy that applies to the converters and electric furnace. The NO_X limit represents current emissions and is the same as proposed. For SO_2 from the electric furnace, the final BART emission limit is the existing work practice standard to prohibit active aeration. For PM_{10}, we are incorporating by reference provisions of the NESHAP for primary copper smelters [16] to ensure that Arizona's BART determination is made enforceable, as part of the LTS.

For SO_2 from the converters, the final BART emission limit is a control efficiency of 99.7 percent on a 365-day rolling average applied to the combined primary and secondary capture systems on a cumulative mass basis. While the control efficiency of 99.7 percent is the same as proposed, we revised the compliance method from a 30-day average to a 365-day rolling average. We revised the averaging time in response to FMMI's comment that the control efficiency is based on annual acid production and annual SO_2 emissions. The 99.7 percent control efficiency is equivalent to improvements to the primary control system (existing acid plant with a tailstack scrubber) and construction of new secondary capture and control systems. In addition, we are finalizing a work practice standard requiring that the primary and secondary capture systems be designed and operated to maximize capture of SO_2 emissions from the converters.

The final compliance deadlines for SO_2 from the electric furnace as well as the NO_X and PM_{10} limits, are two years from the date of the document's publication. However, we extended the final compliance deadline for SO_2 from the converters to January 1, 2018, to provide sufficient time to plan and build a new secondary capture and control system. We also added a compliance option for the secondary capture system to use either CEMS or to calculate emissions based on the amount of reagent added to the scrubber, because it may be impractical to operate CEMS on the inlet of a new scrubber.

TABLE 2—FINAL EMISSION LIMITS ON BART SOURCES

Source	Units	Pollutants	Proposed limit	Final limit	Measure	Corresponding control technology
Sundt Generating Station.	Unit 4	NO_X	0.36	Same	lb/MMBtu	Selective Non-Catalytic Reduction.
		SO_2	0.23	Same		Dry Sorbent Injection.
		PM_{10}	0.030	Same		Fabric filter baghouse (existing).
	Unit 4 Alternative	NO_X	0.25	Same	lb/MMBtu	Switch to natural gas.
		SO_2	0.00064	0.054.[a]		
		PM_{10}	0.010	Test.[b]		
Nelson Lime Plant	Kiln 1	NO_X	3.80	Same[c]	lb/ton[d]	Selective Non-Catalytic Reduction.
				3.27	tons/day[e]	
		SO_2	9.32	Same	lb/ton.[d]	Lower sulfur fuel.
				10.1	tons/day.[e]	
		PM_{10}	0.12	Same	lb/ton	Fabric filter baghouse (existing).
	Kiln 2	NO_X	2.61	Same[c]	lb/ton[d]	Selective Non-Catalytic Reduction.
				3.27	tons/day.[e]	
		SO_2	9.73	Same	lb/ton[d]	Lower sulfur fuel.
				10.1	tons/day.[e]	
		PM_{10}	0.12	Same	lb/ton	Fabric filter baghouse (existing).
Hayden Smelter	All BART Units	NO_X	40	Same	tpy	None.
	Converters 1, 3–5	SO_2	99.8	99.8	Control efficiency.	Primary capture: Double contact acid plant (existing).
				98.5[f]		Secondary capture: New amine scrubber.
	Anode Furnaces 1, 2	SO_2	None	Same	None	Work practice standard.
Miami Smelter	All BART Units	NO_X	40	Same	tpy	None.
	Converters 2–5	SO_2	99.7	Same	Control efficiency.	Improve primary and new secondary capture systems, additional controls as needed.
	Electric Furnace	SO_2	None	Same	None	Work practice standard.

[a] Final limit revised to accommodate co-firing with landfill gas that has higher sulfur content.
[b] Final limit is based on result of initial performance test.
[c] Final limit includes a requirement for SNCR optimization plan.
[d] Final limit is based on rolling 12-month average instead of rolling 30-day average.
[e] Final limit is combined for Kilns 1 and 2 with compliance based on a rolling 30-day average.
[f] Final limit is separate for primary and secondary capture systems.

[16] 40 CFR part 63 subpart QQQ.

B. Reasonable Progress Determinations

Point Sources of NO_X: EPA is finalizing its determination that PCC Clarkdale Plant Kiln 4 and CPC Rillito Plant Kiln 4 are subject to NO_X emission controls under the RP requirements of the RHR as shown in Table 3. We also are finalizing our determination that it is reasonable not to require controls at this time on NO_X emissions from the other seven sources that we evaluated for RP as well as other units at the Rillito Plant. These sources are the CPC Rillito Plant (Kilns 1–3); APS Cholla (Unit 1); El Paso Natural Gas (EPNG) Tucson, Flagstaff, and Williams Compressor Stations; TEP Sundt (Units 1–3); Ina Road Sewage Plant; and TEP Springerville (Units 1 and 2).

Clarkdale Plant Kiln 4: PCC has two options for meeting the RP requirements. It can choose to meet either a lb/ton limit or tons/year limit for NO_X. The final NO_X limit for the first option is the proposed 2.12 lb/ton with a requirement for an SNCR optimization plan. The final lb/ton NO_X limit is based on a 30-day rolling average consistent with SNCR as a control technology. The second option is an 810 tons/year NO_X limit that is achievable by installing SNCR or maintaining clinker production at current levels. The 810 tons/year limit is based on a 12-month rolling average equivalent to a 50 percent reduction in baseline emissions. PCC must notify EPA of the option it has selected no later than July 2018 with a compliance deadline of December 31, 2018.

Rillito Plant Kiln 4: The final RP emission limit for NO_X is 3.46 lb/ton based on a 35 percent control efficiency. We have increased the final limit from the proposed 2.67 lb/ton that was based on a 50 percent control efficiency in response to additional information from CPC regarding constraints on efficiency due to the kiln design. In addition, we are requiring implementation of an SNCR optimization plan to determine if a higher control efficiency is achievable. The final NO_X limit is based on a 30-day rolling average and is consistent with SNCR as a control technology. The compliance deadline is December 31, 2018, the same as proposed.

TABLE 3—FINAL EMISSION LIMITS ON RP SOURCES

Source	Units	Pollutants	Proposed limit	Final limit	Measure	Corresponding control technology
Clarkdale Plant	Kiln 4	NO_X	2.12	Same [a]	lb/ton	Selective Non-Catalytic Reduction.
			810	Same [b]	tons/year	Current Production Levels.
Rillito Plant	Kiln 4	NO_X	2.67	3.46 [c]	lb/ton	Selective Non-Catalytic Reduction.

[a] Final limit includes a requirement for SNCR optimization plan.
[b] Final limit for second option is in tons/year in lieu of lb/ton.
[c] Final limit includes a requirement for SNCR optimization plan.

Area Sources of NO_X and SO_2: EPA is finalizing its determination that it is reasonable not to require additional controls on Arizona's area sources at this time. Area source categories such as distillate fuel oil combustion in boilers and internal combustion engines as well as residential natural gas combustion currently contribute a relatively small percentage of the visibility impairment at Class I areas, but should be considered for controls in future planning periods.

C. Reasonable Progress Goals and Demonstration

Reasonable Progress Goals: EPA is quantifying our proposed RPGs (in deciviews) for the 20 percent worst days and 20 percent best days in 2018. The RPGs for Arizona's 12 Class I areas account for the emission reductions from BART and RP control measures in the final RH FIP. The RPGs reflect the results of our BART analyses and our RP analysis of point sources of NO_X and area sources of NO_X and SO_2 as described in our proposal and in response to comments in today's final rule. The RPGs also include the effects of the three BART determinations finalized in our Phase 1 FIP and the effects of other existing State and Federal controls. Today's final RPGs provide for an improvement in visibility on the worst days and no degradation in visibility on the best days during this planning period.

Demonstration of Reasonable Progress: EPA's final determination is that it is not reasonable to provide for rates of progress at Arizona's 12 Class I areas that would attain natural visibility conditions by 2064 (i.e., the URP).[17] Our demonstration that a slower rate of progress is reasonable is based on the RP analyses performed by us and the State that considered the four statutory RP factors. Although progress is slower than the URP, the FIP provides for RPGs that reflect an improved rate of progress and a significantly shorter time period to reach natural visibility conditions at each of Arizona's Class I areas, compared with the RPGs in the Arizona RH SIP.

D. Long-Term Strategy

EPA is finalizing its determination that provisions in this final rule in combination with provisions in the approved Arizona RH SIP and the Phase 1 Arizona RH FIP [18] fulfill the requirements for the LTS.[19] In this final rule, we are promulgating emission limits, compliance schedules and other requirements for four BART sources and two RP sources. This final action completes the LTS measures needed to achieve emission reductions for out-of-state Class I areas, emission limitations and schedules for compliance to achieve the RPGs, and enforceability of emission limitations and control measures.[20] In particular, as explained above, we are incorporating by reference provisions of the NESHAP for primary copper smelters to ensure that Arizona's BART determinations for PM_{10} at the Hayden and Miami Smelters are made enforceable and are included in the applicable implementation plan.

E. Interstate Visibility Transport

EPA is finalizing its determination that the control measures in the Arizona RH SIP and FIP are adequate to prevent Arizona's emissions from interfering with other states' required measures to protect visibility. Thus, the combined measures from both plans satisfy the interstate transport visibility requirement of CAA section 110(a)(2)(D)(i)(II) for the 1997 8-hour ozone, 1997 $PM_{2.5}$, and 2006 $PM_{2.5}$ NAAQS. In our final rule published on July 30, 2013, EPA disapproved these

[17] 40 CFR 51.308(d)(1)(ii).

[18] 77 FR 75512–72580, December 5, 2012.

[19] 40 CFR 51.308(d)(3)(ii), (v)(C) and (v)(F).

[20] See 78 FR 46173 (codified at 40 CFR 52.145(e)(ii)).

SIP submittals with respect to the interstate transport visibility requirement for each of these NAAQS, triggering the obligation for EPA to promulgate a FIP.[21]

F. Other Changes From Proposal

Our proposed regulatory text incorporated by reference certain provisions of the Arizona Administrative Code that establish an affirmative defense for excess emissions due to malfunctions. We did not receive any comments on this aspect of our proposal. Following the close of the public comment period, the United States Court of Appeals for the D.C. Circuit issued a decision concerning various aspects of the NESHAP for Portland cement plants issued by EPA in 2013, including the affirmative defense provision of that rule.[22] The court found that EPA lacked authority to establish an affirmative defense for private civil suits and held that under the CAA, the authority to determine civil penalty amounts lies exclusively with the courts, not EPA. The court did not address whether such an affirmative defense provision could be properly included in a SIP. However, the court's holding makes it clear that the CAA does not authorize promulgation of such a provision by EPA. In particular, the court's decision turned on an analysis of CAA sections 113 (''Federal enforcement'') and 304 (''Citizen suits''). These provisions apply with equal force to a civil action brought to enforce the provisions of a FIP. The logic of the court's decision thus applies to the promulgation of a FIP and precludes EPA from including an affirmative defense provision in a FIP. Therefore, we are not including an affirmative defense provision in the final FIP.

We note that, if a source is unable to comply with emission standards as a result of a malfunction, EPA may use case-by-case enforcement discretion, as appropriate. Further, as the D.C. Circuit recognized in an EPA or citizen enforcement action, the court has the discretion to consider any defense raised and determine whether penalties are appropriate.[23]

V. Responses to General Comments

A. Introduction

EPA provided 60 days for the public to submit comments on the proposed rule, with the comment period concluding on March 31, 2014. We held two public hearings in Arizona, one on February 25, 2014, in Phoenix and another on February 26, 2014, in Tucson. The deadline for public comments was March 31, 2014. Certified records of the public hearings, written comments (excluding any confidential business information (CBI) materials), a summary of comments, and a list of commenters are available in the docket for this final action. We received a total of 24 written comments from industry or industrial associations (13), environmental groups (6), citizens (3), a state agency (1), and a federal agency (1). In addition, 14 individuals presented oral testimony at the two hearings. Summaries of significant comments and EPA's responses, organized by subject matter, are provided in the following sections. Because we received no comments regarding the LTS or interstate transport provisions of the FIP, there is no section in this notice addressing comments on these topics.

We are using the following acronyms to refer to representatives of the following entities who submitted comments to us:

- ACCCE—American Coalition for Clean Coal Energy
- ADEQ—Arizona Department of Environmental Quality
- AMA—Arizona Mining Association
- ANGA—America's Natural Gas Alliance
- ASARCO—American Smelting and Refining Company
- CPC—CalPortland Company
- Earthjustice [24]
- EPNG—El Paso Natural Gas Company
- FMMI—Freeport-McMoRan Miami, Inc.
- LNA—Lhoist North America of Arizona
- NMA—National Mining Association
- NPS—National Park Service
- PCC—Phoenix Cement Company
- PSR—Physicians for Social Responsibility
- TEP—Tucson Electric Power
- TPMEC—Tucson Pima Metropolitan Energy Commission

B. Comments on State and EPA Actions on Regional Haze

Comment: One commenter, a former member of the Technical Oversight Committee of the Western Regional Air Partnership (WRAP), recounted the history of the Grand Canyon Visibility Transport Commission and the WRAP, and their efforts under section 309 of the original RHR to develop emission reduction milestones through 2018 for SO_2 emissions from large industrial sources in the nine-state Commission Transport Region that affects the Colorado Plateau. The commenter noted that Arizona ultimately withdrew from the section 309 process, but asserted that the State's withdrawal should not negate the effort of setting the milestones and the agreements reached during that process. The commenter asserted that by rejecting Arizona's SIP and proposing a FIP, EPA has gone beyond what was agreed on as a reasonable expectation of BART for specific groups of sources, such as smelters, utilities, and cement plants. The commenter added that the new SO_2 NAAQS will require plants to make changes that go well beyond BART. Therefore, BART should be set at a level no more stringent than what WRAP proposed so as not to interfere with any plans for the nonattainment areas to come into compliance with the new SO_2 standard.

Response: These comments largely pertain to EPA's partial disapproval of Arizona's 308 RH SIP and are therefore untimely, as EPA has already taken final action on the SIP.[25] Furthermore, EPA has already disapproved the majority of Arizona's 309 RH SIP.[26] As explained further below in response to similar comments regarding the Hayden and Miami Smelters, this FIP will not adversely impact the smelters' ability to come into compliance with the 1-hour SO_2 NAAQS.

C. Comments on State and Federal Roles in the Regional Haze Program

Comment: Several commenters (ADEQ, FMMI, AMA, ACCCE and NMA) do not agree with EPA's partial disapproval of Arizona's RH SIP, asserting that EPA has overstepped its boundaries by unnecessarily imposing a FIP. Some of the commenters contend that states are best suited to make BART determinations, not EPA.

ADEQ noted that the RHR is not intended to protect public health, but to address visibility problems. In the commenter's opinion, EPA should have given the State of Arizona the

[21] 78 FR 46142, July 30, 2013.

[22] *NRDC* v. *EPA,* 2014 U.S. App. LEXIS 7281 (D.C. Cir.).

[23] Id. at 24 (arguments that violations were caused by unavoidable technology failure can be made to the courts in future civil cases when the issue arises).

[24] Comments were provided by Earthjustice on behalf of the National Parks Conservation Association, Sierra Club, San Juan Citizens Alliance, and Arizona Chapter of Physicians for Social Responsibility.

[25] 78 FR 46142.

[26] 78 FR 48326.

opportunity to correct specific issues in the SIP, instead of proceeding with a FIP. Citing to CAA section 110(c), ADEQ asserted that EPA should end this rulemaking and allow ADEQ a period of up to two years to correct any deficiencies in its RH SIP. ACCCE discussed the history of the regional haze program and emphasized the discretion provided to states under the CAA and the RHR. FMMI stated that EPA lacks the authority to disapprove a SIP and promulgate the proposed FIP based on its policy disagreements with a state. AMA and NMA asserted that EPA had overstepped its boundaries and should leave the decision of what constitutes BART and reasonable progress to the State of Arizona. NMA proceeded to argue that this is not the first example of EPA going beyond its authority as it relates to regional haze, since it has replaced the regional haze determinations of 14 states with its own federal requirements. NMA went on to say that in the case of the Arizona RH SIP, EPA disapproved parts of the plan due to its own subjective opinion and not because the SIP was inconsistent with the requirements of the CAA.

Response: To the extent these comments pertain to EPA's partial disapproval of the Arizona RH SIP or other previous SIP actions, they are untimely. To the extent that the comments are relevant to the proposed FIP, we do not agree with their substance. While it is our strong preference that state plans implement CAA requirements, there are circumstances in which a FIP is required by the Act. As explained in response to comments on the Phase 1 Final Rule [27] and our legal brief responding to petitions for review of that rule,[28] we are required by the CAA to issue a FIP to meet all requirements of the RHR not addressed by an approved SIP revision. In particular, CAA section 110(c) requires EPA to promulgate a FIP at any time within two years of (1) finding that a State has failed to make a required submission, or (2) disapproving a State submission in whole or in part. This obligation is eliminated only if ''the State corrects the deficiency, and the Administrator approves the plan or plan revision, before the Administrator promulgates such Federal Implementation plan.'' In this instance, two different triggering events under section 110(c) have occurred: EPA has made a finding that the State failed to make a required submission and has partially disapproved the submissions that the State subsequently made.

EPA found that Arizona had failed to submit a comprehensive regional haze SIP in January 2009, which triggered an obligation for EPA to promulgate a FIP within two years, unless the State first submitted and EPA approved a regional haze SIP.[29] When EPA failed to either approve a SIP or promulgate a FIP by the January 2011 deadline, we were sued by a group of conservation organizations.[30] In order to resolve this lawsuit, EPA entered into a Consent Decree that established deadlines for action on regional haze plans for various states, including Arizona. This decree was entered and later amended by the United States District Court for the District of Columbia over the opposition of Arizona.[31] Under the terms of the Consent Decree, as amended, EPA was subject to three sets of deadlines for taking action on the Arizona RH SIP as listed in Table 4. The specific deficiencies that commenters claim to have identified in EPA's proposal are addressed in subsequent responses.

TABLE 4—CONSENT DECREE DEADLINES FOR EPA TO ACT ON THE ARIZONA RH SIP AND FIP

EPA actions	Proposed rule signature date	Final rule signature date
Phase 1—BART determinations for Apache, Cholla and Coronado	July 2, 2012 [a]	November 15, 2012.[b]
Phase 2—All remaining elements of the Arizona RH SIP	December 8, 2012 [c]	July 15, 2013.[d]
Phase 3—FIP for disapproved elements of the Arizona RH SIP	January 27, 2014 [e]	June 27, 2014.

[a] Published in the **Federal Register** on July 20, 2012, 77 FR 42834.
[b] Published in the **Federal Register** on December 5, 2012, 77 FR 72512.
[c] Published in the **Federal Register** on December 21, 2012, 77 FR 75704.
[d] Published in the **Federal Register** on July 30, 2013, 78 FR 46142. Also addresses supplemental proposal published in the **Federal Register** on May 20, 2013, 78 FR 29292.
[e] Published in the **Federal Register** on February 18, 2014.

In Phase 1, EPA approved in part and disapproved in part Arizona's BART determinations for Apache Generating Station, Cholla Power Plant, and Coronado Generating Station, and promulgated a FIP addressing the disapproved portions of the SIP.[32] In our initial Phase 2 proposal, EPA proposed to approve in part and disapprove in part the remainder of the Arizona RH SIP.[33] In May 2013, ADEQ submitted a SIP Supplement that addressed some of the elements that EPA had proposed to disapprove. We then proposed to approve in part and disapprove in part the SIP Supplement.[34] We finalized our partial approval and partial disapproval on July 30, 2013.[35] We have also disapproved the majority of Arizona's submittal under Section 309 of the RHR.[36] Given these disapprovals, and our previous finding of failure to submit, EPA is required under CAA section 110(c) to promulgate a FIP for the disapproved portions of the SIP. Indeed, even if we had not previously found that Arizona failed to submit a comprehensive regional haze SIP, we nonetheless would be authorized to promulgate a partial FIP following our partial disapprovals of Arizona's 308 and 309 RH SIPs.[37] As noted above, however,

[27] 77 FR 72568–69 (December 5, 2012).

[28] Brief of Respondent, Arizona v. EPA, No. 13–70366 (9th Cir. Dec. 12, 2013) (EPA Phase 1 Brief) at 66–77.

[29] 74 FR 2392–93 (January 15, 2009).

[30] *National Parks Conservation Association* v. *Jackson* (D.D.C. Case 1:11–cv–01548).

[31] *Nat'l Parks Conservation Ass'n* v. *Jackson* (D.D.C. Case 1:11–cv–01548), Memorandum Order and Opinion (May 25, 2012), Minute Order (July 2, 2012), Minute Order (November 13, 2012), Minute Order (February 15, 2013), Order (September 6, 2013), and Stipulation to Amend Consent Decree (November 14, 2013). On appeal, the D.C. Circuit upheld the District Court's finding that it lacked jurisdiction over Arizona's objections. *Nat'l Parks Conservation Ass'n* v. *EPA,* 43 ELR 20266 (D.C. Cir. 2013).

[32] 77 FR 72512 (December 5, 2012).

[33] 77 FR 75704 (December 21, 2012).

[34] 78 FR 29292 (May 20, 2013).

[35] 78 FR 46142 (July 30, 2013).

[36] 78 FR 48326 (August 8, 2013).

[37] See EPA v. EME Homer City Generation, 134 S. Ct. 1584 (2014), Slip. Op. at 16 (''After EPA has disapproved a SIP, the Agency can wait up to two years to issue a FIP . . . But EPA is not obliged to wait two years or postpone its action even a single day: The Act empowers the Agency to promulgate a FIP 'at any time' within the two-year limit.'').

EPA remains willing to work with ADEQ on a SIP that would be designed to replace this FIP once such a SIP was submitted and approved by us.

VI. Responses to Comments on EPA's Proposed BART Determinations

A. Comments on Sundt Generating Station Unit 4

1. BART Eligibility

Comment: Three commenters (ADEQ, TEP, and ACCCE) argued against EPA's proposed finding that Sundt Unit 4 is BART-eligible, and two commenters (Earthjustice and NPS) supported EPA's finding. ADEQ asserted that EPA has no authority to impose BART on Sundt Unit 4 because ADEQ determined that the unit is not BART-eligible. ADEQ noted that under CAA section 169(b)(2)(A), major sources that existed as of August 7, 1962, are considered BART-eligible. However, the statute does not address sources that existed during that time, but were reconstructed after 1977 (Sundt Unit 4 was reconstructed in 1987). According to ADEQ, ''EPA filled that gap by adopting regulations treating 'reconstructed' units as 'new' units.''

ADEQ further noted that the BART Guidelines provide that ''any emissions unit for which a reconstruction 'commenced' after August 7, 1977, is not BART-eligible'' and argued that ADEQ's determination that Sundt Unit 4 is not BART-eligible was consistent with EPA's regulations. ADEQ asserted that EPA rejected the determination on the basis that EPA is not bound by its own guidelines and argued that that it was inappropriate for EPA to fault ADEQ for following guidance that EPA maintains is ''persuasive'' evidence of the requirements of the CAA. The commenter further argued that the BART Guidelines are clear that any unit that was reconstructed after 1977 is not BART-eligible, but that despite this, EPA has indicated that it does not interpret the BART Guidelines to apply to Sundt Unit 4 because the unit never went through prevention of significant deterioration (PSD) permitting. ADEQ argued that ''EPA is not authorized, in the guise of 'interpreting' its BART Guidelines, to engage in what amounts to post-hoc rulemaking, by amending its BART Guidelines to make units that are reconstructed after 1977, but which did not obtain PSD permits BART-eligible.''

ADEQ also commented that EPA has ignored the policy reasons that Congress had for excluding reconstructed units such as Sundt Unit 4 from PSD and other requirements. The commenter noted that the Power Plant and Industrial Fuel Use Act of 1978 (FUA), which amended the Energy Supply and Environmental Coordination Act of 1974 (ESECA), authorized the Department of Energy (DOE) to require electric utilities to convert generating stations using oil and natural gas to using coal to reduce the Unites States' dependency on foreign oil and increase its use of indigenous energy resources. ADEQ stated that because Congress wished to ensure the conversion took place, these units were exempted from ''environmental requirements.'' Therefore, BART should not be required for Sundt Unit 4.

TEP, the owner of the Sundt facility, incorporated by reference the comments it submitted on EPA's proposed partial disapproval of the Arizona RH SIP, in which the commenter opposed EPA's position that Sundt Unit 4 is BART-eligible, and reiterated its position that Sundt Unit 4 is not BART-eligible. Similarly, ACCCE asserted that, ''ADEQ's determination that Sundt Unit 4 was reconstructed in the 1980s, and therefore is not BART-eligible was reasonable and should not have been disapproved by EPA.'' In contrast, Earthjustice and NPS expressed support for EPA's finding that Sundt Unit 4 is BART-eligible because it did not go through PSD review when it was reconstructed in 1987. Earthjustice asserted that a source reconstructed after 1977 must install either BART controls under the regional haze program or Best Available Control Technology (BACT) controls under the PSD program.

Response: To the extent that the comments concern EPA's partial disapproval of the Arizona RH SIP, they are untimely, as EPA has already taken final action on the SIP.[38] Further, we have already addressed many of the commenters' assertions in our proposed and final actions on the SIP and in the Sundt Memo,[39] all of which are included in the docket for this action. To the extent the comments raise new issues, we address them here.

Contrary to ADEQ's assertion, the RHR does not indicate that ''reconstructed'' units are to be treated as ''new'' units for all purposes. In particular, the RHR does not indicate that a source that is reconstructed after 1977 is considered BART-ineligible. Likewise, nothing in the preamble to the 1980 rule regarding Reasonably Attributable Visibility Impairment (RAVI), in which EPA promulgated the definition of ''BART-eligible,'' or the preamble to the 1999 RHR itself suggests that a post-1977 reconstruction would exempt a source from BART.[40] The BART Guidelines do state that ''any emissions unit for which a reconstruction 'commenced' after August 7, 1977, is not BART-eligible.''[41] However, this statement in the BART Guidelines must be read in the context of the applicable regulatory requirements and associated preambles, none of which even mention such an exemption for post-1977 reconstructions. In particular, the preamble to the BART Guidelines indicates that the post-1977 reconstruction exemption set out in the BART Guidelines is limited to ''sources reconstructed after 1977, *which reconstruction had gone through NSR/PSD permitting.''*[42] Although not binding, this statement in the preamble confirms that EPA did not intend to create a blanket exemption for all post-1977 reconstructions in the BART Guidelines. Indeed, it would only make sense to exempt a reconstructed unit from BART if that unit had gone through NSR/PSD permitting to ensure that its emissions were subject to modern-day pollution controls. Sundt Unit 4 never went through such permitting. Thus, we do not agree that we are effectively amending the BART Guidelines or engaging in post hoc rulemaking by applying an interpretation that is consistent not only with the CAA and RHR, but also with the preamble to the BART Guidelines themselves.

We also do not agree that Congress intended to provide a general exemption from all ''environmental requirements'' for units that were converted to coal under the FUA and ESECA. The relevant section of FUA, codified in CAA section 111(a)(8), provides that ''[a] conversion to coal . . . by reason of an order under section 2(a) of the [ESECA] or any amendment thereto, or any subsequent enactment which supersedes such Act . . . shall not be deemed to be a modification *for purposes of paragraphs (2) and (4) of [CAA subsection 111(a)].''*[43] Paragraphs (2) and (4), in turn, contain the definitions of ''new source'' and ''modification'' that apply to the Act's new source performance standards (NSPS) requirements.[44] The definition of ''modification'' in paragraph 111(a)(4) also applies for purposes of the PSD

[38] 78 FR 46142.

[39] 78 FR 75722 and TEP Sundt Unit I4 BART Eligibility Memo (November 21, 2012) (Sundt Memo).

[40] See 45 FR 80084, 64 FR 35714.

[41] 70 FR 39160.

[42] 70 FR 39111.

[43] 42 U.S.C. 7411(a)(8) (emphasis added).

[44] 42 U.S.C. 7411(a)(2) and (4).

provisions of the Act.[45] However, nothing in the Act indicates that Congress intended the exemption in section 111(a)(8) to extend to other provisions of the Act, such as the visibility protection provisions of Section 169A. If Congress had intended to provide such an exemption from BART eligibility for units that were converted to coal under the FUA and ESECA, it could have added such an exemption to section 169A. It did not do so. Thus, for the reasons set out in the Sundt Memo, in our Phase 2 proposed and final rulemakings, and in this response, we are finalizing our proposed determination that Sundt 4 is BART-eligible.

2. BART Analysis and Determination for NO_X

Comment: ADEQ indicated that it does not support EPA's proposed limit for NO_X that is based on SNCR control technology. ADEQ asserted that the significant cost of installing and operating SNCR ($3 million in construction and $1 million in annual operating costs) does not justify the limited visibility improvement that would result from adding this control technology. ADEQ said that EPA's analysis, which ADEQ described as suspect, shows an improvement of only 0.5 dv. ACCCE also objected to EPA's decision to require SNCR, arguing that it is costly and results in no perceptible improvement in visibility. ACCCE discussed the installation costs and the cost-effectiveness of SNCR on Unit 4, and stated that none of the Class I areas affected by Sundt Unit 4 will experience a greater than a 1.0 dv improvement from the installation of SNCR. This ''modest'' improvement is inconsistent, ACCCE said, with EPA's position that considers 1.0 dv change or more from an individual source as causing visibility impairment and a 0.5 dv change as contributing to impairment.

Response: We disagree with these comments. Regarding the costs of compliance, although the installation and operation of SNCR will result in TEP incurring certain initial investments and ongoing operational costs, we consider the total annualized cost warranted based on the amount of NO_X removed and the expected visibility benefits. As noted in our proposed rule, SNCR at this source has a cost-effectiveness of about $3,200/ton, which we consider very cost-effective. With regard to visibility improvement, we do not agree that only visibility improvements that by themselves result in humanly perceptible changes are relevant. The CAA and RHR require, as part of each BART analysis, consideration of ''the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology.'' [46] The Act and RHR do not require that the improvement from a single source be perceptible in order to be meaningful. As EPA explained in the preamble to the BART Guidelines: ''Even though the visibility improvement from an individual source may not be perceptible, it should still be considered in setting BART because the contribution to haze may be significant relative to other source contributions in the Class I area.'' [47] Thus, we disagree that the degree of visibility improvement should be contingent upon perceptibility.

In our visibility improvement analysis, we have not considered perceptibility as a threshold criterion for considering improvements in visibility. Rather, we have considered visibility improvement in a holistic manner, taking into account all reasonably anticipated improvements in visibility expected to result at all Class I areas within 300 kilometers of each source. Improvements smaller than 0.5 dv may be warranted considering the number of Class I areas involved and the baseline contribution to impairment of the source in question. For example, a source with a 0.5 dv impact at a Class I area ''contributes'' to visibility impairment and must be analyzed for BART controls. Controlling such a source will not result in perceptible improvement in visibility, but Congress nevertheless determined that such contributing sources should nevertheless be subject to the BART requirement. In the aggregate, small improvements from controls on multiple BART sources and other sources will lead to visibility progress. As a result, although we described the anticipated visibility benefits from the installation of SNCR as ''modest,'' we still consider those benefits sufficient to justify SNCR as BART in light of the fact that SNCR will be highly cost-effective and has no substantial adverse energy or non-air quality environmental impacts. This has been EPA's consistent interpretation in many regional haze determinations.

Comment: ADEQ indicated that it supports EPA's rejection of an emission limit equivalent to SCR as BART for NO_X at Sundt Unit 4 due to costs. In contrast, Earthjustice asserted that EPA should have set a BART emission limit that reflects the use of SCR at Sundt Unit 4, rather than the less effective SNCR technology. Earthjustice stated that EPA erred when it concluded that the visibility benefits of SCR were not worth the costs after EPA acknowledged that SCR provides substantially greater visibility improvements than SNCR. Earthjustice stressed that EPA's calculated cost-effectiveness value of $5,176 per ton of NO_X removed for SCR is within the range of what has been deemed cost-effective in many other instances, based on examples provided in Exhibit 33 submitted with the comments. Earthjustice added that EPA provided no justifiable rationale for rejecting the overall cost-effectiveness value and relying on the incremental cost-effectiveness value for the rejection. Earthjustice also contended that EPA improperly rejected SCR based on numerous erroneous assumptions in its cost analysis that increased the cost-effectiveness values (i.e., $/ton) for SCR. In particular, Earthjustice asserted that EPA used an unreasonably low capacity factor of 0.49, even though a higher and more appropriate capacity factor would have made the SCR controls more cost-effective. Earthjustice also noted that EPA used a retrofit factor for SCR of 1.5, instead of the standard retrofit factor of 1.0, but asserted that EPA did not provide a sufficient reason to enhance the retrofit factor. According to Earthjustice, correcting these two assumptions would make SCR cost-effective to control NO_X at Sundt Unit 4 at an emission rate of 0.05 lb/MMBtu.

Response: We disagree that we improperly rejected SCR. In reaching our BART determination, we have considered both average and incremental costs as well as expected visibility benefits.[48] In particular, we estimate the average cost-effectiveness of SCR to be $5,176/ton. EPA has not previously required installation of controls with an average cost-effectiveness value this high for purposes of BART.[49] Similarly, the estimated incremental cost-effectiveness for SCR (compared to SNCR) of $6,174/ton is on the high end of what we have required for purposes of BART.[50] Such cost values might be warranted if the expected visibility benefits were very high (i.e., over one deciview at a single Class I area or several cumulative deciviews across multiple affected Class

[45] 42 U.S.C. 7479(2)(C).

[46] CAA section 169A(g)(2), 40 CFR 51.308(e)(1)(ii)(A).

[47] 70 FR 39129.

[48] See 79 FR 9329.

[49] See, e.g., BART EGU FIP Summary.

[50] Id. The only example with a higher incremental cost-effectiveness value is Dave Johnston Unit 3 in Wyoming ($7,583/ton based on a remaining useful life of 20 years).

I areas). However, we do not consider this level of cost to be justified here by the expected visibility benefits for SCR of 0.78 dv for the most improved Class I area and 1.6 dv cumulative for all affected Class I areas.

The information provided by Earthjustice regarding the range of $/ton values considered cost-effective is derived from other regulatory programs such as Best Available Control Technology (BACT) determinations for construction of new sources in attainment areas, and Lowest Achievable Emission Rate determinations for construction of new sources in nonattainment areas. The statutory requirements, calculation methodology, and regulatory drivers that may inform a determination of emission reductions appropriate for these programs are not necessarily comparable to those of the Regional Haze program, which is a retrofit program where older sources are required to add pollution controls. We therefore do not consider it appropriate simply to conclude that costs found to be acceptable in other programs are necessarily appropriate in a BART determination.

We also disagree with Earthjustice's assertion that our cost analysis for SCR is based on faulty assumptions. We recognize that a higher capacity factor would result in an increase in the calculated amount of NO_X reduced. We also recognize that, historically, Sundt Unit 4 operated at higher capacity factors, ranging from 0.60 to 0.75. However, a review of data from EPA's Clean Air Markets Division (CAMD) Acid Rain Program database indicates that, starting in 2009 and continuing into the present, Sundt Unit 4 has consistently operated at substantially lower capacity factors.[51] Our use of a 0.49 capacity factor is therefore not based on a single, abnormal year of low capacity, but rather represents an average of multiple, recent years of low capacity at Sundt Unit 4. Given the length of time that Sundt Unit 4 has operated at these low capacity levels, we consider our use of a 0.49 capacity factor in emission calculations to be a ''realistic depiction of anticipated annual emissions.'' [52]

Moreover, we disagree with the Earthjustice's assertion that our use of a 1.5 retrofit factor is unsupported in the record. Although the factors contributing to retrofit difficulty were summarized as ''certain difficulties'' in our TSD, this information is described in detail in the modeling and cost information provided by TEP on May 10, 2013.[53] Our cost calculations specifically noted the changes we made to account for these factors.[54] Specifically, a detailed description of these issues is contained on page 6, Attachment C, in TEP's letter dated May 10, 2013. These issues include interference from existing boiler structures and material handling equipment that makes the most common SCR reactor impractical, the need for substantial modifications to the existing air preheater, and site congestion around the boiler that complicates siting of an SCR system. We consider these issues sufficient to warrant a higher retrofit factor.

Comment: In response to EPA's request for comment on whether EPA should use a less stringent SCR emission limit in its NO_X BART analysis for Sundt Unit 4, Earthjustice responded in the negative. According to the commenter, EPA's use of a 0.05 lb/MMBtu limit for SCR is consistent with EPA's BART determinations for other coal-fired power plants for which EPA has repeatedly concluded that a 0.05 to 0.055 lb/MMBtu emission limit is BART. In addition, citing reports submitted with the comments, Earthjustice asserted that SCRs often achieve more stringent emission rates and control efficiencies than EPA assumed SCR would achieve at Sundt Unit 4. Earthjustice stated that because a 0.05 lb/MMBtu emission rate is achievable with SCR at Sundt Unit 4, EPA should not use a less stringent emission limit in its BART analysis.

Response: We agree that our use of a 0.05 lb/MMBtu annual average design value for SCR is consistent with other BART determinations for coal-fired power plants.

Comment: Earthjustice stated that if EPA does not revise its BART determination to require SCR, it should set a more stringent emission limit that more accurately reflects the emission reductions achievable with SNCR. Earthjustice quoted the BART Guidelines as requiring EPA to ''take into account the most stringent emission control level that the technology is capable of achieving,'' which Earthjustice said EPA has not done in this case. Earthjustice asserted that EPA should select a level of NO_X reduction for SNCR in the range of 50 percent over and above the existing combustion controls, rather than the level of 30 percent above current controls that was selected. As support, Earthjustice noted that SNCR is required by the pending SIP revision (prepared by ADEQ to replace the FIP) for Apache Unit 3 to reduce NO_X from 0.43 lb/MMBtu down to 0.23 lb/MMBtu, or roughly 50 percent. Earthjustice recommended that EPA set an emission limit for SNCR in the range of 0.22 lb/MMBtu, reflecting 50 percent reduction from the baseline level of 0.445 lb/MMBtu of NO_X in 2011. In addition, Earthjustice disagreed with EPA's inflation of the NO_X emission limit by 17 percent to account for variability. According to Earthjustice, EPA assumed without justification that the observed variability without SNCR would be the same as variability with SNCR.

Response: We disagree with this comment. The Apache Unit 3 example cited by Earthjustice does not support a 50 percent SNCR control efficiency. The 0.43 lb/MMBtu emission rate on Apache Unit 3 noted by Earthjustice reflects the use of over fire air (OFA) only. The 0.23 lb/MMBtu emission rate on Apache Unit 3 noted by Earthjustice reflects the use of LNB with OFA and SNCR. The approximate 50 percent reduction from 0.43 to 0.23 is not solely attributable to SNCR, but rather is the result of the application of LNB and SNCR. Since Sundt Unit 4 already operates with LNB and OFA, we do not consider it appropriate to assume that application of SNCR will result in an additional 50 percent NO_X reduction.

With regard to our upward revision to the annual emission rate to develop a rolling 30 day emission limit, we acknowledge that observed variability without SNCR might not be the same as variability with SNCR. We note, however, that even emission units with well-operated controls will experience some degree of emissions variability. As noted in our proposed rule, we developed this upward revision based on site-specific emission data reported to the CAMD for Sundt Unit 4. Given the site-specific basis for our upward revision, we consider it a reasonable estimate of emission variability. We acknowledge that there might be other methods of accounting for this variability. However, we did not receive any comments that described or proposed any such alternate methodology. Accordingly, we are finalizing the emission limit as proposed.

[51] This emission and generation data was contained in the docket for our proposal, E–45—TEP Sundt4 2001–12 Emission Calcs 2014–01–24.xlsx.

[52] See 70 FR 39167.

[53] TEP's May 10, 2013 letter describing this information was contained in the docket for our proposal, C–37 Letter from Erik Bakken, TEP, to Greg Nudd, EPA, re TEP Sundt Modeling & Cost Information.pdf.

[54] Our cost calculations, which note these upward revisions, were contained in the docket for our proposal, E–05 TEP Sundt4 Control Costs (final for NPRM docket).xlsx.

Comment: NPS indicated that it agrees with the design emission rate of 0.050 lb/MMBtu that EPA used to estimate the control effectiveness of SCR. However, NPS did not agree with the cost of catalyst for SCR of $8,000 per cubic meters ($m^3$), and cited to a recent report indicating the costs are around $5,000/$m^3$. NPS also said that EPA did not consider using regenerated catalyst at a cost of $5,500/$m^3$, which it did in the recent Wyoming RH FIP.

NPS also stated that instead of relying only on the Integrated Planning Model (IPM) to estimate the costs of SCR, NPS used a method similar to what EPA Region 8 used for Colstrip in Montana. In NPS's opinion, using IPM to calculate capital costs and EPA's Control Cost Manual (CCM) to calculate operating costs provides more flexibility, provides greater transparency and is more in line with the BART Guidelines that recommend following EPA's CCM as much as possible.

Response: We disagree with the NPA's assertion that $8,000/$m^3$ is an unreasonable cost estimate for catalyst. Since catalyst prices fluctuate, we recognize that recent prices may be lower than the value used in our cost calculations. However, given that catalyst is an operating cost that will be periodically incurred over the entire useful life of the equipment,[55] we consider it appropriate to use a catalyst price that reflects more than just recent price levels. The BART Guidelines state, ''In order to maintain and improve consistency, cost estimates should be based on the OAQPS Control Cost Manual, where possible'' and that ''[w]e believe that the Control Cost Manual provides a good reference tool for cost calculations, but if there are elements or sources that are not addressed by the Control Cost Manual or there are additional cost methods that could be used, we believe that these could serve as useful supplemental information.'' [56] As noted in our proposed rule and TSD,[57] EPA has used IPM in multiple regulatory actions, and considers it an appropriate source of supplemental information.

3. BART Analysis and Determination for SO_2

Comment: ACCCE opposed EPA's proposal to require DSI for the control of SO_2 emissions at Sundt Unit 4. The ACCCE asserted that this requirement will have no humanly perceptible visibility improvement, so the proposal must be withdrawn. According to ACCCE, the highest visibility improvement expected from this requirement is 0.20 dv at Saguaro National Park. At the other nine affected Class I areas, the visibility improvement is expected to range from only 0.04 to 0.10 dv. ACCCE contended that requiring costly controls with no humanly perceptible visibility improvement is unjustified.

Response: As noted in our response to a similar comment regarding our NO_X BART determination, we have not considered perceptibility as a threshold criterion for considering improvements in visibility. Rather, we have considered visibility improvement in a holistic manner, taking into account all reasonably anticipated improvements in visibility expected to result at all Class I areas within 300 kilometers of each source. Improvements smaller than 0.5 dv may be warranted considering the number of Class I areas involved and the initial contribution to impairment of the source in question. For example, a source with a 0.5 dv impact at a Class I area ''contributes'' to visibility impairment and must be analyzed for BART controls. While controlling such a source will not result in perceptible improvement in visibility, Congress determined that such contributing sources should nevertheless be subject to the BART requirement. In the aggregate, small improvements from controls on multiple BART sources and other sources will lead to visibility progress. As a result, although the anticipated visibility benefit attributable to DSI is not humanly perceptible, we consider those benefits sufficient to justify DSI as BART in light of the fact that DSI will be highly cost-effective and has no substantial adverse energy or non-air quality environmental impacts.

Comment: Earthjustice stated that EPA should revise its BART analysis for SO_2 to reflect more stringent emission rates achievable with wet flue gas desulfurization (FGD) and dry FGD because the BART Guidelines require EPA to analyze the most stringent emission control level that the technology is capable of achieving. According to Earthjustice, EPA assumed that wet FGD would achieve a 0.06 lb/MMBtu emission rate (92 percent control efficiency) and dry FGD would achieve a 0.08 lb/MMBtu emission rate (89 percent control efficiency). Earthjustice argued that these figures were cited despite EPA's acknowledgment that both wet FGD and dry FGD are capable of achieving more stringent emission rates. Earthjustice added that reports submitted with its comments show that both wet and dry FGD can achieve emission rates of 0.04 lb/MMBtu or lower along with control efficiencies of 95 to 99 percent.

Response: We disagree that we underestimated the SO_2 emission reductions achievable with dry or wet FGD. In our proposed rule, and in the TSD for our proposed rule, we stated that:

> [B]oth dry and wet FGD have very high incremental cost-effectiveness values, indicating that while they are more effective than the preceding control, this additional degree of effectiveness comes at a substantial cost.

The incremental cost-effectiveness of dry FGD, in relation to DSI, is approximately $17,000/ton. Assuming a more stringent dry or wet FGD emission rate of 0.04 lb/MMBtu, the incremental cost-effectiveness of FGD, relative to DSI, is approximately $13,000/ton, which is still not within a range that EPA or states have considered cost-effective, especially given that FGD (dry or wet) is expected to result in less visibility improvement than DSI.[58] As a result, a more stringent FGD emission rate would not alter our SO_2 BART determination.

Comment: Earthjustice asserted that EPA improperly raised the proposed SO_2 limit (based on use of DSI) from 0.21 to 0.23 lb/MMBtu. Earthjustice said that this increase was inappropriate, as it was based on SO_2 emission data that did not account for controls. Since proper controls dampen the variability of emissions, Earthjustice said that the emission limit should not be raised to account for variability.

Response: As noted in a response to a similar comment regarding our NO_X BART determination, we acknowledge that observed emissions variability at Sundt Unit 4 without SO_2 controls may not be the same as its emissions variability when operating with DSI. We note, however, that even emission units with well-operated controls will experience some degree of emissions variability. As noted in our proposed rule, we developed this upward revision based on site-specific emission data reported to EPA's CAMD for Sundt Unit 4. Given the site-specific basis for our upward revision, we do not consider it as an unreasonable estimate of emissions variability. We acknowledge that there might be other methods of accounting for this variability. However, we did not receive any comments that described or proposed any such alternate methodology. Therefore, we are finalizing the SO_2 emission limit of 0.23 lb/MMBtu as proposed.

[55] As opposed to capital costs, which are incurred only once, at the start of the project.

[56] BART Guidelines, 40 CFR Part 51, Appendix Y, section IV.D.4.a.

[57] TSD for the Proposed Phase 3 FIP, January 27, 2013, Page 19 of 233.

[58] See 79 FR 9332–33.

4. BART Analysis and Determination for PM_{10}

Comment: ADEQ indicated that it supports EPA's decision to require BART for particulate matter (PM) in terms of a PM_{10} limit of 0.03 lb/MMBtu. While agreeing that fabric filter baghouses are the best technology for PM reductions from Sundt Unit 4, Earthjustice asserted that EPA should set a lower emission limit as BART. According to Earthjustice, stack test results for PM_{10} show that the existing baghouses at Sundt Unit 4 can achieve lower emission rates than the 0.03 lb/MMBtu rate that EPA proposed as BART (citing the TSD at 23). Earthjustice stated that there are hundreds of instances of coal units with baghouses achieving emission rates lower than 0.03 lb/MMBtu, citing the docket for the Mercury Air Toxics Standards (MATS).

Response: We disagree that the proposed 0.030 lb/MMBtu emission limit for filterable PM_{10} is too high. The 0.022 lb/MMBtu emission rate summarized on page 23 of the TSD is the average of multiple test runs that range from 0.016 lb/MMBtu to 0.039 lb/MMBtu.[59] Emission limitations under the CAA must be continuous and BART must be an emission limitation that is achievable.[60] Thus, a BART emission limitation should be one that a facility can continuously achieve. The performance test data indicate that a PM emission limit of 0.030 lb/MMBtu is achievable by the facility, and will also result in actual emission reductions. In addition, the BART limit is substantially lower than the PM limit contained in the facility's current operating permit,[61] substantially decreasing the PM emissions authorized at the facility.

MATS establishes an emission limit of 0.030 lb/MMBtu for filterable PM (as a surrogate for toxic non-mercury metals) as representing MACT for coal-fired electric generating units (EGUs). The BART Guidelines provide that ''unless there are new technologies subsequent to the MACT standards which would lead to cost-effective increases in the level of control, you may rely on the MACT standards for purposes of BART.'' [62] We consider baghouses to be the most stringent PM control technology for coal-fired EGUs. Moreover, the commenter has not identified a new or more stringent technology. As a result, we consider 0.030 lb/MMBtu to be an appropriate continuously achievable BART limit for Sundt Unit 4.

5. Better-than-BART Alternative

Comment: Multiple commenters expressed support for the ''better-than-BART alternative'' for Sundt Unit 4. Sierra Club stated that overall, EPA has done an excellent job in its FIP. However, Sierra Club also asserted that substituting coal with natural gas is not the ultimate solution. The fuel substitution will address the pollution problem associated with coal combustion, but Sierra Club argued that TEP should transition toward renewable energy sources, and be a leader in developing solar, wind, and other renewable sources for the purpose of energy generation.

TEP noted that a fuel change to natural gas meets the RHR's requirements for alternative measures in lieu of BART in that it will achieve greater reasonable progress than the implementation of BART. TEP added that because emissions under BART or the alternative would emanate from the same stack (and therefore the distribution of emissions is not significantly different), the alternative achieves greater reasonable progress simply because it will result in greater emissions reductions. In addition, TEP noted that EPA's finding that ''natural gas provides better visibility improvement than the proposed BART determination'' is consistent with the results of modeling performed by a contractor (AECOM) for TEP. Several other commenters (ADEQ, ANGA, Earthjustice, NPS, TPMEC, Friends of Saguaro National Park and a private individual) expressed general support for the better-than-BART alternative.

Response: We acknowledge the commenters' support of the proposed BART alternative. Today's final rule provides TEP with the option to comply either with the BART limits within three years of publication of the final rule or with the requirements of the BART alternative by December 31, 2017. With regard to the comments concerning renewable energy, we note that the BART Guidelines indicate that ''[w]e do not consider BART as a requirement to redesign the source when considering available control alternatives.'' [63] We therefore consider a requirement for TEP to transition to renewable energy to be beyond the scope of what the RHR requires.

Comment: ACCCE said that the BART alternative should be rejected because it does not lead to an improvement in humanly perceptible visibility. According to ACCCE, EPA stated that switching from coal to natural gas under the better-than-BART alternative will lead to a higher visibility improvement than the combination of SNCR and DSI together. Yet, with one exception, the areas affected by Sundt Unit 4 will not see a greater than 1.0 dv improvement. Again, ACCCE made the case that it is up to the states to make BART-eligibility determinations, but if it is determined that EPA has correctly classified Sundt Unit 4 as BART-eligible, it is Arizona, not EPA, that must finalize a BART determination for the unit. However, if this does not occur, ACCCE reiterated that it disagrees with EPA's analysis to require BART, since it does not result in humanly perceptible visibility improvement.

Response: As explained in response to similar comments on our BART analyses above, visibility improvement is not required to be humanly perceptible in order for a control to be required as BART. Arizona did not include a BART analysis and determination for TEP Sundt 4 in any of its RH SIP submittals. If Arizona submits such a determination in the future, we will give it due consideration under the requirements of the CAA and EPA's implementing regulations.

Comment: TEP stated that the facility has been co-firing landfill gas in the Sundt Unit 4 boiler since 1999, and that this has been an integral part of the company's strategy for complying with Arizona's Renewable Energy Standard and Tariff, as it is among the most cost-effective renewable resources in its portfolio. TEP added that, through the direct displacement of heat input otherwise provided by coal, co-firing landfill gas has resulted in significant avoided emissions of carbon dioxide, SO_2, PM, and other pollutants. TEP asserted that it must be allowed to continue an environmentally beneficial program.

TEP further stated that its current tariff agreement with El Paso Natural Gas Company for natural gas deliveries to Sundt Unit 4 does not meet the fuel-sulfur specification in the definition of ''pipeline natural gas'' in 40 CFR 72.2, but the tariff agreement does meet the sulfur specifications in the definition of ''natural gas'' in 40 CFR 72.2. TEP indicated that it has no direct control over the sulfur content of the natural gas delivered to Sundt, and limiting the fuel burned at Sundt Unit 4 to ''pipeline

[59] The original Method 5 test results are included as Docket Item F–28—TEP Sundt4 Test Results.pdf.

[60] 42 U.S.C. 7602(k) (definition of ''emission limitation''); 40 CFR 51.301 (definition of ''BART'').

[61] 233 lb/hour, per page 2 of the TSD. The BART limit would be equivalent to approximately 41 lb/hour.

[62] BART Guidelines, Section IV.C. ''How does a BART review relate to Maximum Achievable Control Technology (MACT) Standards under CAA section 112, or to other emission limitations required under the CAA?''

[63] BART Guidelines, Section IV.D.1.5.

natural gas'' would prohibit TEP's ability to select the alternative to BART, which TEP and many other stakeholders view as the preferred choice. Accordingly, TEP recommended several revisions to the regulatory language for the better-than-BART alternative that would revise the SO_2 emission limit and fuel restriction to correspond to the definition of ''natural gas'' rather than ''pipeline natural gas'' and provide for co-firing of landfill gas. TEP noted that regardless of the SO_2 emission limit that EPA selects for the alternative to BART, or the method identified to demonstrate compliance with that limit, SO_2 emissions from Sundt Unit 4 under the alternative to BART will be orders of magnitude lower than SO_2 emissions would be through the application of BART.

Response: We agree that the continued co-firing of landfill gas does not adversely affect whether the fuel switch to natural gas achieves greater emissions reductions than the aggregate BART determinations for Sundt Unit 4. We are therefore revising the regulatory language to provide for the co-firing of landfill gas. In addition, we are revising the SO_2 emission limit in the better-than-BART alternative (and the emissions value used to evaluate whether the alternative is better-than-BART) to correspond to the definition of ''natural gas'' per 40 CFR 72.2. These revised emission calculations are contained in our docket, and are summarized in our response to the following comment.[64]

Comment: TEP stated that stack testing to demonstrate compliance with the PM_{10} limit while burning natural gas is unnecessary. According to TEP, the PM_{10} emission limit of 0.010 lb/MMBtu that EPA proposed under the alternative to BART was developed based on a calculation using an AP–42 emission factor, but the proposal requires a compliance demonstration by conducting performance stack testing using EPA Method 201A and Method 202, per 40 CFR part 51, Appendix M. TEP stated that stack testing is a suitable method of determining compliance with an emission limit when either (1) it is necessary to verify that required controls are in place and operating correctly, or (2) to verify that a source is designed and constructed (in the case of a new unit) to meet a particular performance standard. However, according to TEP, neither of those situations applies to implementation of the alternative to BART on Sundt Unit 4, which is essentially a fuel-use limitation. TEP indicated that, while it has no reason to conclude that Sundt Unit 4 could not meet the standard, it has no experience measuring PM_{10} emission levels while burning natural gas. Thus, the inclusion of Method 202 for condensable PM_{10} presents some risk. TEP encouraged EPA to modify the compliance demonstration requirement for PM_{10} to a calculation using AP–42 (as EPA did to set the standard), combined with a demonstration that natural gas is the primary fuel.

Response: We partially agree with this comment. The BART alternative PM_{10} emission limit in the proposed rule (0.01 lb/MMBtu) is based on AP–42 emissions factors for natural gas usage. This factor is based on information that might not represent the emission characteristics of Sundt Unit 4 (i.e., a coal-burning unit that is converted to natural gas). We do not agree, however, that it is appropriate to eliminate entirely the performance test requirement, but recognize that there is a lack of experience and history regarding condensable PM_{10} test results at the Unit. As a result, we are revising the PM_{10} compliance determination to a ''test and set'' approach. An initial performance test for PM_{10}, based on the results of Method 202 plus either Method 5 or Method 201A, is still required along with subsequent performance tests if requested by the Regional Administrator. The results of the initial performance test will establish the PM_{10} limit with which subsequent performance tests must demonstrate compliance. For purposes of evaluating the better-than-BART alternative, our estimate of PM_{10} emissions is based upon this 0.30 lb/ton PM_{10} BART limit. Although this results in PM_{10} emissions equivalent to BART, the natural gas fuel switch still results in a net decrease in both NO_X and SO_2 relative to the respective BART determinations. As a result, this approach does not alter our determination that the natural gas fuel switch is better-than-BART. A comparison of emissions between the BART determination and the revised better-than-BART alternative is summarized in Table 5.

TABLE 5—COMPARISON OF BART DETERMINATION TO BETTER THAN BART ALTERNATIVE

Parameters	Units	BART determination	BART alternative (natural gas fuel switch)	Emission reduction (tpy)
Heat Duty	MMBtu/hour	1,371	1,820	
Capacity Factor	Percentage	0.49	0.37	
NO_X	Control Technology	SNCR+LNB+OFA	LNB+OFA	
	lb/MMBtu	0.31	0.25	
	TPY	912	737	175
SO_2	Control Technology	Dry Sorbent Injection	None	
	lb/MMBtu	0.18	0.057	
	TPY	530	169	361
PM	Control Technology	Fabric Filter	None	
	lb/MMBtu	0.03	0.03	
	TPY	88	88	0

6. Other Comments on Sundt Unit 4

Comment: TEP stated that it generally supports EPA's BART determinations for Sundt Unit 4 because the control technologies selected as BART are available and technically feasible for the control of the respective pollutants. Furthermore, while TEP asserts that the level of visibility improvement achieved by application of these technologies is marginal, they conclude that the identified controls can be installed and operated at Sundt Unit 4 without a significant impact on reliability or customer rates.

[64] See spreadsheet titled ''Revised BART Alternative Emission Calculations.xls.''

Specifically, the SO_2 emission factor for natural gas was revised from 0.00064 lb/MMBtu to 0.057 lb/MMBtu.

Response: We acknowledge TEP's support.

Comment: TEP agreed with EPA's selection of 2011 as the baseline year for Sundt Unit 4's emissions and operating characteristics. In contrast, Earthjustice stated that EPA's BART analyses are flawed due to errors in EPA's emissions baseline and baseline capacity factor. Earthjustice noted that EPA considered Sundt Unit 4's historical emissions from 2008 to 2012, and selected 2011 as the baseline because Sundt Unit 4 predominantly burned coal that year. However, according to Earthjustice, Sundt Unit 4 also burned large amounts of coal in 2008, making it unclear why EPA did not use 2008 instead of, or in addition to, 2011 when determining the baseline (e.g., by creating a baseline averaging 2008 and 2011 emissions).

Response: We disagree with Earthjustice's comment. In 2008, Sundt Unit 4 operated at a much higher capacity factor than in subsequent years. As discussed in a response to a previous comment, we do not consider the higher capacity factors observed during the pre-2009 period to be a realistic depiction of anticipated annual emissions. As a result, we do not consider it appropriate to incorporate 2008 annual emissions into the development of baseline emissions.

Comment: Earthjustice stated that EPA should set a one-year compliance deadline to install BART controls, rather than the proposed three-year deadline. Earthjustice noted that the CAA requires sources to install BART controls as ''expeditiously as practicable,'' and judicial opinions interpreting similar compliance deadlines in the CAA read this language to require compliance as soon as possible. According to Earthjustice, EPA set a three-year compliance deadline to install both DSI and SNCR based on EPA's conclusion that it will take three years to install DSI. The commenter asserted that DSI can be installed in just one year based on the record established for the MATS rulemaking and the rulemaking docket for this action. Earthjustice also noted that EPA has recognized that typical SNCR retrofits take ten to 13 months. Earthjustice stated that it is not aware of any circumstances at Sundt that would require additional time to install DSI and SNCR. Accordingly, the commenter suggested that because the CAA requires BART to be installed as quickly as possible and the record shows that both DSI and SNCR can be installed in one year, EPA should set a one-year compliance deadline for both controls.

Response: We disagree with this comment. Although we agree that either control technology can be installed in as little as one year, we do not consider it reasonable to require installation of both technologies, in parallel, within a single year. The CAA and the RHR require compliance with the BART emission limit as expeditiously as possible, but in no event later than five years after promulgation of the FIP.[65] The three-year time frame in our proposed rule is consistent with this requirement.

Comment: A private citizen indicated support for the proposal to end coal burning at the Sundt facility by the end of 2017 and requested that Sundt implement the requirement sooner. Specifically, the commenter recommended that TEP, the owner of the Sundt facility, use up the existing supply of coal and not purchase any additional coal. TPMEC similarly asked that TEP use up the coal it has on site and not buy any more, but proceed with the conversion. In contrast, TEP stressed that the timing of the elimination of coal is an integral part of the alternative to BART and should not be adjusted. TEP stated that because EPA may not consider a fuel switch as a control option for determining BART for a source (citing section IV.D.1.5 of the BART Guidelines), the decision whether to implement the alternative to BART is at the sole discretion of TEP. TEP added that because (1) the alternative was originally developed by TEP and (2) it clearly meets the requirements for ''better than BART,'' EPA is limited in its ability to make changes to certain aspects of TEP's approach.

TEP asserted that it will need until December 31, 2017, to burn the existing fuel on site, ensure an adequate natural gas supply, and make the operational and mechanical changes necessary to achieve the proposed NO_X emission rate. According to TEP, since the alternative to BART results in lower emissions on an annual basis, the timing for implementation is inconsequential relative to the long-term visibility goals of the RHR and should remain as originally outlined by TEP. TEP added that EPA has no obligation or authority to arbitrarily make a better-than-BART alternative even better by adjusting the timing for implementation, and therefore the timing for implementation of the alternative should not be adjusted.

Response: We have considered TEP's request to revise the compliance deadline to December 31, 2017. We agree with TEP that this deadline is reasonable, given that the alternative results in greater emission reductions than BART on a lb/MMBtu basis for NO_X, SO_2, and PM and meets the other requirements for a better-than-BART alternative under 40 CFR 51.308(e)(2) and (3). Therefore, we are setting a compliance deadline of December 31, 2017.

Comment: TEP asserted that EPA underestimates the costs of controlling NO_X and SO_2 emissions from Sundt Unit 4. TEP indicated that it hired a professional engineering and construction firm, Burns and MacDonnell (BMD), to review the cost estimates developed by EPA as part of its five-factor BART analysis and to provide new cost estimates for the installation and operation of various control technologies on Sundt Unit 4. The results of BMD's analysis are in Table 6. TEP further noted that the BART Guidelines provide for incorporation of site-specific factors or ''elements . . . that are not addressed by the Cost Control Manual,'' and stated that the most significant site-specific factors for Sundt Unit 4 have been identified by BMD in the report attached to the comments. TEP asserted that these factors should be incorporated into the final BART determination for the facility.

TABLE 6—COMPARISON OF EPA'S AND BMD'S BART ANALYSIS RESULTS

[All values are in $/ton of pollutant removed]

Control technology	EPA (proposed)	TEP	Difference (percent)
NO_X Control Technology			
Selective Non-Catalytic Reduction	$3,222	$3,637	13

[65] CAA section 169A(g)(4), 42 U.S.C. 7491(g)(4), 40 CFR 51.308(e)(1)(iv).

TABLE 6—COMPARISON OF EPA'S AND BMD'S BART ANALYSIS RESULTS—Continued

[All values are in $/ton of pollutant removed]

Control technology	EPA (proposed)	TEP	Difference (percent)
Selective Catalytic Reduction	5,176	7,874	52
SO_2 Control Technology			
Dry Sorbent Injection	1,857	3,088	66
Dry Flue Gas Desulfurization	5,090	9,359	84
Wet Flue Gas Desulfurization	5,505	8,229	50

Response: As noted in our proposed rule and TSD, we revised upwards our contractor's original control cost estimates based on certain site-specific factors noted by TEP in its letter dated May 10, 2013. We incorporated many, but not all, of the factors raised in that letter. In its comment letter on our proposed rule, TEP raised additional factors and asserted that the cost estimates for each of the control options is underestimated. In the case of SCR, dry FGD, and wet FGD, we stated in our proposed rule that we consider these control options to not be cost-effective, either in general or in relation to their anticipated visibility benefits. In the case of SNCR and DSI, even if we were to accept all of TEP's revisions included in the comment letter, we would still consider these options to be cost-effective generally and to be BART based on our consideration of costs and visibility benefits.

Comment: NPS commented that that although EPA has not stated the reasonable level of cost-effectiveness, it assumes that the Agency typically uses $5,000/ton and 0.5 deciviews (dv) as thresholds. Yet, NPS has seen higher cost-effectiveness thresholds from EPA and other states. While NPS commends EPA for its presentation of cumulative visibility impacts and cumulative visibility benefits of reducing emissions, NPS also requested that EPA work with NPS to develop a consistent and transparent method to relate cost to visibility improvement.

Response: As noted in responses to other comments, we have not established specific thresholds for the cost and visibility factors for BART. NPS is therefore correct to note that BART determinations made by EPA may not precisely align along a specific set of $/ton or deciview improvement values. Further, even where the costs of compliance and expected degree of visibility improvement are similar at two different sources, consideration of other statutory factors may result in different outcomes.[66] With regard to determinations made by state agencies, we note that the RHR provides states with significant discretion in considering and weighing the five BART factors, so long as the factors are appropriately evaluated and the state's determination is supported by reasoned explanations for adopting the technology-based limits selected as BART. As a result, while a direct comparison of $/ton and deciview improvement values associated with BART determinations from multiple state agencies and EPA is informative and should carry weight in the ultimate decision, such comparisons are not outcome determinative.

Comment: NPS indicated that it has collected and reviewed close to 100 BART determinations for EGUs and has found that the average cost per deciview for NO_X reductions at EGUs is $14 million and the maximum cost per deciview is $34 million based on the Class I area with highest visibility improvement. NPS asserted that the $14 million figure is a good indication of the value states have placed upon reducing NO_X for visibility purposes.

Response: We agree with NPS that cost per deciview improvement is informative as a cost-effectiveness metric, including comparing the effect of controls on sources located in different parts of the country. We provided calculations of this metric in our proposal for this action. However, consistent with the BART Guidelines,[67] we have relied more heavily on cost-effectiveness calculated as cost per pollutant ton reduced and related visibility improvements in deciviews (both at individual areas and as a cumulative sum over all affected areas) as opposed to the cost per deciview metric.

Comment: NPS expressed support for EPA's inclusion of the cumulative visibility impacts and improvements associated with the control scenarios that were considered, noting that the EGUs evaluated are unusual because they impact from ten to 15 Class I areas within 300 kilometers (km).

Response: We agree with NPS that it is important to account for visibility impacts at multiple Class I areas, given that the goal of the visibility program is to remedy visibility impairment at all Class I areas.[68] The cumulative sum, while not the only means of analyzing benefits across multiple Class I areas, is an easily understood and objective method of weighing cumulative visibility improvement, and is useful as part of the overall BART determination.

Comment: TEP stated that EPA should adopt version 6.42 of CALPUFF as the approved regulatory version for modeling regional haze, since this version corrects deficiencies in the chemistry and the dispersion functions of CALPUFF version 5.8. TEP indicated that several studies conducted over the last few years demonstrate that the deficiencies in version 5.8 result in over-estimation of the visibility impacts of NO_X emissions in Class I areas. This causes erroneous over-estimation of the visibility improvements from proposed BART controls leading to biased cost-benefit values.

Response: We disagree with TEP for two reasons. First, CALPUFF 5.8 is approved as a regulatory model for use by EPA in regional haze determinations. CALPUFF version 5.8 has been thoroughly tested and evaluated, and has been shown to perform consistently with the initial 2003 version in the analytical situations for which CALPUFF has been approved. CALPUFF 6.42 is not an approved regulatory model because CALPUFF 6.42 has not yet undergone adequate review. We relied on version 5.8 of

[66] We also note that it is unusual for controls at two different sources to have similar visibility benefits across all affected Class I areas.

[67] See e.g. 70 FR 39167 (''For purposes of air pollutant analysis, 'effectiveness' is measured in terms of tons of pollutant emissions removed, and 'cost' is measured in terms of annualized control costs.'')

[68] CAA section 169A(a)(1).

CALPUFF because it is the EPA-approved version in accordance with the Guideline on Air Quality Models (''GAQM'', 40 CFR part 51, Appendix W, section 6.2.1.e). We updated the specific version to be used for regulatory purposes on June 29, 2007, including minor revisions as of that date. Second, EPA took into account limitations with Version 5.8 when it suggested use of the 98th percentile day versus the maximum day.[69]

Comment: TEP commented that the background ammonia concentration used in visibility modeling is critical because ammonia is a precursor to particulate ammonium nitrate. EPA's use of 1.0 parts per billion (ppb) for ammonia background concentration for all months of the year will tend to overestimate the visibility benefits associated with reductions of NO_X, particularly in the winter months. TEP noted that monthly ammonia measurement data from the IMPROVE monitoring network site in southern Arizona (Chiricahua) indicate that ammonia concentrations below 1.0 ppb (e.g., 0.5 ppb) are present at this site during the winter months. TEP asserted that use of those values will more accurately predict the visibility improvements expected from the reductions in NO_X emissions. Although TEP did not perform any new modeling for comparison to EPA's results in the proposal, TEP sent a letter to EPA in May 2013 that provided clarification regarding certain modeling parameters and the results of modeling performed by TEP's contractor (AECOM). According to TEP, the modeling performed by AECOM included a BART control scenario involving SNCR and DSI, similar to EPA's proposed BART determination for Sundt Unit 4. The results of AECOM's modeling was a maximum visibility improvement of 0.16 dv at Saguaro National Park East compared to the baseline case. The TEP noted that EPA's modeling representing the same control configuration (SNCR and DSI) reported a maximum visibility improvement of 0.49 dv. TEP acknowledged that these differences in modeling results have little practical effect, as EPA has proposed that its results support a BART determination involving application of SNCR and DSI on Sundt Unit 4, and TEP does not dispute that overall finding. However, should EPA find a need to do additional modeling to support its final BART determination for Sundt Unit 4, TEP recommended that EPA incorporate the modeling improvements suggested in TEP's letter of May 10, 2013.

Response: We disagree that the 1.0 ppb ammonia background we assumed for CALPUFF modeling is too high. It is consistent with EPA guidance given that some ammonia measurements are higher than 1.0 ppb, and the available ammonia data is variable over the areas included in the visibility modeling. The uncertainty over appropriate ammonia values leaves us without a reasonable basis for choosing a different constant value, or a more complex monthly varying scheme as recommended by the commenter. Ambient ammonia measurements for use as input to modeling are scarce, and measurements that include it in the form of ammonium still scarcer. In the absence of compelling ammonia background estimates, the EPA Interagency Work Group on Air Quality Modeling (IWAQM) Phase 2 guidance recommends the use of a 1.0 ppb ammonia background for arid lands, which includes Arizona.[70] This is the only guidance available on this issue. It is worth noting that there are measurements of gaseous ammonia (NH_3) that by themselves are close to or greater than 1.0 ppb, even in winter.[71] Therefore, we consider the 1.0 ppb ammonia background that we used to be appropriate for this action. Finally, we agree with the commenter that the recommended modeling changes would have little practical effect on the BART determination for Sundt Unit 4.

B. Nelson Lime Plant Kilns 1 and 2

1. Subject to BART Determination

Comment: ADEQ asserted that EPA improperly disapproved ADEQ's finding that Nelson Lime Plant is not subject to BART. ADEQ argued that ADEQ's use of a three-year average 98th percentile value ''appropriately recognizes the highly variable visibility conditions that prevail in western states due to periodic wildfires that can result in short-term spikes in visibility impairment'' and is consistent with how EPA determines compliance with certain NAAQS.

Response: These comments largely pertain to EPA's partial disapproval of the Arizona RH SIP and are therefore untimely, as EPA has already taken final action on the SIP.[72] To the extent that the comments dispute EPA's proposed determination that the Nelson Lime Plant is subject to BART under the FIP, we disagree with the substance of their argument. The BART Guidelines recommend use of the 98th percentile modeled visibility impact across multiple years of modeling in order to identify sources that cause or contribute to visibility impairment in a Class I area.[73] There are at least three different ways to determine the 98th percentile impact across three years of modeling: The maximum 8th high in any one year, the 22nd high impact over all three years, or the three-year average of the 8th high impacts from each year. Of these three methods, the three-year average is the least conservative way of determining the 98th percentile impact. Depending on the yearly distribution of the results, the most conservative 98th percentile impact may come from the maximum 8th highest value for each of the three years or the 22nd highest value for all years merged. While the BART Guidelines do not specify which value to use, given that the subject-to-BART determination is a screening test, EPA's position is that a more conservative approach, i.e., the 22nd high of three merged years or the maximum 8th high of any one year, is more appropriate for this screening test. The FLMs also recommend a more conservative approach and have noted that other states have used such an approach.[74]

We also do not agree with ADEQ that a three-year average approach ''appropriately recognizes the highly variable visibility conditions that prevail in western states due to periodic wildfires that can result in short-term spikes in visibility impairment.'' The visibility impacts of individual sources, including the Nelson Lime Plant, are determined by calculating the change in deciviews caused by the source compared to natural visibility conditions.[75] While natural conditions could include short-term spikes from wildfires, the effect of such a spike in the background level of pollution is to decrease the relative deciview impact of

[69] Memorandum in docket, ''Full Technical Response to Modeling Comments for June 2014 Final Arizona Regional Haze FIP (Phase III),'' Colleen McKaughan and Scott Bohning, EPA, June 16, 2014.

[70] Interagency Work Group on Air Quality Modeling (IWAQM) Phase 2 Summary Report And Recommendations For Modeling Long Range Transport Impacts (EPA–454/R–98–019), EPA OAQPS, December 1998, *http://www.epa.gov/scram001/7thconf/calpuff/phase2.pdf.*

[71] Memorandum in docket, ''Full Technical Response to Modeling Comments for June 2014 Final Arizona Regional Haze FIP (Phase III),'' Colleen McKaughan and Scott Bohning, EPA, June 16, 2014.

[72] 78 FR 46142.

[73] 40 CFR part 51, appendix Y, section III.A.3.

[74] Federal Land Managers' Air Quality Related Values Work Group (FLAG) Phase I Report—Revised (2010) (FLAG 2010) at 23; National Park Service Comments on EPA Review of Arizona Department of Environmental Quality (ADEQ) Determinations of Best Available Retrofit Technology (BART) at 2–3, and Reasonable Progress (RP) March 6, 2013.

[75] 40 CFR part 51, appendix Y, section III.A.3.

a given source.[76] Thus, the possibility of short-term spikes from wildfires would, if anything, argue for a more conservative approach to evaluate an individual source's contribution. Moreover, we do not agree that the use of a three-year average is appropriate here simply because certain NAAQS use a three-year averaging period. Thus, consistent with the FLMs' recommendation and with the approach used by EPA and other states for making subject-to-BART determinations, we find that use of the 98th percentile impact of any one year is appropriate for making subject-to-BART determinations for purposes of this action.

With regard to the modeling performed for the Nelson Lime Plant, ADEQ's comments refer to three different modeling analyses: (1) The initial modeling performed by LNA; (2) the refined modeling analysis performed by LNA using the revised IMPROVE equation; and (3) an additional analysis referred to by LNA in its comments on the Phase 2 proposal. ADEQ included the results of the first two analyses in the Arizona RH SIP. Both sets of results showed that for a single year, 2003, the Nelson plant's 8th high visibility impact exceeded 0.5 dv.[77] Under EPA's interpretation of the 0.5 dv threshold, this makes the facility subject to BART. The complete results of the third analysis performed by LNA were not submitted to EPA.[78] However, more recent modeling performed by LNA shows that the 98th percentile impact of the facility exceeds 0.5 dv in each of the three years modeled.[79] Thus, even under the three-year averaging approach preferred by the State, the Nelson Lime Plant is subject to BART, according to the most recent modeling performed by the facility's owner. As explained above, under EPA's interpretation of the 0.5 dv threshold, the Nelson Lime Plant is subject to BART based on prior modeling. Therefore, for the reasons set out in our Phase 2 proposed and final rulemakings and in this response, we are finalizing our determination that the Nelson Lime Plant is subject to BART.

2. BART Analysis and Determination for NO_X

Comment: NPS indicated that it agrees with EPA that visibility improvements expected as a result of applying SNCR support this technology as BART for NO_X.

Response: We agree with NPS, and acknowledge its support on this issue.

Comment: ADEQ asserted that the three-year compliance time provided in the rule does not provide enough time to retrofit SNCR on Kilns 1 and 2 because of the difficulty of installing such controls. In contrast, Earthjustice argued that EPA should set a one-year compliance deadline for the installation of SNCR at the plant. According to Earthjustice, EPA recognized in the proposal that SNCR can be installed in one year, but speculated without any support that it might take longer at the Nelson Lime Plant because of a ''lack of information regarding SNCR installation schedules on lime kilns.'' The commenter stated that allowing an extra two years without any supporting record violates the CAA's requirement that BART be installed as expeditiously as practicable.

Response: We disagree with ADEQ's assertion that a three-year compliance schedule is too short and with Earthjustice's assertion that it is too long. ADEQ has not provided any support for its assertion that three years is an insufficient period of time for installation, nor has the facility's owner made such an assertion. Regarding Earthjustice's contention that a shorter deadline is required, we note that the examples cited are for SNCR installations on cement kilns. There are multiple operational and design differences between cement and lime production.[80] Cement and lime production processes are sufficiently different that it is not appropriate to assume that SNCR installation times for cement kilns are directly transferable to the application of SNCR on lime kilns. To our knowledge, SNCR has never been installed on a lime kiln. Given that this control technology will be retrofitted to a new source category for the first time, it is not unreasonable to expect unforeseen challenges and delays. EPA's timeline is conservative and takes into account this possibility. Therefore, we find that a requirement to install SNCR within three years is consistent with the provisions of the CAA and the RHR requiring compliance with BART emission limits as expeditiously as practicable.

Comment: Earthjustice agreed that SNCR is a technically feasible control technology at the Nelson Lime Plant, but disagreed that the control efficiency for SNCR should be limited to 50 percent. Earthjustice stated that EPA's analysis must include the most stringent emissions reductions possible with SNCR (citing the BART Guidelines), and asserted that SNCRs can achieve control efficiencies significantly higher than 50 percent for the reasons discussed by Earthjustice in relation to the Clarkdale and Rillito cement plants. Earthjustice added that higher NO_X reductions are especially appropriate at Nelson Lime Plant given the facility's high baseline NO_X emissions. Earthjustice also noted that EPA provided no support in the record for the CEMS emissions data used in the development of the NO_X emissions baseline.

Response: We disagree with this comment. The information provided by Earthjustice consists of examples of SNCR on cement kilns. There are substantial differences between cement kilns and lime kilns that do not allow for direct comparisons of technical feasibility or control effectiveness. As noted previously, neither we nor the commenter were able to identify an instance of a lime kiln operating with SNCR in the United States. In addition, Earthjustice has not provided any information supporting an SNCR control efficiency more stringent than 50 percent on a lime kiln.

LNA has provided a summary of CEMS emission data, but considers it CBI since it also includes lime production data. We have included a summary of the lb/ton values from the testing period in our docket for the final rule because the BART limit is established in terms of lb/ton.[81] We have not included the mass emission rates from the testing period, since including both the lb/hour and lb/ton data in the docket would allow for the back-calculation of the lime production data.

3. BART Analysis and Determination for SO_2

Comment: Earthjustice disagreed with EPA's rejection of DSI technology based on cost considerations, and with EPA's BART reduction approach that relies on a change in fuels. Earthjustice disagreed with what it considers EPA's uncritical agreement with the company (i.e., DSI at 40 percent reduction) and asserted that, given the almost 4,000 tpy of SO_2

[76] See 70 FR at 39124 (''as a Class I area becomes more polluted, any individual source's contribution to changes in impairment becomes geometrically less'').

[77] Arizona Regional Haze SIP at 152–53, Table 10.9 and Table 10.10.

[78] See 78 FR at 46154.

[79] BART Five Factor Analysis, Lhoist North America Nelson Lime Plant; Prepared by Trinity Consultants in conjunction with Lhoist North America of Arizona, Inc. (Public version dated September 27, 2013), Table 4–7. As explained in our proposal, these results are conservative (i.e., tending to overestimate rather than underestimate the impacts), but appropriate for purposes of a subject-to-BART determination.

[80] ''Comments on Draft NO_X Control Measure Summary for Lime Kilns'', National Lime Association, March 30, 2006; AP–42, Section 11.6, Portland Cement Manufacturing; AP–42, Section 11.17, Lime Manufacturing.

[81] Non CBI—Summary of LNA Nelson March, May and June 2013 CEMS Testing.xlsx.

emitted from the two kilns, EPA's determination of the most stringent control efficiencies achievable should have been more thorough and technically grounded. Earthjustice asserted that a DSI can be optimized and can achieve far greater than 40 percent reduction, as the company's own tests show (i.e., short-term efficiencies ranging from 17 to 84 percent). Earthjustice also asserted that even with what it considers a flawed analysis, the calculated cost-effectiveness value of about $4,000/ton reduced is well within acceptable ranges. As a result, Earthjustice disagreed with the weight that EPA gave to the incremental cost-effectiveness values and urged EPA to reconsider its SO_2 BART determination for the Nelson Lime Plant in the final rule.

By contrast, NPS said that it supports EPA's conclusion, noting that it is most important to reduce process emissions before adding expensive emissions controls. NPS indicated support for EPA's decision because it generally favors moving toward cleaner fuels. After changing the fuel at the plant, however, NPS noted that it may be appropriate to revisit requiring emissions controls at that time.

Response: We acknowledge NPS's support on this issue. We disagree with Earthjustice that a more stringent DSI control efficiency is appropriate. Although the commenter notes that site-specific test data suggest short-term control efficiencies as high as 84 percent, there is no evidence that the upper range of short-term control efficiencies is sustainable over longer periods. As a result, when calculating annual emissions reductions in tpy, which is performed on an annual average basis, we do not consider it appropriate to use a control efficiency achieved over a short-term period because it might not achievable over a long-term annual average. Although Earthjustice asserted that the determination of a DSI control efficiency in our proposed rule should be more thorough and technically grounded, it has not provided any information regarding how, specifically, we should revise our analysis or that supports a more stringent control efficiency.

Furthermore, as explained in more detail in a response to a comment from LNA below, the total cost figures in our proposed rule inadvertently omitted annual indirect costs. Correcting this error results in approximate average and incremental cost-effectiveness values of $4,800/ton and $10,200/ton for Kiln 1 and $4,500/ton and $9,500/ton for Kiln 2.[82] The largest incremental visibility benefit of DSI relative to the visibility benefit of the proposed fuel mixture change at a single Class I area is 0.11 dv at Grand Canyon National Park.[83] We do not consider this level of incremental cost to be warranted by the incremental visibility benefit of DSI relative to the fuel mixture change. However, additional controls for the Nelson Lime Plant, such as DSI, should be considered for purposes of ensuring reasonable progress in future planning periods.

Comment: LNA determined that compliance with the SO_2 emission limits within six months after the effective date of the final rule in the **Federal Register**, likely in July 2014, is not feasible. Therefore, the proposed six-month compliance window is unreasonable. Compliance with the SO_2 emission limits is based on a two-step process: (1) Use of a CEMS to determine actual SO_2 emissions from each kiln; and (2) use of daily production tonnage. LNA estimated that an 18-month period is a more reasonable compliance timeframe for a system that supports both NO_X and SO_2 CEMS as well as new weigh scales on lime storage silo transfer belts.

Response: We agree that a six-month time period is an insufficient amount of time for the design, installation, and optimization of an SO_2 CEMS in this case. In other cases in which compliance with a BART limit does not involve construction of add-on controls, but does involve installation of CEMS, we have provided a twelve-month window for compliance.[84] In this case, taking into account that multiple CEMS (NO_X and SO_2) will need to be installed, and the fact that the facility does not currently operate with CEMS, may not have existing systems or infrastructure in place, and is replacing lime weigh scales, we consider an 18-month compliance time frame to be as expeditious as practicable. Therefore, we are revising the compliance deadline for SO_2 at Nelson Lime Plant to eighteen months from the effective date for the final rule in the **Federal Register**.

Comment: LNA stated that in its BART analysis submitted to EPA, the fuel mixture control option was based upon a maximum of 6.5 percent ash content in the proposed fuel mixture. LNA asserted that it did not choose this value arbitrarily, but based the value on operational knowledge and on information provided by the manufacturer of the kilns, Kennedy Van Saun (KVS).

Response: As noted in the proposed rule, we used a fuel mixture consistent with a maximum 6.5 percent ash content in the SO_2 BART analysis. We have not received any other comments regarding this issue, and the final SO_2 limits finalized in today's rule reflect this maximum ash content.

Comment: LNA asserted that EPA's estimate of the costs for DSI is unrealistic because EPA did not use site-specific input values. In addition, LNA said that there are errors in EPA's cost calculations. LNA noted various issues with EPA's cost analysis for DSI and asserted that the value of $4,200/ton of SO_2 removed is too low.

Response: We agree that our cost calculations contain an error in the ''cost summary'' tab, which is also reflected in the TSD and in the **Federal Register** preamble to our proposed rule. The total annual cost for DSI should represent the sum of annual direct and annual indirect costs, but did not include the annual indirect cost. We corrected this error in a new version of the spreadsheet for today's final rule.[85] As a result, the average cost-effectiveness values for DSI on kilns 1 and 2 increase to about $4,800/ton and $4,500/ton (from $4,174/ton and $4,085/ton, respectively). The incremental cost-effectiveness values of DSI, relative to the fuel mixture change, are about $10,200/ton and $9,500/ton (from $8,803/ton and $8,576/ton, respectively). As noted in the proposed rule, we did not consider DSI to be cost-effective on an incremental basis relative to the fuel mixture change, given the relatively small visibility benefits expected from DSI (0.10 dv at the most improved class I area and 0.29 dv cumulative). Therefore, we do not consider DSI to be cost-effective, relative to the fuel mixture change, based on these revised and even higher dollar/ton values.

LNA provided EPA with a detailed version of DSI cost calculations that was designated as CBI along with a public version with most of the calculations redacted. Because we are generally prohibited from disclosing CBI, we relied on the publicly available information to develop a separate set of calculations for the proposed rule. While there are several elements of our cost estimates that differ from LNA's CBI-protected cost calculations, these differences are immaterial in light of our finding that DSI is not a cost-effective control option relative to the fuel

[82] ''LNA Nelson Control Costs (revised for Final Rule).xlsx.''

[83] See 79 FR 9341, Table 26.

[84] 77 FR 72578. The Cholla Power Plant SO_2 BART limit required installation of inlet CEMS, with a twelve-month compliance deadline.

[85] ''LNA Nelson Control Costs (revised for Final Rule).xlsx''.

mixture change. Therefore, we have not further revised our cost analysis for DSI based on LNA's comments because the changes suggested by LNA would not alter our determination that DSI is not cost-effective for either kiln on an incremental basis.

4. BART Analysis and Determination for PM_{10}

Comment: ADEQ expressed support for EPA's determination that the existing baghouse at the Nelson Lime Plant is BART for PM_{10}.

Response: We acknowledge ADEQ's support on this issue.

5. Other Comments

Comment: LNA asserted that EPA's BART proposal does not provide for differing emission rates during startup, shutdown, and malfunction (SSM), and stated that EPA should reconsider this decision that is not supported by the available information. The CEMS data for NO_X and SO_2 that LNA submitted in its BART analysis is based on periods of steady-state operation that does not include periods of startup and shutdown. Since the CEMS data do not include these emissions, LNA did not consider it appropriate for the proposed limits to include emissions from startup and shutdown. LNA proposed that the rolling 30-day limits in the proposed rule should apply only during periods of normal operation, and proposed establishing separate emission limits during periods of startup and shutdown. LNA provided emissions data for each of the various types of startup and shutdown events.

Response: We agree that the emission limits in the proposed rule did not account for emissions from periods of startup and shutdown and we agree that the emission limits should include such periods. Because Section 302(k) of the CAA requires emission limits such as BART to be continuous,[86] BART emission limits must apply at all times, including during periods of startup, shutdown, and malfunction. We therefore consider it appropriate to revise the proposed emission limits for NO_X and SO_2 to account for emissions from periods of startup and shutdown. In order to revise the emission limits to appropriately account for startup and shutdown emissions, we sought additional information from LNA following the close of the public comment period.[87] In response, LNA suggested retaining the rolling 30-day limits that would apply at all times, but revising them upward to accommodate startup and shutdown emissions.[88] Following further discussions between EPA and LNA,[89] LNA proposed revising the rolling 30-day limit to an annual average limit that would apply at all times.[90] LNA also proposed establishing short-term ton/day limits for the Kilns, which would correspond to the short-term 24-hour average emission rates used in the visibility modeling.[91]

Based on our evaluation of the additional information provided by LNA, we are making the following revisions to the proposed emission limits. First, we are revising the lb/ton limits from a rolling 30-day basis to a rolling 12-month basis. As described in LNA's comments, periods of startup can exhibit substantial emissions, but with little to no lime production. While these startup emissions are not higher than those observed during normal operation on a simple mass basis (e.g., lb/hour, or ton/day), the fact that there is no production associated with these emissions complicates their inclusion when determining compliance with a lb/ton limit. As a result, the particular day(s) during which a startup event occurs will appear as a short-term spike in the kiln's emission rate (lb/ton). When combined with the preceding 29 days of emission data, this emission spike has the effect of driving the rolling 30-day emission rate (lb/ton) upwards. It may then be necessary for the unit to operate at a much lower rate of emissions over the next 29 days in order to ensure compliance with the 30-day limit, which may not be technically feasible. By establishing the limit on a rolling 12-month basis, such short-term spikes are averaged with data values from over an entire year, making its impact on the rolling emission rate less pronounced.

Second, in order to ensure that performance of the SNCR system installed at the Nelson Lime Plant is optimized, we are including in the final rule a series of control technology demonstration requirements. In particular, LNA is required to prepare and submit to EPA: (1) A design report describing the design of the ammonia injection system to be installed as part of the SNCR system; (2) data collected during a baseline period; (3) an optimization protocol; (4) data collected during an optimization period; (5) an optimization report establishing optimized operating parameters; and (6) a demonstration report including data collected during a demonstration period. While this type of control technology demonstration is not typically required as part of a regional haze plan, we consider it to be appropriate here, given the minimal data available about the performance of SNCR at lime kilns. Based upon the data collected during this process, EPA may revise the rolling 12-month average for the NO_X emission limit in a future notice-and-comment rulemaking action.

Third, we are establishing short-term 24-hour average emission limits (ton/day) consistent with the emission rate used in the visibility modeling for each respective control option. As noted above, revising the averaging period to an annual basis minimizes the effect of short-term spikes in emissions over a greater data set. In effect, this allows the Nelson Plant greater short-term emissions variability while still demonstrating compliance with the BART limit. To ensure that this variability does not interfere with the modeled visibility benefit, which is based upon reductions from the highest 24-hour average emission rate, we are establishing short-term ton/day emission limits. These limits are combined limits that apply across both Kiln 1 and 2, on a rolling 30-kiln operating day basis. We are finalizing a combined Kilns 1 and 2 NO_X limit of 3.20 tons/day and SO_2 limit of 10.10 tons/day.

C. Comments on the Hayden Smelter

1. General Comments

Comment: ASARCO agreed with the BART Guidelines ''that BART is not 'to redesign the source,' '' and stated this understanding is inherent in Congress' denomination of the technology as ''best available retrofit technology.''

Response: We agree that BART does not require redesign of the source.

Comment: ASARCO noted that the BART Guidelines are not ''mandatory'' as applied to the Hayden Smelter, and that EPA must depart from them if presented with sound technical justification.

Response: We agree that the BART Guidelines are not binding with respect to the Hayden Smelter, but note that the BART Guidelines serve as persuasive guidance for all BART sources.

Comment: ASARCO stated that, as further changes to air pollution controls at the Hayden Smelter will be required to demonstrate attainment of the 1-hour SO_2 NAAQS, ASARCO supports EPA's proposal to promulgate ''a performance standard as BART rather than

[86] 42 U.S.C. 7602(k).

[87] Phone call between Colleen McKaughan, EPA, and Ed Barry, LNA, on April 10, 2014.

[88] Letter from Ed Barry, LNA, to Colleen McKaughan, EPA (April 29, 2014).

[89] Conference calls between EPA and LNA, May 2 and 7, 2014.

[90] Letter from Ed Barry, LNA, to Colleen McKaughan, EPA (May 9, 2014).

[91] Id.

prescribing a particular method of control,'' if EPA determines additional controls are needed. ASARCO stated that reconfiguration of the smelter might be required to attain the 1-hour SO_2 NAAQS in the form of a ''converter retrofit project'' or CRP. ASARCO argued that while detailed engineering of the CRP is substantially completed, details must be worked out before the final project can be permitted. Thus, ASARCO concluded that it is critical for EPA not to finalize a BART FIP for SO_2 that interferes with the Hayden area's attainment of the SO_2 NAAQS. Similarly, ADEQ urged EPA to reevaluate its SO_2 BART decision for the Hayden Smelter and align it with controls that ASARCO has to implement in order to comply with the 1-hour SO_2 NAAQS.

Response: Following the close of the public comment period, ASARCO provided us with additional information concerning the CRP, including a description of plans to replace the BART-eligible Peirce-Smith converters with new converters. If the BART-eligible converters are replaced prior to the BART compliance deadline, then the BART requirements would no longer apply. Accordingly, there is no basis to expect that the RH FIP will interfere with ASARCO's ability to ensure attainment of the SO_2 NAAQS. We also agree that a performance standard rather than a particular method of control is appropriate for BART. As explained further below and in a revised BART determination included in the docket for this final rule, ASARCO has demonstrated that separate levels of control are necessary for the primary and secondary capture systems. Therefore, we are setting the level of control to 99.8 percent (equivalent to the existing double contact acid plant) for the primary capture system and 98.5 percent for the secondary capture system. These limits only apply if ASARCO does not replace the BART-eligible converters prior to the BART compliance deadline.

2. BART Analysis and Determination for SO_2 From Converters

Comment: ADEQ said that EPA's disapproval of ADEQ's SO_2 BART determination for the Miami and Hayden Smelters is unsupported. Similarly, AMA requested that EPA reconsider its decision to disapprove parts of the Arizona RH SIP because the State should make a BART determination for the smelters according to the CAA.

Response: These comments concern EPA's partial disapproval of the Arizona RH SIP and are therefore untimely, as EPA has already taken final action on the SIP.[92] The commenters have provided no legal basis for EPA to reconsider that action.

Comment: NPS expressed support for EPA's decisions based on the expected substantial visibility improvements associated with installing a new acid plant as BART for SO_2 at the Hayden Smelter. In particular, NPS agreed with EPA's decisions to protect many Class I areas.

Response: We appreciate NPS's support and note that the BART level of control for the converters is a performance standard and not any particular method of control.

Comment: ASARCO, ADEQ, and AMA expressed doubt over the technical feasibility of a double contact acid plant for controlling secondary ventilation gases. ASARCO asserted that acid plants are not an ''applicable'' technology, and therefore, not an ''available'' technology for controlling secondary ventilation gases because of low concentrations of SO_2 and high variability in the exhaust gas stream. ASARCO stated that EPA failed to evaluate the technical feasibility of double contact acid plants when applied to these low-strength gases, which is the second step of a BART analysis. ASARCO argued that, had EPA conducted an adequate analysis, it would have concluded that double contact acid plants are not an ''applicable'' technology because they do not have a ''practical potential for application'' to the secondary ventilation gases and hence are not an ''available'' technology. ADEQ and AMA echoed ASARCO's comments, urging EPA to look at the information submitted by ASARCO and reconsider its proposal.

Response: We do not agree that a double contact acid plant is technically infeasible for the secondary gas stream at the Hayden Smelter. As explained in the BART Guidelines, control technologies are technically feasible if either (1) they have been installed and operated successfully for the type of source under review under similar conditions, or (2) the technology could be applied to the source under review.[93] The BART Guidelines further explain that the regulatory authority must exercise technical judgment in determining whether a control alternative is applicable to the source type under consideration. In most cases, a commercially available control option is presumed applicable if it has been used on the same or a similar source type. Absent a showing of this type, one must evaluate technical feasibility by examining the physical and chemical characteristics of the pollutant-bearing gas stream, and comparing them to the gas stream characteristics of the source types to which the technology had been applied previously.[94] In this instance, a double contact acid plant is already in use at the Hayden Smelter. Therefore, it is presumed to be an applicable technology, absent a demonstration that specific circumstances preclude its application to a particular emission unit. Generally, such a demonstration involves an evaluation of the characteristics of the pollutant-bearing gas stream and the capabilities of the technology.[95] No such demonstration of technical infeasibility has been made here. On the contrary, the record establishes that a double contact acid plant is feasible for the secondary gas stream at the Hayden Smelter.

In particular, while the secondary gas stream has a lower SO_2 concentration and higher volumetric flow rate than the primary gas stream, these differences do not render a double contact acid plant technically infeasible. Indeed, EPA concluded more than 30 years ago that ''[i]t is technically feasible . . . to design acid plants that will operate auto-thermally on feed streams that exhibit SO_2 concentrations below the 3.5 to 4.0 percent range.'' [96] The commenters have offered no evidence to refute this conclusion. Contrary to the commenters' suggestions, ASARCO's contractors, Gas Cleaning Technologies (GCT) and MECS,[97] have not stated that use of a double contact acid plant is technically infeasible.[98] Rather, they have indicated that use of this technology would present additional technical challenges that would make it more costly and less effective than estimated by EPA. In particular, GCT states that ''[a] more realistic 60 ppmv [parts per million by volume] outlet concentration would mean only 96 [percent] SO_2 removal efficiency by such an acid plant at ASARCO. . . . when a realistic capital cost and removal efficiency is used for the acid plant, the $/ton SO_2 removed estimate will be more than double the $872/ton

[92] 78 FR 46142.

[93] 40 CFR part 51, appendix Y, section IV.D.2.

[94] Id.

[95] See Id.

[96] 1984 NSPS Review at 4–3.

[97] This is the name of the company.

[98] See Letter from Steven Puricelli, MECS, to Matt Russell, GCT (March 5, 2014)(''MECS Letter'') (''A double acid plant could operate with this low secondary gas concentration . . .''); Letter from Matt Russell, GCT, to Jack Garrity, ASARCO (''GCT Letter'')(February 12, 2014) at 2 (''it may be technically feasible to operate an acid plant on the converter secondary gases . . .'').

SO_2 indicated by EPA.'' [99] However, as explained in the BART Guidelines, where the resolution of technical difficulties is merely a matter of increased cost, you should consider the technology to be technically feasible.[100] Therefore, in this instance, EPA considers a double contact acid plant to be a technically feasible option for control of the secondary gas stream. ASARCO's assertions regarding cost-effectiveness are addressed below.

Comment: ASARCO stated that there are deficiencies in EPA's cost analysis for an acid plant. First, ASARCO asserted that EPA cannot rely upon the cost formula from the 1984 NSPS Review for an acid plant without validating current costs and, as a result, has substantially underestimated the cost of the proposed acid plant for the secondary ventilation gases. ASARCO stated that the equation that EPA used was derived from double-contact acid plants that were processing primary ventilation gases with significantly higher SO_2 concentration (4.5 percent to 8.0 percent) and flow rates up to 140,000 standard cubic feet per minute (scfm). This compared to rates for secondary ventilation gases at 0 to1 percent SO_2 and 275,000 scfm.[101] ASARCO stated that EPA's extrapolation to lower concentrations cannot be justified because none of the data points included double-contact acid plants treating secondary ventilation gases, for which MECS gave a significantly higher cost estimate.

Second, ASARCO stated that supplemental heating of the acid plant influent gas is required, but there is no supplemental heat available to reduce heat load requirements as suggested by EPA. ASARCO noted that GCT evaluated the potential for using existing sources for heat and concluded that it ''does not expect any available heat source to be able to provide more than a small percentage of the heat required.'' ASARCO added that EPA does not appear to have accounted for the additional heat required after the interpass absorption process, nor the additional electrical energy associated with handling this larger volume of secondary ventilation gases.

Third, ASARCO stated that EPA failed to account for other costs including dehumidification, which is expensive due to equipment installation and maintenance costs as well as the energy required to run the refrigeration system. ASARCO also stated that the incoming gas stream will require added compensatory preheating of the gas stream, which is an additional energy requirement that EPA does not appear to have addressed. Finally, ASARCO stated that EPA cannot reduce the cost to control secondary ventilation gas by shifting additional gas to the primary acid plant because the existing plant does not have the capacity to take any secondary gases without converter retrofit.

Based on the foregoing, ASARCO and ADEQ asserted that EPA had underestimated the cost of a new acid plant by at least a factor of two.

Response: We do not agree that the cost estimates provided by MECS and GCT are more accurate than EPA's cost estimates because both contractors characterized their estimates as ''ballpark,'' ''approximate,'' and ''order-of-magnitude.'' [102] Nonetheless, we note that, even if our original cost estimate for an acid plant of $872/ton is increased by a factor of two, as suggested by the commenter, this would result in control costs of about $1,800/ton of SO_2. We consider $1,800/ton of SO_2 to be very cost-effective, especially in light of the large visibility benefits that are expected to result from these controls. However, based on additional information provided by ASARCO, we have revised our BART analysis in several respects, including the addition of an amine scrubber as a third control option. As explained in a revised BART analysis included in the docket for the final rule,[103] we find that an amine scrubber would result in greater emission reductions and would be even more cost-effective than an acid plant. Therefore, we are revising our BART determination to reflect use of an amine scrubber rather than an acid plant for the secondary stream.

Comment: ASARCO stated that EPA underestimated the costs of wet scrubbing. For example, ASARCO asserted that the TSD does not address the technical feasibility of applying caustic wet scrubbing to the characteristics of the secondary ventilation gases at the Hayden Smelter compared to other applications for caustic wet gas scrubbing. ASARCO asserted that these differences affect the design basis and capital and operating costs associated with caustic wet scrubbing. ASARCO further noted that EPA omitted the cost of treating or landfilling the sludge from the caustic wet scrubbers, installing and operating a booster fan, and possible stack modifications. ASARCO stated that its own estimates for treating and landfilling the sludge are more than double EPA's total annual cost estimate.

Response: In the proposed FIP, we estimated an annual cost of $972/ton to control SO_2 from the secondary gas stream using a caustic wet scrubber. This estimate is based on cost information provided by ASARCO. If we increase the sludge disposal costs to the degree that ASARCO proposes while simultaneously increasing the control efficiency from 85 to 90 percent as ASARCO suggested,[104] our estimate of annual costs range from $909/ton, if the sludge is treated as solid waste, to $1,291/ton, if all sludge is treated as hazardous waste. We consider any cost in this range to be highly cost-effective. However, as explained in our revised BART analysis, use of a wet scrubber is more expensive on a $/ton basis and would result in fewer emissions reductions than an amine scrubber. Therefore, we consider a control efficiency of 98.5 percent, achievable with an amine scrubber, to constitute BART.

Comment: ASARCO stated that EPA failed to properly consider the energy and non-air quality environmental impacts of compliance, which is the second BART factor. ASARCO asserted that the energy requirements for the proposed acid plants for the secondary ventilation gases are excessive and would require additional heat supplementation and additional electrical energy associated with handling the larger volume of secondary ventilation gases compared to primary ventilation gases. ASARCO also stated that the collateral emissions from preheating would be excessive. ASARCO provided a table using AP–42[105] for large boilers and assuming low NO_X burners, which shows that the acid plant will cause a net increase in pollutants. This increase, according to ASARCO, would be greater than the actual NO_X emissions from the BART-eligible units.

[99] GCT Letter at 2 (''A more realistic 60 ppmv outlet concentration would mean only 96% SO_2 removal efficiency by such an acid plant at ASARCO . . . when a realistic capital cost and removal efficiency is used for the acid plant, the $/ton SO_2 removed estimate will be more than double the $872/ton SO_2 indicated by EPA.'').

[100] 40 CFR part 51, appendix Y, section IV.D.2.

[101] The original comment referred to a ''0–0.1'' percent concentration for secondary ventilation gases. ASARCO Comment Letter at 9. However, this appears to be an error, as the same letter also states that ''[a]t the Hayden Smelter, the SO_2 content of secondary ventilation gas ranges from 0 to 1 [percent] SO_2 or approximately 0 to 10,000 ppm, and averages 1580 ppm.'' ASARCO Commenter Letter at 5.

[102] MECS Letter at 1; GCT Letter at 2.

[103] Revised BART Analysis for SO_2 at ASARCO Hayden—Converters 1, 3, 4, and 5 (June 2014).

[104] GCT Letter at 4.

[105] ''AP 42'' refers to EPA's Compilation of Air Pollutant Emission Factors. See *http://www.epa.gov/ttnchie1/ap42/*.

Response: We do not agree that we failed to properly consider the energy and non-air quality environmental impacts of compliance. We have weighed these impacts along with the other four BART factors in reaching a BART determination. In particular, we do not agree that the energy requirements for the proposed double contact acid plant for secondary ventilation gases are excessive. On the contrary, we consider these impacts to be reasonable given the significant emission reductions and associated visibility benefits. Finally, we expect that any new combustion equipment required to heat the secondary stream will emit well below the AP–42 levels, which were published in 1998. However, if they were to emit at the levels claimed by the commenter, these emissions would have a far lower impact on visibility than the thousands of tons of SO_2 presently emitted annually through the annular stack. In particular, the increases in the major visibility-impairing pollutants cited by the commenter (68.5 tpy of NO_X, 0.29 tpy of SO_2 and 3.7 tpy of PM) are quite modest in comparison to the projected reductions in SO_2 of about 20,000 tpy resulting from these controls.

Comment: ASARCO stated that the volume of wet scrubber sludge creates collateral environmental impacts, such as increased truck emissions, truck traffic, risks of accidents, and consumption of landfill space.

Response: Most of the impacts noted by ASARCO are either air impacts (e.g., increased truck emissions) or non-environmental impacts (e.g., risk of accidents), and therefore do not fall within the scope of ''energy and non-air quality environmental impacts.'' With regard to the consumption of landfill space, we consider this impact to be reasonable in relation to the large visibility benefits and modest costs of control. As noted above, even if we were to double the sludge disposal costs, our estimate of annualized costs would not increase significantly.

Comment: ASARCO stated that EPA has not demonstrated that its proposed SO_2 removal rate (52.145(l)(4)(i)) is achievable in practice by the existing primary acid plant. ASARCO asserted that EPA cannot use a 365-day average performance estimate as a 30-day limit because the 99.8 percent estimate is based on what the acid plant will achieve on average over the course of a year. ASARCO stated that a 30-day limit forces the existing acid plant to perform better than an annual limit even though EPA did not undertake a BART analysis to support the lower 30-day limit. Further, ASARCO stated that the proposed removal rate applies to periods that contain SSM events, which typically are not included in annual acid plant performance estimates or vendor guarantees. Therefore, ASARCO concluded that no data exists to support EPA's inclusion of SSM emissions in the proposed limit. ADEQ also suggested that EPA may have misinterpreted information provided by ASARCO concerning the performance of the primary acid plant, converting the annual design value to a rolling 30-day limit.

Response: We agree that the control efficiency was determined using annual production and emissions data. Based on this information, we have modified the final determination so that the limit on the double contact acid plant is a rolling 365-day average rather than a rolling 30-day average. This revision also addresses ASARCO's concern regarding SSM emissions because the 99.81 percent control efficiency estimate provided by ASARCO includes all emissions going to the acid plant and therefore accounts for startup and shutdown emissions.[106] Furthermore, excess emissions from malfunctions are, by definition, unforeseeable and therefore cannot be accounted for within an emission limit.

Comment: ASARCO stated that EPA's proposed method for the determination of compliance with the proposed limit is subject to significant error. Specifically, ASARCO stated that the measurement error in its tailstack CEMS is ''sufficient to vary calculated results a full 0.1 [percent]'' and ''[t]he measurement error on the strong gas analyzer is nearly as great as the span of the tail gas CEMS.'' ASARCO added that its measurements of sulfuric acid production also ''lack the precision and accuracy needed for continuous demonstration of compliance.'' AMA also asserted that it is not technically feasible to continuously measure SO_2 in order to demonstrate compliance with the requirement contemplated by EPA.

Response: We do not agree with these comments. Because compliance with the emission limit is determined on a cumulative mass basis over a rolling 365-day period, it is measurable as a practical matter. The difference in scale between the inlet and outlet CEMS is not relevant because control efficiencies are calculated based on the ratio of the data from the two CEMS, not the difference.

For example, consider a situation where 1,000 pounds of SO_2 enters the acid plant and is controlled by 99.8 percent, resulting in emissions of 2 pounds of SO_2. The inlet measurement could vary by 10 percent (i.e., the CEMS could read anything from 900 to 1,100 pounds, which is +/- 100 pounds) without affecting the compliance measurement, which is rounded to the tenths place. The following sample calculations with varying inlet CEMS readings demonstrate this concept:

The control efficiency is calculated using the following equation:

(1 − (SO_2-out/SO_2-in)) * 100 percent = Control efficiency as a percent

If the inlet CEMS provides a true measurement, the control efficiency would be:

(1 − (2/1000)) * 100 percent = 99.8 percent

If the inlet CEMS reads 100 pounds low, the control efficiency would be:

(1 − (2/900)) * 100 percent = 99.778 percent, which rounds to 99.8 percent

If the inlet CEMS reads 100 pounds high, the control efficiency would be:

(1 − (2/1100)) * 100 percent = 99.818 percent, which rounds to 99.8 percent

Therefore, even if the inlet measurement varied by 100 pounds (10 percent), it would not affect the control efficiency. Thus, the difference in scale between the acid plant inlet CEMS and tailstack CEMS is not relevant. Finally, we note that, while the FIP provides for an alternative compliance demonstration using acid production rates, we are not requiring the use of this method. Therefore, ASARCO may use the CEMS rather than acid production rates to demonstrate compliance.

Comment: ASARCO expressed concern that EPA incorrectly characterized ASARCO as using ''limited cesium catalyst,'' and may not recognize that ASARCO has already installed cesium-promoted catalyst to the extent recommended by MECS.

Response: Our characterization of ASARCO's use of cesium catalyst as ''limited'' was not intended to suggest that additional cesium-promoted catalyst is necessary or appropriate for the existing double contact acid plant at the Hayden Smelter. Rather, we noted the ''limited'' use of cesium catalyst at the existing double contact acid plant as evidence that the 99.8 percent control efficiency achieved by the existing double contact acid plant is a reasonable estimate of the efficiency achievable at a new double contact acid plant.

Comment: ASARCO stated that the proposed limit should be adjusted to

[106] Letter from Jack Garrity, ASARCO to Thomas Webb, EPA, July 11, 2013 at 15.

reflect the realities of metallurgical acid plant operation. ASARCO added that a simpler measure, similar to the NSPS for Primary Copper Smelters' use of a limit on SO_2 in the tail gas, is likely a better solution, which would accommodate the process variation and measurement error that will be encountered. Until such a standard is developed, ASARCO asserted that the work practice standard in paragraph (l)(12) and the existing NSPS limit of 650 ppmv, six-hour average, under which the smelter already achieves substantial emission reductions, provides a workable limitation to ensure existing emission reductions are maintained.

Response: We recognize the variable nature of the process and the difficulty involved in measuring a high control efficiency. For these reasons, we are proposing a rolling 365-day average calculated on a cumulative mass basis. Furthermore, because the amount of SO_2 emitted by the converters is constantly varying, a simple concentration-based limit cannot be used to demonstrate that the process is under control.

Comment: ASARCO stated that caustic wet scrubbing of the acid plant tail gas is not cost-effective for BART.

Response: We agree that adding a wet scrubber to scrub the acid plant tail gas is not cost-effective for BART.

Comment: Earthjustice stated that its primary concern with EPA's SO_2 BART determination for the Hayden Smelter is the fate of the ''uncaptured'' or fugitive emissions which, while a large amount estimated at 1,209 tpy, are not addressed by EPA. Earthjustice indicated that EPA should require an analysis of shop ventilation using a computational fluid dynamic (CFD) model that, according to Earthjustice, is a common technique used to enhance capture of fugitive emissions in older shops. Earthjustice stated that requiring implementation of the resulting recommendations would enhance the capture system for the shop so that fugitive emissions are captured by a modified primary or secondary system, which would allow for treatment in the current/proposed emissions control systems (such as the PM controls and the acid plant).

Response: We recognize that there is uncertainty in the determination of fugitive emissions from the Hayden Smelter. Therefore, rather than specify a capture efficiency, we have established a work practice standard that requires ASARCO to design and operate a secondary capture system optimized to capture the maximum amount of process off-gas vented from each converter at all times. In order to demonstrate compliance with this requirement, ASARCO must submit a written operation and maintenance plan to EPA for approval 180 days prior to the applicable compliance date and must comply with this plan thereafter, once it is approved by EPA. Since ASARCO has performed CFD analyses on the Hayden Smelter, we would expect the company to submit such analyses for review by EPA in determining whether the secondary capture system is optimized to capture the maximum amount of process off-gas.

Comment: Earthjustice stated that EPA's decision to split emissions between the baseline primary, secondary, and uncontrolled, uncaptured streams might not be accurate, because EPA does not provide any support for these emissions levels other than noting that they are based on estimates by the company.

Response: We disagree with this comment, which refers to emissions calculations in the Arizona RH SIP and a comment letter from ASARCO regarding the SIP.[107] Our BART analysis did not rely on these emissions calculations. Rather, we relied upon emissions data reported by ASARCO to ADEQ, which we consider to be the best emissions information available for the Hayden Smelter. The data for the primary and secondary emissions is based on CEMS. While there is uncertainty inherent in any calculation of uncaptured emissions, Earthjustice has not provided any more credible emissions information or provided a mechanism for decreasing uncertainty in the quantification of uncaptured emissions. We do not have a copy of the 1994–1995 fugitive emissions study and did not rely directly on this study to estimate uncaptured emissions.

Comment: Earthjustice stated that EPA proposed to require a 99.81 percent reduction of the Hayden Smelter's SO_2 emissions from the primary and secondary capture systems apparently based on the fact that the existing plant is capable of achieving that level of control. However, Earthjustice asserted that greater control efficiencies are achievable, and that EPA must therefore revise its BART analysis to incorporate the most stringent emission control level that the technology is capable of achieving (citing the BART Guidelines). Earthjustice, citing a paper regarding the Kennecott Smelter, stated that 99.95 percent control efficiency is achievable. Based on another report by the technology vendor Cansolv, Earthjustice suggested that a 99.93 percent reduction is achievable. Earthjustice noted that the latter report also states that the CANSOLV® SO_2 Scrubbing System can achieve an outlet SO_2 concentration as low as 0.15 lb SO_2/ton acid, as opposed to EPA's proposed BART level of 2.49 lb/ton acid. Earthjustice urged EPA to increase the requirement for control at the acid plant(s) to 99.93 percent or greater.

Response: We do not agree that our proposal to require a 99.8 percent control efficiency is insufficiently stringent. The examples cited by Earthjustice are not directly comparable to the Hayden Smelter. The Kennecott Smelter uses a flash copper converting technology that produces copper on a continuous basis, unlike the Hayden Smelter's batch-process system. Replacing the batch-process converters at the Hayden Smelter with continuous converters would require a redesign of the system, which is not within the scope of BART.[108] Therefore, we do not consider the 99.95 percent control efficiency achieved at the Kennecott Smelter to be appropriate for determining BART at the Hayden Smelter.

The report on the Cansolv system provided by Earthjustice is a presentation given by Cansolv representatives at a trade show for fertilizer manufacturers. The figure of 0.15 lbs SO_2 per ton of acid produced (10 ppmv SO_2) is a low-end estimate and is lower than any of the outlet concentrations in the table of results provided by Earthjustice. The report did not provide enough information to allow us to determine whether any of the facilities listed in the table operate a process similar enough to batch process copper smelting to be directly comparable to the Hayden Smelter. However, as explained above, ASARCO's contractors have stated that, ''for this application, Cansolv has indicated that they can achieve close to 99 [percent] removal efficiency with a 20 ppmv outlet gas stream.''[109] Therefore, we consider 98.5 percent to be a reasonable estimate of the control efficiency achievable with Cansolv for treatment of the secondary stream at the Hayden Smelter.

Comment: Earthjustice stated that EPA should have considered DSI for the control of the acid plant tailstack.

Response: We disagree with this comment. DSI is commonly used to control SO_2 at combustion sources such as coal-fired power plants and

[107] See Earthjustice Comment Letter at 31, notes 53–56.

[108] 70 FR 39164 (''We do not consider BART as a requirement to redesign the source when considering available control alternatives.'')

[109] GCT Letter at 3.

incinerators. DSI requires particulate control (e.g., a baghouse or electrostatic precipitator) in order to collect the used sorbent. Thus, DSI may be a cost-effective technology when sorbent can be injected upstream of a particulate control device that either is already in service or otherwise required to meet a particulate matter limit. However, we are not aware of any facilities in any industry that use DSI downstream of an acid plant. Therefore, we do not consider it a technically feasible technology in this case.

3. BART Analysis and Determination for SO_2 From the Anode Furnaces

Comment: Earthjustice asserted that the 38 tpy of SO_2 emissions from the anode furnaces are significant, and that EPA has routinely controlled sources with this level of SO_2 emissions in many other instances. Accordingly, Earthjustice urged EPA to require DSI for SO_2 controls for the anode furnaces, which typically achieves emissions reductions in the range of 50 to 70 percent or greater depending on process conditions. Earthjustice indicated that EPA should fully evaluate this option. According to Earthjustice, EPA suggested a work practice standard requiring the use of blister copper or higher purity copper. Earthjustice stated that it is unclear how this work practice standard will help reduce emissions (because presumably the anode furnaces are currently charged with the 98 to 99 percent pure blister copper), or how it will be enforced.

Response: At the Hayden Smelter, the anode furnaces are charged only with blister copper, which is nearly 98 percent pure copper. While the estimated 38 tpy of SO_2 emissions from the anode furnaces may not be ''insignificant,'' they are undoubtedly small compared to the more than 20,000 tpy of uncaptured emissions from the converters. Moreover, while Earthjustice asserted that ''EPA has routinely controlled sources with this level of SO_2 emissions in many other instances,'' it has not provided any examples of controls on emissions of this level under the RHR. Because the potential SO_2 emissions from the anode furnaces are quite low relative to the airflow, DSI would not be cost-effective for SO_2 removal at roughly $25,000/ton.[110] We have included work practice standards and recordkeeping requirements in the FIP to assure that only blister copper is used in the anode furnace.

Comment: ASARCO stated that EPA should clarify that the requirement for ''charging'' only high quality copper does not preclude fluxes and reducing agents such as natural gas and steam. ASARCO is concerned that the proposed language in 40 CFR 52.145(l)(4)(v) could be misinterpreted to prevent the company from poling (i.e., reducing the metal in the furnace to remove oxides) or adding any final fluxing agents to achieve anode casting chemistry requirements. ASARCO explained that while the bulk of converting occurs in the converters, some final refining occurs in the anode furnaces prior to anode casting. Therefore, ASARCO must be able to ''pole'' or reduce the furnace (using natural gas and/or steam) and add flux agents to achieve final chemistries. ASARCO suggested the following revision:

> Anode furnaces #1 and #2 shall only be charged with blister copper or higher purity copper. This charging limitation does not extend to the use or addition of poling or fluxing agents necessary to achieve final casting chemistry.

Response: We are including this language in the final regulatory text because we base our cost calculations for controlling SO_2 emissions from the anode furnaces on the current use of the anode furnaces, which do not process concentrates or matte with significant sulfur content. We have modified the regulatory language explicitly to allow the use of poling and fluxing agents. We expect any SO_2 emissions resulting from the use of such agents to be *de minimis* because of the very low SO_2 content of natural gas and steam.

4. BART Analysis and Determination for NO_X

Comment: ADEQ asserted that EPA's disapproval of ADEQ's determination that the Hayden and Miami Smelters are not subject to BART for NO_X has no statutory basis, and that EPA's imposition of BART for NO_X emissions on smelters is arbitrary and capricious. ADEQ argued that it had correctly determined that the smelters are not subject to BART for NO_X because:

(1) EPA's regulations provide that a facility whose potential to emit (PTE) a particular pollutant is below a certain ''significance'' threshold—40 tpy for NO_X —is automatically not subject to BART; and

(2) the units' NO_X emissions do not cause or contribute to regional haze, because the modeled impacts for each facility's NO_X emissions are less than 0.5 dv.

ADEQ said that EPA argued that the PTE for the smelters should be calculated assuming continuous operation at maximum capacity. In ADEQ's opinion, this was inconsistent with EPA's acknowledgement of the smelters' batch process which precludes continuous operation. ADEQ further reasoned that even if the NO_X emissions from the smelters were above the 40 tpy threshold and considered significant, the emissions still would not contribute to regional haze because their impact is less than 0.5 dv from each of the facilities. The estimated visibility impacts from NO_X emissions are expected to be 0.11 dv for the Miami Smelter and 0.01 dv from the Hayden Smelter, according to ADEQ.

Response: To the extent that these comments concern EPA's partial disapproval of the Arizona RH SIP, they are untimely. EPA has already taken final action on the SIP.[111] To the extent that that comments dispute EPA's proposed determination that the copper smelters are subject-to-BART for NO_X, we disagree with their substance. Under the RHR, a BART determination is required for each ''BART-eligible *source''* in the State that emits ''*any* air pollutant'' which may cause or contribute to any impairment of visibility in any Class I area. All such sources are subject to BART.[112] Thus, EPA and states ''must look at SO_2, NO_X, and direct PM emissions'' in determining whether sources cause or contribute to visibility impairment.[113] When all of these emissions are accounted for, the Hayden Smelter has a total visibility impact greater than 0.5 dv at multiple Class I areas, and is therefore subject to BART.[114]

Once a source is determined to be subject to BART, the RHR allows for the exemption of a specific pollutant from a BART analysis only if the PTE for that pollutant is below a specified *de minimis* level, in this instance, 40 tpy for NO_X.[115] PTE is defined as the maximum capacity of a stationary source to emit a pollutant under its physical and operational design.[116] Physical or operational limitations on emissions capacity (e.g., restrictions on hours of operation) may be taken into account, but only if those limitations are federally enforceable. 40 CFR 51.301. There are currently no federally

[110] See ''Anode Furnace—DSI Cost Calculations.'' We note that these capital costs in these calculations are based upon a much lower flowrate than that of the anode furnaces, Therefore, we consider these estimates to be very conservative (i.e., tending to underestimate rather than overestimate in this instance).

[111] 78 FR 46142.

[112] 40 CFR 51.308(e)(ii)(A).

[113] BART Guidelines, 40 CFR Part 51, appendix Y, section III.A.2.

[114] See, e.g. TSD at 68, Table III.D–4 (showing base case impact of greater than 0.5 dv at 11 Class I Areas).

[115] 40 CFR 51.308(e)(1)(ii)(C).

[116] 40 CFR 51.301.

enforceable physical or operational limitations that would limit the PTE of the BART-eligible units at either the Hayden or Miami Smelters below the NO_X de minimis threshold of 40 tpy. Therefore, we are finalizing our determination that both smelters are subject to BART for NO_X.

Comment: AMA disagreed with EPA's proposed NO_X emissions cap. AMA asserted that EPA does not have the authority to finalize the proposed cap on NO_X emissions. According to AMA, if the source has been determined to be subject to BART for a particular pollutant, EPA has, according to the CAA, the following two options: (1) Impose BART controls based on the outcome of the five-factor analysis or (2) determine that a source's emissions are *de minimis* and exempt them from the BART analysis.[117] AMA said that the NO_X emission caps are arbitrary and capricious and should not be included in the final rule.

Response: We do not agree with this comment. Regional haze SIPs and FIPs must contain ''emission limitations representing BART'' for all subject-to-BART sources.[118] In particular, either the State or EPA must establish an enforceable emission limit ''for each subject emission unit at the source'' and ''for each pollutant subject to review'' that is emitted from the source.[119] This requirement applies even where BART is determined to be an emission limit consistent with existing controls. Otherwise, emissions could increase to a level where additional controls would be warranted for BART, but no mechanism would exist to require such controls.

Comment: ASARCO commented that a traditional low-NO_X burner does not have practical application to the converters. ASARCO noted that EPA cites ''AirControlNet, Version 4.1 documentation report by E.H. Pechan and Associates, Inc.'' dated May 2006, section III, page 445, as support for its claimed 50 percent control efficiency for low-NO_X burners in the converters and/or anode furnaces. ASARCO asserted that this claim is erroneous because the report is based on NO_X SIP Call data, which did not focus on the primary metals industry and is of questionable relevance. Further, ASARCO stated that EPA would need to demonstrate that low-NO_X burner flame design and size constraints are appropriate for use in the converter and anode furnace architecture. ASARCO also stated that it is likely that low-NO_X burners cannot achieve 50 percent control at the Hayden Smelter. Therefore, EPA has underestimated the cost of control and must recalculate.

Response: ASARCO did not provide any documentation to support its claims regarding control efficiency and cost. Therefore, there is no basis in the record for EPA to revise our own estimates. In any case, any increases in the estimated cost-effectiveness of controls would not alter the ultimate outcome in this case, since we are finalizing our determination that BART for NO_X is an emission limit consistent with no additional controls.

Comment: ASARCO stated that BART does not authorize ''precautionary'' limits or other limits to ''ensure the enforceability'' of a determination that no controls are required. ASARCO also stated that EPA must increase the limit to account for any NO_X generated by EPA-mandated controls. ASARCO asserted that EPA does not cite, nor can it, any legal basis for imposing an ''unqualified limit'' where the BART analysis concludes ''no further controls.''

Response: We do not agree with this comment. RH SIPs and FIPs must contain ''emission limitations representing BART'' for all subject-to-BART sources. In particular, either the State or EPA ''must establish an enforceable emission limit for each subject emission unit at the source and for each pollutant subject to review that is emitted from the source.'' This requirement applies even where BART is determined to be an emission limit consistent with existing controls. As explained elsewhere in this notice, we are finalizing our determination that the Hayden Smelter is subject-to-BART for NO_X. Therefore, an emission limitation representing BART for NO_X is required.

We also do not agree that our proposed limit of 40 tpy effectively imposes controls. As explained in our proposal, the baseline emission rate of 50 tpy used for purposes of our BART analysis ''assumes that all of the converters are all operating simultaneously, which is not how they typically operate. Therefore, we expect actual emissions to be well below 40 tpy, which is consistent with ASARCO's own estimate.'' [120] ASARCO has not retracted or modified its prior statement that actual NO_X emissions from the Hayden Smelter are below 40 tpy. Accordingly, ASARCO should be able to meet a limit of 40 tpy without installation of any new controls. Furthermore, setting an emission limit of 40 tpy NO_X satisfies the requirements of 40 CFR 51.308(e) for NO_X and ensures that NO_X emissions from the BART-eligible units will not contribute significantly to visibility impairment in the future.

Comment: ASARCO stated that the long-term strategy does not require emission limits on the smelter, stating that NO_X emissions from the smelter contribute 0.01 dv or less to regional haze. As such, ASARCO asserted that imposing limits on the smelter is not necessary to achieve the RPGs established by Arizona and, therefore, EPA has no legal basis for imposing a 40 tpy cap.

Response: We do not agree with this comment. As noted above, the promulgation of NO_X limits for the BART-eligible units at the Hayden Smelter is required under 40 CFR 51.308(e). With regard to the requirements of the long-term strategy, in addition to the requirement cited by ASARCO, 40 CFR 51.308(d)(3)(v)(F) requires consideration of the ''enforceability of emission limitations and control measures'' (including BART emission limitations) as part of the long-term strategy.

Comment: Earthjustice asserted that EPA's analysis and conclusions regarding NO_X emissions from the Hayden Smelter are flawed because EPA estimated the Hayden Smelter's NO_X emissions based solely on the consumption of natural gas used as fuel in the converters and anode furnaces. EPA did not account for process emissions of NO_X, such as thermal NO_X. According to ASARCO, EPA did not evaluate thermal or process NO_X emissions for any of the converters and anode furnaces at the Hayden Smelter, and did not address why there would not be thermal NO_X generation at these sources. Earthjustice requested that EPA redo its entire NO_X analysis, and start by requiring NO_X test data from the smelters for their various sources. Earthjustice stated that EPA should then properly assess the baseline NO_X emissions and proceed accordingly in terms of control technology evaluation and modeling, as needed.

Earthjustice added that even if EPA maintains the proposed 12-month rolling cap of 40 tpy as BART in the final rule, it should require testing to demonstrate compliance with the BART limit. Earthjustice believes that such testing should not only ensure that the

[117] *See* Freeport-McMoRan Copper & Gold, *Comments on Proposed Federal Implementation Plan for Arizona Regional Haze (EPA–R09–OAR–2013–0588) and Request for Reconsideration of the Partial Disapproval of Arizona State Implementation Plan* at 14.

[118] 40 CFR 51.308(e).

[119] BART Guidelines, 40 CFR part 51, appendix Y, section V.

[120] 79 FR 9347 (citing Letter from Krishna Parameswaran, ASARCO, to Gregory Nudd, EPA dated March 6, 2013, page 15).

Hayden Smelter's NO_X emissions stay below 40 tpy, but would inform the analysis in 2018 for the second implementation period. Earthjustice stated that for the Hayden Smelter and all other sources, it is important to use actual emissions data based on site-specific testing, rather than rough emissions estimates based on AP–42 or other unsupported emissions factors.

Finally, Earthjustice stated that in order to more accurately determine the Hayden Smelter's NO_X emissions, EPA should also analyze NO_X emissions from the flash furnaces which, although not BART-eligible, might also be significant sources of NO_X emissions. Even though the flash furnaces are not BART-eligible, Earthjustice stated that EPA should require reasonable progress controls at the flash furnaces to put Arizona's Class I areas closer to the 2064 glide path.

Response: We agree that some NO_X emissions might be formed in the converters, but we have no reliable means of estimating the quantity of such thermal NO_X. We note that, because of the high activation energy of the reactions required to form NO_X from oxygen and nitrogen, the rate of reaction is known to increase rapidly at temperatures above 1540 °C. This is hotter than the temperatures found in a Peirce-Smith converter.[121]

Further, we do not consider an evaluation of NO_X emissions from the flash furnaces to be necessary or appropriate for purposes of ensuring reasonable progress for this planning period. As explained in our proposal, we conducted a screening of point sources of NO_X throughout Arizona to determine which sources would be potential candidates for RP controls.[122] We did not identify the flash furnaces at the Hayden Smelter as a potentially affected source because they did not have any reported NO_X emissions. This evaluation should be revisited in future planning periods.

5. Comments on Emission Limitations for PM_{10}

Comment: Earthjustice noted that EPA's BART analysis only focused on SO_2 pollution for the various subject-to-BART units at the Hayden Smelter and suggested that EPA note the availability of superior fabric filter products that can provide increased PM control capabilities.

Response: This comment is not timely. We previously approved ADEQ's determination that BART for PM_{10} at the Hayden Smelter is the existing controls. Therefore, we did not conduct a BART analysis for PM_{10}.

Comment: ASARCO stated that BART does not authorize ''precautionary'' limits or other limits to ''ensure the enforceability'' of a no-control determination. ASARCO asserted that both ADEQ and EPA have determined that PM_{10} BART requires no more than existing controls. Therefore, EPA must rely on some legal basis for imposing a limit where BART establishes none. ASARCO stated that, at most, EPA can specify only the existing limits in the Hayden Smelter air permit.

Response: We do not agree with this comment. Regional Haze SIPs and FIPs must contain ''emission limitations representing BART'' for all subject-to-BART sources.[123] We previously approved Arizona's determination that existing controls constitute BART for PM_{10} at the Hayden Smelter. However, the SIP contained no emission limitation representing BART. Therefore, we are required to promulgate an emission limitation representing BART for PM_{10}, as well as compliance requirements to ensure the enforceability of this emission limit as part of the FIP.[124]

Comment: ASARCO stated that EPA's approval of the Arizona RH SIP's ''demonstration'' that no additional PM_{10} controls are warranted is not based in any way on 40 CFR part 63, subpart QQQ (NESHAP) requirements. ASARCO asserted that the PM_{10} demonstration and EPA's approval of it were based on the CALPUFF modeling and cost alone, and not in any way on 40 CFR part 63, subpart QQQ. Thus, ASARCO stated the final FIP should include a determination that 40 CFR part 63, subpart QQQ requirements are not necessary to enforce the PM_{10} BART determination and should exclude any 40 CFR part 63, subpart QQQ requirements accordingly.

AMA expressed similar opinions and asserted that the Arizona RH SIP was not based on 40 CFR part 63, subpart QQQ, but rather on the determination that there was no significant visibility impact from PM emissions. AMA asserted that for this reason, existing emission limits are all that are appropriate for the Hayden Smelter.

Response: We do not agree with these comments. As explained in the previous response, enforceable emission limits are required to implement Arizona's BART determinations for PM_{10}.[125] ADEQ made the following BART determinations for PM_{10} at the Hayden Smelter:

Primary Off-gas System: The existing combination of cyclones, wet scrubbers, and double contact double absorption acid plant represents BART for the primary off-gas stream because it represents the best current technology. BART is therefore selected as no further control beyond the cyclones, wet scrubbers, double contact double absorption acid plant system.

Secondary Off-gas System: The existing secondary hood baghouse is determined to be the best retrofit technology for the secondary off-gas. BART is therefore selected as no further controls beyond the secondary hood baghouse.

Tertiary Ventilation System: Given the extremely small visibility impact and the magnitude of the costs incurred, ADEQ has determined that tertiary ventilation control as BART is not a feasible option.[126]

ADEQ determined that the existing controls on the primary and secondary off-gas systems are the best available for PM_{10} and that tertiary ventilation control is not feasible for purposes of BART. ADEQ did not specify what emission limits would represent these existing controls. Thus, EPA must determine what emission limits reflect the ''degree of reduction achievable'' [127] by the selected control technology, in this case existing controls, to satisfy the regulatory requirements.

In making this determination, EPA considered ASARCO's own BART demonstration, which explicitly relies on the emission limits and compliance requirements in Subpart QQQ. In particular, for both the primary and secondary off-gas streams, ASARCO stated that, ''[c]onsistent with the *Guidelines,* ASARCO has chosen to use the 'streamlined approach' by relying on the particulate limit set for an acid plant in the National Emission Standard for Hazardous Air Pollutants (NESHAP) Subpart QQQ, Primary Copper Smelting . . .'' [128] For the primary off-gas stream, ASARCO explained that Subpart QQQ ''sets a limit of 6.2 milligrams per dry

[121] Alternative Control Techniques Document—NO_X Emissions from Process Heaters (Revised), OAQPS (September 1993).

[122] See 79 FR 9352.

[123] 40 CFR 51.308(e). Alternatively, plans may include an emissions trading program or other alternative that achieves greater reasonable progress toward natural visibility conditions than source-specific limits. No such alternative is at issue here.

[124] *Id.* See also CAA section 302(y), 42 U.S.C. 7602 (defining FIP as ''a plan (or portion thereof) promulgated by the Administrator to fill all or a portion of a gap or otherwise correct all or a portion of an inadequacy in a State implementation plan, and *which includes enforceable emission limitations or other control measures.*'').

[125] See 40 CFR 51.308(e) and BART Guidelines section V, 70 FR 39172.

[126] SIP Supplement, Appendix D Section IX. This language appears to have been excerpted from ASARCO's own BART Demonstration. Compare *id.* with letter from Eric Hiser, Counsel for ASARCO, to Balaji Vaidyanathan, ADEQ dated March 20, 2013 (''ASARCO' BART Demonstration'') at 5.

[127] 40 CFR 51.301.

[128] ASARCO BART Demonstration at 5 (citing BART Guidelines section IV.C).

standard cubic meter (mg/dscm) non-sulfuric acid particulate matter'' and that ''[c]ompliance with this limit would be determined by annual testing in accordance with Section 63.1450(b) and continuous monitoring of scrubbing liquid flow rate over the final two towers in the acid plant established, reestablished and maintained in accordance with Section 63.1444(h).''[129] For the secondary off-gas stream, ASARCO explained that Subpart QQQ ''sets limit of 23 mg/dscm PM'' with annual compliance testing in accordance with Section 63.1450(a).[130]

Given that ASARCO relied on the Subpart QQQ requirements as the basis for its own streamlined BART analysis for PM_{10}, EPA considers it appropriate to include these requirements in the FIP. Incorporating these requirements into the FIP also fulfills the requirements of 40 CFR 51.308(e) for promulgation of BART emission limitations and is consistent with the BART Guidelines, which allow for streamlined BART analyses, such as the one EPA approved for PM_{10} at the Hayden Smelter, as long as the ''most stringent controls available are made federally enforceable for the purpose of implementing BART.'' [131] Therefore, we are finalizing the incorporation of the requirements of Subpart QQQ into the FIP.

Comment: ASARCO stated that the CAA's general SIP/FIP provisions do not support EPA's argument that sources for which there are no additional control requirements must nonetheless have emission limits established. ASARCO also stated that EPA's proposal is unacceptable because it suggests that where a state elects not to include a source in a SIP, it must include emission limits in the SIP that limit the non-included source's emissions to its baseline, a requirement not found in the CAA and unworkable as a practical matter.

Response: We do not agree with this comment. First, we note that the statutory and regulatory provisions cited in footnote 179 of our proposed rule (CAA section 110(a)(2)(F) and 40 CFR 51.212(c), 51.308(d)(3)(v)(C) and (F)) are not the only basis for including emission limitations and related compliance requirements for PM_{10} in the FIP. Several provisions of the CAA and EPA's regulations require the promulgation of enforceable emission limitations in SIPs and FIPs generally, and in regional haze plans specifically. In particular, CAA section 110(a)(2)(A) requires SIPs to ''include enforceable emission limitations and other control measures, means, or techniques . . . as may be necessary or appropriate to meet the applicable requirements of [the CAA].'' [132] One of the ''applicable requirements'' of the CAA is that plans contain ''such emission limits . . . as may be necessary to make reasonable progress'' toward natural visibility conditions, including provisions for BART and a LTS.[133] Under the RHR, plans must contain ''emission limitations representing BART'' for all subject-to-BART sources, as well as (1) a schedule for compliance with BART emission limitations for each source subject to BART; (2) a requirement for each BART source to maintain the relevant control equipment; and (3) procedures to ensure control equipment is properly operated and maintained.[134] Furthermore, the LTS must include consideration of ''emission limitations and schedules for compliance to achieve the reasonable progress goal'' and the ''enforceability of emission limitations and control measures.'' [135] Among the measures needed to ensure the enforceability of emission limits (including BART limits) are requirements for monitoring, recordkeeping, and reporting, as authorized by CAA section 110(a)(2)(F) and 40 CFR 51.212(c).

Second, contrary to ASARCO's suggestion, the Hayden Smelter is included in the Arizona RH SIP. In particular, while the State erroneously found that the Hayden Smelter was not ''subject-to-BART'' for PM_{10}, the SIP nonetheless included a BART determination for PM_{10} at the Hayden Smelter. EPA disapproved the State's not-subject-to-BART finding, but approved its BART determination that existing controls constitute BART for PM_{10}. Thus, a BART determination for PM_{10} for the Hayden Smelter is part of the approved Arizona RH SIP. However, the SIP did not include any enforceable emission limitations or related compliance requirements to implement this determination. Therefore, we found that the SIP did not meet the requirements of 40 CFR 51.212(c) and 51.308(e)(1)(iv) and (v).[136] We also disapproved the State's RPGs and portions of its LTS because the SIP did not include enforceable emission limits to implement the State's BART determinations.[137] We are now required to promulgate a FIP to fill the gaps resulting from disapproved portions of the SIP. Thus, we are required to promulgate enforceable emission limitations to implement the State's BART determination for PM_{10} at the Hayden Smelter.

Finally, we do not agree that the promulgation of enforceable emission limits where no new controls are required is ''novel.'' As explained above, inclusion of such limits is a requirement of the RHR, and EPA has previously promulgated such limits, even where no additional controls were required for BART.[138] Even where existing controls represent BART, there must be an emission limitation that reflects ''the degree of reduction achievable'' [139] by such controls.

Comment: ASARCO stated that EPA has no legal basis for imposing additional limits on PM beyond the existing limits at the Hayden Smelter given that the PM emissions from the smelter contribute 0.04 dv or less to regional haze. Thus, further limits are not necessary to achieve the RPGs. ASARCO asserted that the LTS also does not require emission limits.

Response: We do not agree with this comment. As explained above, the promulgation of PM_{10} limits for the BART-eligible units at ASARCO Hayden is required under 40 CFR 51.308(e). With regard to the requirements of the LTS, in addition to the requirement cited by the commenter, 40 CFR 51.308(d)(3)(v)(F) requires consideration of the ''enforceability of emission limitations and control measures'' (including BART emission limitations) as part of the LTS.

6. Other Comments

Comment: ASARCO stated that a CEMS on the bypass stack, as EPA has proposed at CFR 51.145(l)(6)(i), is impractical and that the stack is actually a shutdown ventilation duct used to redirect in-transit SO_2 and other gases out of the work environment in the event that the primary ventilation system becomes unavailable. ASARCO stated that events leading to the use of the shutdown ventilation duct are always associated with the cessation of

[129] Id.

[130] Id.

[131] BART Guidelines section IV.D, 70 FR 39165.

[132] 42 U.S.C. 7410(a)(2)(A). See also *Montana Sulphur & Chemical Co.* v. *EPA,* 666 F.3d 1174, 1196 (9th Cir. 2012) (''EPA correctly reads 42 U.S.C. [ ] 7410(a)(2) as requiring states to include enforceable emission limits and other control measures in the plan itself.'').

[133] CAA section 169A(b)(2), 42 U.S.C. 7491.

[134] 40 CFR 51.308(e)(1)(iv), (v).

[135] § 51.308(d)(3)(v)(C) and (F).

[136] 78 FR 46159.

[137] 78 FR 46171.

[138] See, e.g. 77 FR 57884 (explaining that BART emission limits must be established for all pollutants subject to review, even where no new controls are required); id. at 57916 (establishing an SO_2 BART limit for Holcim Cement Plant based on no new controls).

[139] 40 CFR 51.301.

smelting and converting and can be planned or unplanned.

ASARCO explained that the estimated annual SO_2 emissions resulting from 60 events per year (based on average process parameters measured during GCT's engineering study of the current system, assuming 30 unplanned events at full calculated mass SO_2 and 30 planned events at reduced SO_2 accounting for the clearing of the gas before shutdown) are 2.81 tons for the BART-eligible units. ASARCO considered this amount, less than 0.09 percent of the post-improvement SO_2 emissions, to be *de minimis.*

ASARCO stated that it also considered deployment of a SO_2 CEMS to quantify emissions resulting from use of the shutdown ventilation duct to be impractical because it would require ranging of the concentration analyzer and flow measurement instrumentation to enable quantification of the emissions during the infrequent and very brief events, while recording zero/near zero levels the majority of the time. The relative accuracy test audit (commonly called ''RATA'') required could only be done by passing representative-strength SO_2 gas past the analyzer for test periods totaling several hours, a situation that cannot occur (bypassing process gas while operating).

Response: We agree with this comment. Because of the difficulties involved in operating a CEMS on a bypass stack, we have modified the BART determination to allow the Hayden Smelter to use test data to quantify emissions during normal startups and shutdowns, provided the facility is operated according to a startup and shutdown plan.

Comment: AMA asserted that EPA should extend the compliance deadline in the rule, noting that if the rule continues as scheduled (promulgation by late June), the compliance date would be in June 2017. According to AMA, this is just months prior to the deadline of October 4, 2018, for Arizona to comply with the 1-hour SO_2 NAAQS, meaning that the smelters would have to have completed their projects to reduce SO_2 emissions to prevent causing or contributing to violations of the NAAQS. AMA noted that the two smelters, as indicated by their owners ASARCO and FMMI, are already planning to substantially modify their plants resulting in large SO_2 reductions in order to prevent violations of the SO_2 NAAQS, which will cost a significant amount of money, an amount higher than what EPA would consider reasonable under BART. AMA asked that EPA consider this significant undertaking by the two smelters and align the BART compliance deadline with the SO_2 attainment deadline.

AMA added that if nothing else, considering the projects the two smelters are undertaking, the EPA should consult with ASARCO and FMMI to ensure that the final rule does not interfere with plans the smelters have to reduce SO_2 emissions in order meet the 1-hour SO_2 NAAQS. AMA stated that coordination of the BART requirements with the facilities' effort to comply with the new SO_2 NAAQS is necessary to maintain the viability of these smelters, thereby preserving high-paying jobs and adding new jobs as the smelters install additional controls to comply with the CAA's visibility requirements and other programs.

Response: We partially agree with this comment. The BART level of control in the FIP is a performance standard. We do not prescribe any particular method of control. As a result, we do not anticipate any incompatibility with any changes that may be needed to comply with any attainment plan required by the 1-hour SO_2 NAAQS. With regard to the compliance deadline, we note that Arizona is required to develop a SIP that provides for attainment of the 1-hour SO_2 NAAQS as expeditiously as practicable, but no later than October 4, 2018.[140] Furthermore, as explained in EPA's Guidance for 1-hour SO_2 Nonattainment Area SIP Submissions ''. . . EPA expects attainment plans to require sources to comply with the requirements of the attainment strategy at least 1 calendar year before the attainment date.'' [141] Therefore, the Hayden and Miami Smelters would be required to comply with the attainment strategy by January 1, 2017.[142] Accordingly, the expected source compliance date under the 1-hour SO_2 NAAQS actually precedes the proposed compliance date in the RH FIP of three years from promulgation of the final rule (i.e., about July 2017).

Furthermore, based on additional information received during the comment period, we have decided to extend the compliance deadline for the secondary control system at the Hayden Smelter by an additional year (i.e., to about July 2018). As explained elsewhere in response to comments and in our revised BART analysis for the Hayden Smelter, our BART determination for the secondary stream now reflects the use of an amine scrubber rather than acid plant. We are not aware of any instances of an amine scrubber being used at any similar facility in the United States. Therefore, we no longer consider three years to be sufficient time for design, construction, and a shakedown period. Accordingly, we are finalizing a compliance deadline of four years from publication of the final rule for the requirements applicable to the secondary stream. We are retaining the proposed compliance deadline of three years from publication of the final rule for the requirements applicable to the primary stream.

Finally, we also note that, during the development of our proposed FIP, we requested and received information from ASARCO and FMMI regarding control upgrades planned for purposes of attaining the 1-hour SO_2 NAAQS.[143] During the comment period on the proposed FIP, we received more detailed additional information from both companies.[144] We have also met with representatives from both companies.[145] As described elsewhere in this document, we have made certain revisions to the regulatory text applicable to the smelters to ensure that there is no incompatibility between the requirements of the RH FIP and the smelters' plans to ensure attainment of the 1-hour SO_2 NAAQS.

D. Comments on the Miami Smelter

1. General Comments

Comment: ADEQ stated that EPA's disapproval of ADEQ's SO_2 BART determinations for the Miami and Hayden Smelters is unsupported. Similarly, AMA, NMA and FMMI requested that EPA reconsider its decision to disapprove these BART determinations. In particular, FMMI asserted that once EPA accounts for the technical deficiencies in its own BART analysis, the Agency will conclude that additional controls at the Miami Smelter are not justified as BART.

Response: We do not agree with these comments. Our action on the Arizona RH SIP is now final, and the commenters have cited no legal basis for EPA to reconsider that action. Moreover, the commenters have mischaracterized EPA's disapproval of Arizona's SO_2 BART determinations for the copper smelters, which was based on multiple

[140] 78 FR 47190, 47193.

[141] Memorandum from Stephen Page to Regional Air Division Directors, Guidance for 1-Hour SO_2 Nonattainment Area SIP Submissions (April 23, 2014) at 10.

[142] Id.

[143] See Letters from Colleen McKaughan, EPA, to Jack Garrity, ASARCO, and Derek Cooke, FMMI (June 27, 2013); Letter from Jack Garrity, ASARCO, to Thomas Webb, EPA (July 11, 2013); letter from Derek Cooke, FMMI, to Thomas Webb, EPA (July 12, 2013).

[144] See comment letters from ASARCO and FMMI.

[145] See Memo Regarding Communications with ASARCO on RH FIP; Memo Regarding Meeting with FMMI (April 28, 2014).

deficiencies including the lack of any five-factor analysis and any enforceable emission limits. The commenters' assertions regarding purported deficiencies in EPA's own BART analysis are addressed in other responses.

Comment: ADEQ asserted that EPA's disapproval of ADEQ's determination that the Miami Smelter is not subject to BART for NO_X has no statutory basis, and that EPA's imposition of BART for NO_X emissions is arbitrary and capricious.

Response: To the extent this comment concerns our action on the Arizona RH SIP, it is untimely, as that action is now final. To the extent it concerns our proposed FIP, we do not agree with its substance for the reasons set forth in response to similar comments on the Hayden Smelter above.

2. BART Analysis and Determination for SO_2 From the Converters

Comment: FMMI noted that Converter 1 has been out of service since the mid-1980s, and the company has no plans to reactivate it. Therefore, all of the SO_2 emissions from the converter aisle should be attributed to Converters 2–5, which are the BART-eligible units.

Response: We appreciate the clarification regarding Converter 1. Because emissions from the different converters cannot be separated for technical reasons, we treated all converter emissions as BART-eligible. Thus, the fact that Converter 1, which is not a BART-eligible unit, is inoperable, does not affect our BART analysis. We have revised the regulatory text to clarify that the requirements of the FIP do not apply to Converter 1.

Comment: FMMI asserted that the ''secondary hood'' required by 40 CFR 63.1444(d)(2) does not apply to Miami Smelter's Hoboken converters because the Miami Smelter does not use Peirce-Smith converters. FMMI also requested that EPA structure the FIP in a way that will ensure consistency between any new BART requirements and the controls that FMMI intends to install to ensure that the emissions from the Miami Smelter do not interfere with attainment of the 1-hour SO_2 NAAQS. ADEQ, AMA and NMA echoed these comments.

Response: We agree that 40 CFR 63.1444(d)(2) does not apply to the Miami Smelter converters. Our reference to that provision of the NESHAP in the proposed FIP was not intended to suggest otherwise. Rather, it was intended to ensure that FMMI install a secondary capture system to collect emissions that currently escape the existing primary capture system at the Miami Smelter's converters. This secondary system for the Hoboken need not be identical to the secondary capture system used for the Peirce-Smith converters. Rather the FIP provides FMMI with substantial flexibility to design a capture system appropriate for the unique configuration of its converters, provided that FMMI demonstrates that this system is designed and operated to maximize collection of process off-gases vented from the converters. In fact, the aisle capture system that FMMI plans to install is itself a type of secondary capture system that could meet the requirements of the FIP, provided that it is optimized to capture the maximum amount of process off-gases vented from the converters. We have revised the regulatory language to clarify this requirement by removing the reference to 40 CFR 63.1444(d)(2) and defining ''capture system'' to reflect the broad range of components that could be included in the system.

Comment: FMMI stated that it is not technically feasible to route additional captured SO_2 from the converters to the acid plant. FMMI explained that while, in an earlier letter, it had stated that SO_2 emissions collected by the roofline capture system would be routed to the acid plant, this was an error since the routing is not technically feasible. Specifically, FMMI asserted that ''the SO_2 concentrations in this gas stream are much too low and the flow volume too high to allow the existing acid plant to handle this stream'' and that ''gases from the aisle capture system would also have significant heating requirements, and associated air emissions, if they were to be routed to the existing acid plant.'' ADEQ, AMA, and NMA echoed FMMI's concerns regarding the technical feasibility of the proposed requirements for SO_2.

Response: We do not agree that the FIP requirements for the Miami Smelter are technically infeasible. In particular, as explained in response to comments from ASARCO above, while higher flow volumes and lower SO_2 concentrations may reduce the control efficiency and cost-effectiveness of a double contact acid plant, they do not render use of such an acid plant infeasible. Nonetheless, if FMMI determines that the existing double contact acid plant is not adequate to treat emissions captured by the secondary capture system, it may use an alternative approach to comply with the requirements of the FIP. In particular, because the FIP does not prescribe any particular method of control, any combination of control devices may be employed to meet the 99.7 percent control requirement. For example, FMMI may continue to use the existing double contact acid plant and tailstack scrubber on the primary stream and construct a new scrubber to treat the secondary stream, as it currently plans to do. Because the control efficiency is calculated on a cumulative mass basis, it will be determined largely by the degree of control achieved by the existing double contact acid plant and tailstack scrubber, which treat the vast majority of emissions from the converter aisle.[146]

For example, consider a situation where 100,000 pounds of SO_2 is emitted by the converters.[147] Of this 100,000 pounds, 99 percent is captured by the primary capture system and ducted to the acid plant system, which has a control efficiency of 99.8 percent.[148] The remaining 1 percent is captured by the secondary capture system and ducted to a caustic scrubber with a control efficiency of 90 percent.[149]

Ducted to acid plant: 99 percent of 100,000 lbs = 99,000 lbs
Controlled by acid plant: 99.8 percent of 99,000 lbs = 98,802 lbs
Ducted to scrubber: 1 percent of 100,000 lbs = 1,000 lbs
Controlled by scrubber: 90 percent of 1,000 lbs = 900 lbs
Overall control efficiency: (98,802 + 900)/100,000 = 0.997 = 99.7 percent

Thus, FMMI can meet this overall control efficiency by improving the efficiency of the primary capture system, improving the efficiency of the primary control system (e.g., increasing the use of cesium promoted catalyst, increasing operation of the tailstack scrubber, or converting the tailstack scrubber from a magnesium oxide scrubber to a caustic or amine scrubber),

[146] FMMI previously estimated a capture efficiency of up to 98 percent for the primary capture system. Letter from Derek Cooke, FMMI to Tom Webb, EPA (January 25, 2013) at 5. More recently, FMMI has indicated that this capture efficiency will be improved by installation of actuated mouth covers, Freeport-McMoRan Miami Inc. BART Analysis (March 2014) (FMMI BART Report), at 2–4, and could be as high as 99.57 percent. See Memorandum from J. Nikkari, Hatch to C. West, FMMI (November 14, 2013) (Hatch Memo), section 3.1.2.

[147] Present emissions from the converter aisle are estimated to be 161,564. Id.

[148] The estimated control efficiency of the acid plant and tailstack scrubber system is currently 99.69 percent. Id. section 3.4. This control efficiency could be increased through increased use of the tailstack scrubber, as described further below, and conversion of tail gas scrubber to utilize caustic (NaOH), to enhance the SO_2 control efficiency, which FMMI intends to do. See ADEQ Significant Permit Revision Application, ADEQ Class I Permit Number 53592, Smelter Expansion & Enhanced Controls; (July 2013) (FMMI Permit Application), section 4.1.1.

[149] Id. section 4.1.4 (''Captured SO_2 emissions were assumed to be controlled by the scrubber with an average efficiency of roughly 90 [percent].''

maximizing the efficiency of any new equipment installed to control emissions from the secondary capture system, or any combination of these options.

Comment: FMMI asserted that by using a mass-balance approach to estimate SO_2 emissions from the converter aisle, EPA had overestimated emissions and thereby overestimated the visibility improvement and underestimated the cost per ton of additional SO_2 controls. FMMI described ''its own attempts to measure fugitive SO_2 emissions'' (i.e., the Roofline Study) and asserted that EPA should have used emission estimates based on the Roofline Study, instead of emission estimates based on a mass-balance method, which FMMI characterized as ''highly imprecise'' and ''unclear.'' FMMI further noted that ''EPA's calculation does not incorporate the effect of the new converter mouth covers, which reduce process fugitive emissions from the converters.'' Finally, FMMI concluded that EPA's use of a mass-balance approach is contrary to the BART Guidelines, which state that the baseline emission rate ''should represent a realistic depiction of anticipated annual emissions from the source.'' Similarly, Earthjustice and NMA both questioned EPA's estimate of uncollected SO_2 emissions.

Response: We disagree that we overestimated uncaptured baseline SO_2 emissions.[150] We estimated uncaptured baseline SO_2 emissions from the converters using the following mass-balance approach: (1) We calculated the amount of sulfur in the concentrate processed by the smelter using throughput and composition data provided by FMMI for the maximum production day and a baseline year (2010); (2) we assumed full conversion of sulfur to SO_2; (3) we apportioned 65 percent of the SO_2 to the smelter aisle and 35 percent to the converter aisle based on information provided by FMMI; [151] and (4) We assumed 95 to 98 percent capture of emissions by the Hoboken converters' side flues.[152] We consider this modified mass-balance approach to provide a more accurate depiction of emissions than the mass-balance approach in the Arizona RH SIP, which FMMI notes ''has proven to be unreliable.''

With regard to the Roofline Study, while we encourage ongoing efforts by FMMI to increase understanding of emissions that bypass the existing capture systems, we do not agree that the results of the Roofline Study are more accurate than the values that we used in our emission calculations. The Roofline Study measured emissions at four points along the open roof.[153] Given that the roof and sides of the building are not fully enclosed, it is very unlikely that these four points accurately reflect all of the emissions currently escaping from the converter aisle.[154] Indeed, the authors of the Roofline Study acknowledge that the emission rates presented ''may not adequately measure the true value of the parameter'' and are presented for ''illustration purposes.'' [155] We also note that, following the close of the comment period, we received from FMMI a report summarizing the results of an ''extended roofline sampling campaign'' from approximately March 2013 through December 2013.[156] While this extended sampling effort is intended to provide ''more representative, long-term roofline SO_2 emission estimates for current operation,'' [157] it still does not account for ''unmeasured fugitive emissions.'' [158] Therefore, we do not agree that this the Roofline Study necessarily provides a more accurate estimate of SO_2 emissions than the mass-balance method we used.

Furthermore, even assuming for the sake of argument that FMMI's revised emission estimates based on the Roofline Study are correct, uncaptured baseline emissions from the converters would be 547 tpy.[159] In order to reach the 109 tpy estimate of uncaptured SO_2 emissions from the converters employed in its BART analysis, FMMI relies on an unverified and unenforceable 80 percent capture efficiency from improvements to the converter mouth covers.[160] However, use of this ''expected'' capture efficiency does not provide an adequate basis for reducing baseline uncaptured emissions from the converters from the current emissions level, as measured estimated by the Roofline Study. As explained in the BART Guidelines, in the absence of enforceable limitations, you calculate baseline emissions based upon continuation of past practice.[161] Although we support measures to increase the amount of emissions captured by the side flue and ducted to the acid plant, at present, there is no enforceable emission limitation that ensures that the mouth covers will achieve 80 percent capture of the existing uncaptured converter emissions. Therefore, even if the extended roofline study did provide an accurate estimate of uncaptured emissions and FMMI's allocation of those emissions among various emission units was correct, baseline uncaptured emissions from the converters would be at least 547 tpy, not 109 tpy, as indicated by FMMI.

Comment: FMMI stated that EPA's reliance on cost data from the Hayden Smelter underestimates the costs of additional controls because the Peirce-Smith Converters used at the Hayden Smelter are fundamentally different from the Hoboken Converters used by FMMI. FMMI asserted that this and other differences in the operational configuration of the two facilities means that the types of controls available and their respective costs are not transferrable between facilities. FMMI noted that it had prepared its own five-factor analysis, which FMMI stated relies upon the most up-to-date cost estimates that FMMI has received from Hatch Engineering, which designed the smelter project including the upgraded roofline capture system and the new aisle scrubber. FMMI asserted that this cost data presented in the FMMI BART Report is the best and most accurate cost information that is available to FMMI and EPA at this time and that EPA should rely upon this cost data in any BART analyses it conducts for the Miami Smelter.

[150] FMMI describes uncaptured emissions from the converters as ''fugitive emissions.'' However, under the RHR, ''fugitive emissions'' are defined as ''those emissions which could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening.'' 40 CFR 51.301. Because FMMI is planning to capture a significant portion of these emissions and route them to a scrubber, they are, by definition, not fugitive.

[151] Letter from Derek Cooke, FMMI to Thomas Webb, EPA (July 12, 2013).

[152] See Letter from Derek Cooke, FMMI to Tom Webb, EPA (January 25, 2013) at 5 (reporting a range of values of 87 percent to 98 percent). We used the high end of this range to ensure that our cost per ton estimates were conservative. That is, we assumed the baseline level of uncaptured emissions was lower and that there were therefore fewer emission reductions available, resulting in higher cost per ton values.

[153] *Roofline Study,* prepared by Trinity Consultants for Freeport McMoRan, Inc. (November 2013).

[154] We note that the FMMI Permit Application indicates that the roofline capture system will collect 84 percent of ''process fugitives'' (i.e. currently uncaptured emissions) from the converters, meaning that the remaining 16 percent will escape elsewhere. Given that FMMI is not even attempting to capture any emissions at the roofline now, we expect that more than 16 percent of presently uncaptured emissions are bypassing the roofline monitors and are therefore not reflected in the results of the roofline study.

[155] Id. Section 5.1.

[156] Report: Extended Roofline SO_2 Emissions Summary (March 2014).

[157] Id. section 1, page 2.

[158] Id. section 3.1, page 2.

[159] FMMI BART Report, Appendix A (BART-Eligible Baseline Emissions Calculations), Table A–1 (BART Baseline Emissions).

[160] Id. note 4.

[161] 40 CFR part 51, appendix Y, section IV.D.4.d.2.

Response: In order to avoid potential disclosure of cost data for the Miami Smelter claimed as CBI by FMMI, we based our cost analysis for the construction of secondary hooding, wet scrubbers and similar, though not identical, equipment on non-confidential data provided by ASARCO for the Hayden Smelter. FMMI included additional non-confidential cost information in the BART Report it submitted with its comments. In addition, following the close of the comment period, FMMI withdrew its CBI claim from its prior submittals, including Appendix B to the BART Report.[162] We have reviewed the BART Report and found that it contains a number of incorrect or unsupported assumptions that improperly inflate the $/ton estimates for the various control options presented. First, it assumes capture of emissions at the roofline rather than in the converter aisle itself. This design does not attempt to capture or control emissions until after mixing with ambient air inside the building, resulting in very high volumes of very low-concentration gases that are more costly to control. Second, the cost estimates include costs of control for non-BART units.[163] Third, the cost estimates are not supported by sufficient documentation, such as vendor quotes.[164] Finally, the cost estimates include costs not permitted by the CCM (e.g. owner's costs).[165] Therefore, we do not consider the cost estimates provided in FMMI's BART Report to accurately reflect the cost of potential BART controls.

Nonetheless, in order to further evaluate the cost-effectiveness of SO_2 controls for the converters, we have conducted a supplemental cost analysis based on the cost information provided by FMMI. In this analysis, we have employed the cost estimates provided by FMMI, but revised the calculations to reflect the present level of uncaptured emissions from the converter aisle based on the mass-balance approach described above.[166] According to the supplemental analysis, the cost-effectiveness of the control options evaluated by FMMI falls in the range of $2,386 to $5,478 per ton of SO_2. The upper end of this range is higher than we have previously found reasonable for purposes of BART. However, for the reasons described in the preceding paragraph, this estimate significantly overstates the costs of controlling the BART-eligible emissions. Accordingly, we do not agree that we should employ these costs in our BART analysis.

Comment: FMMI asserted that neither the 99.7 percent control efficiency nor the 99.8 percent alternative control efficiency proposed by EPA could be feasibly measured at FMMI for three reasons. First, differences in precision between the acid plant inlet (percent) and tailstack (ppm) CEMS ''mean that the two CEMS cannot be compared with an acceptable degree of accuracy . . .'' Second, ''the measurement of acid plant inlet and tail stack gas concentrations to determine control efficiencies contains an underlying assumption that there is a constant amount of time that it takes gases to pass through the acid plant.'' Third, an expected 2 percent measurement drift in the acid plant inlet CEMS exceeds the measured concentration of the tailstack CEMS measurement span.

Response: We disagree that it is technically infeasible to measure the required 99.7 percent control efficiency. We recognize that the acid plant inlet CEMS will have a much greater span than the tailstack CEMS. However, as explained in response to similar comments on the Hayden Smelter, because the emission limit is a percent control on a cumulative mass basis, the measurement of the inlet CEMS can vary appreciably without affecting compliance status.

In addition, the compliance method in the proposed regulatory text makes no assumptions about residence time in any control device because it does not rely on instantaneous control efficiencies. Instead, it compares uncontrolled and controlled total masses over a 30-day period. Since the control efficiency data provided by FMMI were based on annual data, however, we have modified the final determination to be a rolling 365-day average rather than a rolling 30-day average.

Finally, in response to a request from FMMI,[167] we have added an additional option for measuring SO_2 levels in the secondary stream. In particular, if FMMI chooses to control the secondary stream using an alkali scrubber, then it may calculate the pounds of SO_2 entering the scrubber based on the amount of alkali added to the scrubber liquor, rather than installing an inlet CEMS.

Comment: FMMI requested clarification concerning EPA's proposal to calculate control for a combination of controlled and uncontrolled emissions. FMMI noted that EPA's calculated control efficiency of 99.69 percent excluded the bypass stack.

Response: We calculated the acid plant's control efficiency based on annual SO_2 emissions from the acid plant tailstack and annual production of sulfuric acid.[168] This is a level of control that FMMI has demonstrated achieving in practice when emissions are ducted to the acid plant. Emissions from the bypass stack consist of uncontrolled emissions released during startup, shutdown, and malfunction events.[169] Because BART emission limits apply at all times, including periods of startup, shutdown, and malfunction, the control efficiency requirement in the FIP includes uncontrolled emissions from the bypass stack. FMMI reported annual average SO_2 emissions from the bypass stack of only 65 tpy in 2011 to 2012, and projected zero SO_2 emissions from the bypass stack following its planned control upgrades.[170] Therefore, any emissions from the bypass stack will be *de minimis* and will not impair FMMI's ability to meet the 99.7 percent control efficiency requirement on a rolling 365-day basis.

Comment: FMMI stated that its own five-factor analysis demonstrates that existing controls meet BART, additional controls are not justified, and EPA's contrary finding is based on a technically flawed BART analysis.

Response: We do not agree with this comment. As described above, FMMI's five-factor analysis relies on unrealistically low estimates of uncontrolled emissions and unrealistically high estimates of control costs, resulting in improperly inflated $/ton estimates. Based on these unrealistically high $/ton values, the FMMI BART Report improperly concludes that no additional controls are cost-effective. Because of the flaws

[162] Letter from Jay Spehar, FMMI, to Geoffrey Glass, EPA (May 7, 2014).

[163] See, e.g., BART Report page 3–15 (''Annual scrubbing reagent costs were calculated from total estimated SO_2 design reductions (i.e., inclusive of emission units that are not BART-eligible).''

[164] See 70 FR 39166 ''The basis for equipment cost estimates also should be documented, either with data supplied by an equipment vendor (i.e., budget estimates or bids) or by a referenced source.''

[165] BART Report page 3–15 (''Owner's costs were likewise factored as a percentage of the total direct plus indirect cost. A value of 6.7 percent was applied for this analysis.'')

[166] Memo regarding BART Cost Using FMMI Data, June 11, 2014.

[167] Phone call between FMMI and EPA, May 21, 2014.

[168] See appendices C and J to FMMI's Jan. 2013 letter. See also, Memorandum from J. Nikkari, Hatch to C. West, FMMI (November 14, 2013) (Hatch Memo), section 3.4 (calculating 99.69 percent control efficiency for existing acid plant and tail stack scrubber system).

[169] Letter from Derek Cooke, FMMI, to Thomas Webb, EPA (January 25, 2013) at 7.

[170] ADEQ Significant Permit Revision Application, ADEQ Class I Permit Number 53592, Smelter Expansion & Enhanced Controls; (July 2013) (FMMI Permit Application), Tables A–2 and A–b.

underlying these cost analyses, we do not agree with this conclusion.

Comment: FMMI stated that EPA should consider FMMI's planned pollution controls as a better-than-BART alternative. FMMI asserted that EPA is aware that FMMI is in the process of obtaining a permit revision to install significant new controls to ensure the smelter does not cause or contribute to a violation of the 1-hour SO_2 NAAQS. ADEQ also noted that FMMI is currently working with ADEQ to revise its permit to accommodate a facility expansion, and is evaluating controls necessary to comply with the 1-hour SO_2 NAAQS.

Response: EPA is willing to consider FMMI's planned pollution controls for 1-hour SO_2 NAAQS compliance as a potential ''better-than-BART'' alternative under 40 CFR 51.308(e)(2). However, FMMI's current proposal does not meet the requirements for a better-than-BART alternative. First, in order to qualify as a better-than-BART alternative, FMMI's proposed alternative would have to achieve more emissions reductions than BART.[171] FMMI estimates that its proposed control upgrades will result in an emission reduction of 6,054 tpy of SO_2 (future PTE minus past two-year actual).[172] The bulk of this reduction would come from smelter ''fugitives'' that FMMI estimates would be reduced from 4,836 tpy of SO_2 (actual from 2011–2012) to 288 tpy (potential). However, this is inconsistent with FMMI's BART analysis, which estimated actual baseline SO_2 emission from 2011 to 2012 as 1,033 tpy.[173] In order to make a better-than-BART demonstration, FMMI should use a consistent estimate of baseline emissions, rather than using different estimates of baseline emissions for its BART and better-than-BART analyses.

Second, FMMI's proposal would have to include a schedule for implementation, enforceable emission limitations, and monitoring, recordkeeping and reporting requirements.[174] FMMI's proposal, as set forth in its permit application and the draft permit developed by ADEQ,[175] does not include all of these elements. Therefore, it does not meet the requirements for a better-than-BART alternative. If ADEQ wishes to submit a better-than-BART alternative as a SIP revision, we will work with FMMI and ADEQ to develop such a revision.

Comment: NPS supports EPA's proposed requirements to control SO_2 emissions from the Miami Smelter.

Response: We acknowledge NPS's support.

Comment: In response to EPA's request for comment on whether a control efficiency more stringent than 99.7 percent is warranted, Earthjustice asserted that a better control efficiency is achievable, and as a result Earthjustice does not support EPA's proposed control efficiency requirement. Earthjustice indicated that the proposed control efficiency requirement appears to be the stated (and unverified) level of control currently achieved at the Miami Smelter. However, the BART Guidelines require EPA to base its analysis on the most stringent control efficiency achievable. Noting that the proposed level is lower than that proposed for the Hayden Smelter, Earthjustice stated that the control efficiency of the Miami Smelter's acid plant should be 99.93 percent or greater for the same reasons that Earthjustice put forward for the Hayden Smelter.

Response: We disagree with this comment for the reasons described in response to a similar comment regarding the Hayden Smelter. In particular, the examples of higher control efficiencies cited by the commenter are not directly comparable to the Miami Smelter because they are different types of operation.

3. BART Analysis and Determination for NO_X

Comment: AMA, FMMI, and NMA said that the proposed NO_X limits for the Miami Smelter exceed EPA's authority. The commenters asserted that because NO_X emissions from the BART-eligible sources at FMMI are below the exception threshold, the RHR provides that they may be excluded from BART analysis. The commenters indicated that they disagree with EPA's position that ''all visibility impairing pollutants will be subject-to-BART once a source is subject-to-BART for any pollutant *unless* the pollutant in question is emitted at a level below the exception threshold.'' NMA asserted that this was inconsistent with EPA's prior acknowledgment that ''it is reasonable to read [42 U.S.C 7491(b)(2)(a)] as requiring a BART determination *only* for those emissions from a source which are first determined to contribute to visibility impairment in a Class I area.'' [176] FMMI added that nothing in the CAA grants EPA authority to establish emissions caps to ensure that facilities remain at or below the exception threshold. Even if EPA's position were justified, baseline NO_X emissions from the smelter, which FMMI has submitted to EPA, indicate that the BART-eligible equipment only emits 21.7 tpy, which the commenters indicated is far below the BART exception threshold of 40 tpy. For these reasons, the commenters opposed EPA's proposal for NO_X at the Miami Smelter.

FMMI and NMA also stated that EPA's partial disapproval of the Arizona RH SIP does not affirmatively demonstrate that the smelter is subject-to-BART for NO_X, and EPA's proposal to subject FMMI to a BART analysis for NO_X is legally deficient. According to AMA, if the source has been determined to be subject to BART for a particular pollutant, EPA has the following two options: (1) Impose BART controls based on the outcome of the five-factor analysis or (2) determine that a source is *de minimis* and exempt it from a BART analysis. AMA said that the NO_X emissions cap is arbitrary and capricious and should not be included in the final rule.

Response: We acknowledge that we inadvertently omitted from our proposal a complete explanation of the basis for our proposed determination that the Miami Smelter is subject to BART for NO_X. However, we do not consider this omission prejudicial because, as noted by FMMI, the rationale for this proposed determination is the same as the rationale for our disapproval of ADEQ's determination that the Miami Smelter was not subject to BART for NO_X.[177] FMMI commented extensively on this element of the SIP action and included these comments as an attachment to its FIP comments. EPA responded to these comments in the context of our SIP action.[178] As explained in our final action on the SIP:

> Once a source is determined to be subject to BART, the RHR allows for the exemption of a specific pollutant from a BART analysis only if the PTE for that pollutant is below a specified *de minimis* level. Although a small

[171] See 40 CFR 51.308(e)(2)(i)(E) and (3).

[172] ADEQ Significant Permit Revision Application, ADEQ Class I Permit Number 53592, Smelter Expansion & Enhanced Controls; (July 2013) (FMMI Permit Application), Table A–4.

[173] FMMI BART Analysis Table A–1.

[174] See 40 CFR 51.308(e)(2)(iii).

[175] ADEQ Air Quality Class I Permit # 53592 (As Amended by Significant Revision No. 58409) Freeport McMoRan Inc. Miami Smelter (Draft, April 22, 2014).

[176] Regional Haze Regulations and Guidelines for Best Available Retrofit Technology (BART) Determinations, 70 Fed. Reg. 39,104, 39,116 (July 6, 2005) (emphasis added).

[177] See 79 FR 9347 (referring to disapproval of not-subject-to-BART finding in the Arizona RH SIP); 77 FR 75721 (proposed disapproval of not-subject-to-BART finding in the 2011 RH SIP); 78 FR 29301 (proposed disapproval of not-subject-to-BART finding in the RH SIP Supplement).

[178] See 78 FR 46156 (responses to FMMI comments regarding proposal on 2011 RH SIP) and 46170–71 (responses to FMMI comments regarding proposal on RH SIP Supplement).

pollutant-specific baseline visibility impact may be informative in determining what control option may be BART, a BART analysis is still required for any pollutant with a PTE that exceeds the *de minimis* threshold at an otherwise subject-to-BART source.[179]

The preamble to the 2005 revisions to the RHR and BART Guidelines cited by FMMI does not conflict with this interpretation. When EPA revised the RHR, we proposed to interpret CAA section 169A(b)(2)(A) to require a BART analysis for all visibility-impairing pollutants emitted by a source, regardless of amount. However, in the final rule, we explained that there were two reasonable interpretations of the statutory text:

> Section 169A(b)(2)(A) of the Act can be read to require the States to make a determination as to the appropriate level of BART controls, if any, for emissions of any visibility impairing pollutant from a source. Given the overall context of this provision, however, and that the purpose of the BART provision is to eliminate or reduce visibility impairment, *it is reasonable to read the statute as requiring a BART determination only for those emissions from a source which are first determined to contribute to visibility impairment in a Class I area.*[180]

FMMI cites the emphasized language, but omits the surrounding discussion, which explains that section 169A(b)(2)(A) could reasonably be read either to require a BART analysis for emissions of any visibility impairing pollutant from a source or to require an analysis only for emissions first determined to contribute to visibility impairment. The preamble does not state which of these two interpretations EPA was adopting. However, in the RHR, EPA retained the requirement that States make a BART determination for each ''BART-eligible source in the State that emits *any* air pollutant'' which may cause or contribute to any impairment of visibility in any Class I area.[181] The only revision made to allow for exemption of specific pollutants from a BART analysis was the addition of the *de minimis* exemption in 40 CFR 51.308(e)(ii)(C). EPA's decision to include this particular exemption, but no other, in the regulatory text makes it clear that individual pollutants may be exempted only where emissions of those pollutants are below the *de minimis* threshold. Under the commenters' theory that sources are subject-to-BART on a pollutant-by-pollutant basis, a source with an impact at a Class I area was 0.4 dv for SO_2 and 0.4 dv for NO_X would not be subject to BART at all, even though it clearly contributes to visibility impairment. EPA recognized the absurdity of this situation, and therefore chose to use the *de minimis* exceptions as the only means by which a state can avoid conducting a BART analysis for a given pollutant after the source as a whole has been deemed subject to BART.

Moreover, the *de minimis* threshold is not based on historical emissions, as suggested by FMMI, but on the source's PTE.[182] PTE is defined as ''the maximum capacity of a stationary source to emit a pollutant under its physical and operational design.'' [183] Physical or operational limitations on emissions capacity (e.g., restrictions on hours of operation) may be taken into account, but only if those limitations are federally enforceable.[184] For the Miami Smelter, the WRAP estimated an annual NO_X emission rate of 156 tpy for the units constituting the BART-eligible source.[185] FMMI has not identified enforceable physical or operational limitations that would limit potential emissions from these units to less than 40 tpy. While FMMI cites to various documents that it asserts demonstrate that the Miami Smelter's NO_X emissions are below the *de minimis* threshold, these documents consist of historical records of emissions, fuel usage, and material throughput.[186] They do not establish the maximum capacity of the BART-eligible source to emit NO_X and therefore do not demonstrate that potential NO_X emissions are less than 40 tpy. Likewise, the fact that EPA has estimated that the *historic* baseline emissions from the BART-eligible units are 38 tpy does not establish that *potential* emissions are less than 38 tpy. Unlike subject-to-BART determinations, which are made based on a source's PTE, emission rates for cost calculations in BART analyses are generally ''based upon actual emissions from a baseline period.'' [187] The PTE for the BART-eligible units at the Miami Smelters remains above 40 tpy, and the source is therefore subject-to-BART for NO_X.

Based on our five-factor BART analysis for NO_X emissions from the Miami Smelter, we proposed to determine that no additional controls are needed for purposes of BART. FMMI supports this conclusion, but argues that there is no need for an emission limitation to implement this determination. We do not agree. Regional haze implementation plans must contain ''emission limitations representing BART'' for all subject-to-BART sources.[188] In particular, either the State or EPA must establish an enforceable emission limit for each subject emission unit at the source and for each pollutant subject to review that is emitted from the source.[189] This requirement applies even where BART is determined to be consistent with existing controls. Otherwise, emissions could increase to a level where additional controls would be warranted for BART, but no mechanism would exist to require such controls. Contrary to FMMI's suggestion, additional BART controls could not be required by EPA in the next regional haze plan for Arizona, as BART is only required in the first regional haze plan and cannot be deferred to future planning periods.[190] Thus, an emission limit for NO_X is needed to comply with 40 CFR 51.308(e).

Comment: Earthjustice stated that EPA's NO_X emissions analyses and BART determinations are fatally deficient because the estimate of BART-eligible NO_X emissions is based on the combustion of natural gas alone, with no consideration of the formation of thermal NO_X in the converters and the electric furnace.

Response: We do not agree with this comment for the reasons provided in response to similar comments regarding the Hayden Smelter.

4. Comments on Enforceable Emission Limits for PM_{10}

Comment: FMMI asserted that ''EPA's current reliance on the NESHAP standards to ensure enforceability demonstrates that the Agency's criticism of Arizona's SIP as lacking 'emissions limits and compliance requirements' was misplaced.''

Response: We do not agree that our proposal to rely on the NESHAP provisions to ensure the enforceability of BART for PM_{10} at the Miami Smelter is inconsistent with our finding that the Arizona RH SIP lacked enforceable emission limits to implement BART. As explained in our actions on the Arizona RH SIP, ADEQ sought to rely on the NSPS requirements to ensure the enforceability of its SO_2 BART determinations for both the Hayden and Miami Smelters.[191] However, under the

[179] 78 FR 46156 (citing 40 CFR 51.308(e)(1)(ii)(C)).

[180] 70 FR 39115–16.

[181] 40 CFR 51.308(e)(ii) (emphasis added).

[182] 40 CFR 51.308(e)(1)(ii)(C).

[183] 40 CFR 51.301.

[184] Id.

[185] Summary of WRAP RMC BART Modeling for Arizona, Draft#5, May 25, 2007.

[186] FMMI Comment Letter at 13, n.1.

[187] BART Guidelines, 40 CFR part 51, appendix Y, section IV.D.4.d.1.

[188] 40 CFR 51.308(e).

[189] BART Guidelines, section V.

[190] See 40 CFR 51.308(f) (requiring subsequent regional haze plans to ''evaluate and reassess all of the elements required in paragraph (d)'', i.e., RP and LTS requirements, but not BART).

[191] See 70 FR 46159.

State's interpretation, as set out in the two smelters' Title V permits, the NSPS requirements do not apply to all of the BART sources' emissions.[192] The permits also contain ''permit shields'' that limit the independent enforceability of the NSPS requirements, except to the extent that they are specifically listed in the facilities' Title V permits.[193] Therefore, NSPS provisions in the copper smelters' permits do not apply to all subject-to-BART emissions at the smelters and do not satisfy the requirements of the Act or the RHR. By contrast, the Miami Smelter's Title V Permit does not restrict the applicability of the NESHAP requirements to the acid plant.[194] Nonetheless, in order to ensure that the requisite emission limits and enforceability requirements are included in the applicable implementation plan, we are incorporating the applicable NESHAP requirements by reference as part of the final FIP for the Miami Smelter.

5. Other Comments

Comment: FMMI requested that EPA extend its proposed compliance deadline for the Miami Smelter until at least 2018. FMMI noted that ''entities in many regulated industries anticipate undertaking significant engineering and construction projects in the near term to comply with regulations promulgated to implement new 1-hour NAAQs'' and that ''the high volume of this work could lead to a shortage of skilled laborers to complete the necessary construction to install pollution control equipment.'' Accordingly, FMMI asked that EPA extend the proposed compliance deadline to 2018. AMA also asserted that EPA should extend the compliance deadline in the rule for the Miami Smelter.

Response: We partially agree with this comment. Following the close of the public comment period, FMMI submitted the construction schedule for its planned SO_2 control upgrades. The schedule indicates that FMMI will conclude construction of the roofline capture system and aisle scrubber by March 2017.[195] FMMI also indicated that a shakedown period is necessary to ensure that the capture system and scrubber can meet the requirements of the FIP.[196] Based on the additional information provided by FMMI, we agree that additional time beyond the proposed compliance deadline of three years from promulgation (i.e., roughly July 2017) is needed. However, because the averaging period for the BART limit for SO_2 has been increased from 30 days to 365 days, we do not agree that a full additional year is needed to comply with the requirements of the FIP. Therefore, we are extending the BART compliance deadline to January 1, 2018.

VII. Responses to Comments on EPA's Proposed Reasonable Progress Determinations

A. Comments on Phoenix Cement Clarkdale Plant

Comment: NPS expressed support for EPA's proposal to require emission limits for RP equivalent to SNCR to reduce NO_X at the Clarkdale Plant.

Response: We acknowledge NPS's support for the proposed RP determination. The final rule contains two compliance options: a 2.12 lb/ton emission limit calculated on a rolling 30-kiln-operating-day basis, and an 810 tpy limit calculated on a rolling 12-month basis. Both emission limits reflect the degree of emission reduction achievable with the installation and use of SNCR.

Comment: Earthjustice argued that SNCR can reach higher control efficiencies for NO_X than the 50 percent control efficiency assumed by EPA in the proposal. Earthjustice requested that EPA look more closely at the capabilities of SNCR and the specific performance of the control technology on other kilns, specifically those referenced by Earthjustice. Earthjustice asserted that such an examination would ensure that the final control efficiency selected to represent SNCR would be consistent with the actual performance of this technology at Kiln 4.

Response: We partially agree with this comment. Although the commenter notes that SNCR is capable of achieving 80 to 90 percent control in certain site-specific instances, these results typically represent the highest end of the range of SNCR performance. In addition, while such levels of control are attainable on a short-term basis, they are not necessarily consistently sustainable over longer periods, such as on a 30-day or annual basis. We note that the reports provided by Earthjustice assumed much lower control efficiencies (35 to 50 percent) for purposes of calculating cost-effectiveness, which is calculated on an annual average basis. Our use of 50 percent for the SNCR control efficiency in the BART analysis is not intended to indicate the maximum effectiveness of SNCR. Information submitted by the commenter, as well as information that we included in our proposed rulemaking, does indicate that SNCR technology is capable of achieving greater than 50 percent control efficiency at preheater/precalciner kilns under certain conditions. It is possible that a site-specific optimization program at Kiln 4 could identify operating parameters and conditions that could result in an SNCR control efficiency greater than 50 percent. As noted in our proposed rulemaking, the optimization report from the CalPortland Mohave plant indicates a range of SNCR efficiency between 30 and 60 percent for a preheater/precalciner kiln (the same type as Kiln 4 at the Clarkdale Plant). However, site-specific information is not available for the Clarkdale Plant. In the absence of information indicating the extent to which the design and operating conditions at higher performing kilns are similar to, or replicable at, the Clarkdale Plant, we do not consider it appropriate to base our analysis on the higher control efficiency values. In developing the SNCR control efficiency used in our analysis, we examined the most stringent level of control attributed to SNCR at other similar facilities (as a retrofit on preheater/precalciner kilns) in other regulatory actions. These results are summarized in our proposed rule, and indicate that a 50 percent control efficiency is the most stringent SNCR control efficiency that has been applied to a preheater/precalciner kiln in other actions. Accordingly, we have used a 50 percent control efficiency as the basis for cost and emission calculations for the Clarkdale Plant.

However, in response to concerns raised by Earthjustice and in order to ensure that performance of the SNCR system installed at the Clarkdale Plant is optimized, we are including in the final rule a series of control technology demonstration requirements.[197] In particular, PCC is required to prepare and submit to EPA: (1) A design report describing the design of the ammonia injection system to be installed as part of the SNCR system; (2) data collected during a baseline period; (3) an optimization protocol; (4) data collected

[192] In particular, the Title V permit for the Miami Smelter makes the 0.065 percent NSPS limit applicable to emissions from the acid plant, but not the remainder of the facility's emissions. ADEQ Title V Permit 53592 for Miami Smelter (2012), Attachment B section IV.C.1.a.

[193] Id. section IV.C.4.

[194] See, e.g., id; section I.C (40 CFR Part 63 Subpart QQQ General Requirements), VI.A (Smelter Fugitives, Particulate Matter and Opacity).

[195] Miami Project Execution, schedule provided to EPA by FMMI, at a May 13, 2014 teleconference.

[196] Phone call between FMMI and EPA (May 28, 2014).

[197] These requirements apply only if PCC chooses to comply with 2.12 lb/ton rolling 30-kiln operating day limit for NO_X, rather than the 810 tpy 12-month rolling limit.

during an optimization period; (5) an optimization report establishing optimized operating parameters; and (6) a demonstration report including data collected during a demonstration period. While this type of control technology demonstration is not typically required as part of a regional haze plan, we consider it to be appropriate here, given the significant variability in control efficiencies achievable with SNCR at cement kilns. Based upon the data collected, EPA may revise the lb/ton emission limit in a future notice and comment rulemaking action.

Comment: PCC said that it supports the alternative of a cap on NO_X emissions for Kiln 4 of 810 tpy on a rolling 12-month basis, effective December 31, 2018. However, PCC conditioned its support on the final FIP expressly providing PCC with the option to select either the cap or the output-based emission limit by the deadline of December 31, 2018. Otherwise, PCC opposed a cap on NO_X emissions for Kiln 4 on the grounds that EPA is not authorized by law to impose a mass cap in lieu of an emission limit. PCC also requested that the FIP provide PCC with the option to switch compliance scenarios after December 31, 2018, pursuant to either an alternative compliance scenario provision in the FIP or a similar provision in the facility's Title V permit. PCC stated that this approach would best address the continuing fiscal impacts on the SRPMIC that will result from the FIP.

Response: As explained in an earlier response, we disagree that the RHR precludes EPA from establishing a source-specific annual emission cap for the purpose of achieving emission reductions to ensure reasonable progress. In the final rule, we are including provisions for both mass cap and an output-based emission limit, and are providing PCC with a deadline of June 30, 2018, to decide on the emission limit with which it will demonstrate compliance by December 31, 2018.

Comment: PCC and ADEQ asserted that EPA's assessment of baseline visibility impacts attributable to PCC is based on inappropriate assumptions. In particular, PCC commented that EPA's CALPUFF modeling is based on a NO_X emission rate calculated using the maximum rated capacity of PCC's Schenck feeder, a backup feeder that is never used unless the primary feeder is down for repair or maintenance. Therefore, the NO_X emission rate used in the modeling is not representative of actual or reasonably foreseeable conditions. EPA should re-propose the FIP using a more realistic NO_X emission rate in the modeling, or else revise the model outputs accordingly in the final FIP.

PCC also stated that EPA's CALPUFF modeling is based on a NO_X emissions factor that was different from that used in EPA's cost analysis. In the cost analysis, EPA used ''[a]nnual baseline emissions . . . calculated using the average of the lb/ton NO_X emissions factors . . . observed over a 2005 to 2010 timeframe.'' For the CALPUFF modeling, EPA used the highest NO_X emissions factor (3.69 lbs/ton) that corresponds to the year 2008. PCC asserted that EPA should re-propose the FIP to harmonize the two approaches or revise the model outputs accordingly in the final FIP.

Response: We disagree that the NO_X emission rate used in the modeling is unrealistic and unrepresentative of actual or reasonably foreseeable conditions. With regard to the emissions factors used for calculating the costs of compliance, we have determined costs of compliance on an annual average basis, with costs and emissions calculated on an annualized basis (e.g., dollars/year, tons emitted/year, tons removed/year), as recommended in the BART Guidelines.[198] With regard to visibility modeling, while visibility improvement is not listed in the CAA or RHR as a required factor for evaluating individual RP sources, we consider it to be relevant and have therefore considered it as a supplemental factor in our RP analyses. In general, we have used the same modeling approach for RP sources as for BART sources, as we consider this to be a reasonable means of assessing visibility benefits from potential controls at specific sources. In particular, since the visibility modeling examines improvement on certain days, emission rates used in visibility modeling correspond to daily emission rates. As described in the BART Guidelines, pre-control (baseline) model emission rates for BART sources use the 24-hour average actual emission rate from the highest emitting day over a specified baseline period.[199] For cement kilns, actual emission data are either not recorded on a daily basis, or are not publicly available. As noted in the TSD for the proposed rulemaking, baseline emissions for the Clarkdale Plant were developed primarily from information contained in annual emission inventories reported to ADEQ. Since these reports provide only total annual emissions and annual average emissions factors (lb/ton clinker), it is not possible to identify the highest emitting day based on this information. As a result, the single highest annual average emission factor (lb/ton clinker) was used in combination with short-term production capacity (ton clinker/day) in order to estimate a short-term emission rate (lb/day) that is representative of the highest emitting day. As noted in the model emission spreadsheet included in the docket for the proposed rule,[200] the maximum 24-hour average NO_X emission rate used for the baseline is 645 lb/hour, or about 7.75 tons/day. A summary of calculated daily NO_X emissions for the Clarkdale Plant is now included in the docket for this final rulemaking. As seen in these emission data, there were 12 days between 2005 and 2010 in which daily emissions were higher than the modeled baseline emission rate, ranging from 7.77 tons/day to 11.91 tons/day. Since the Clarkdale Plant has emitted at rates greater than those modeled in the baseline scenario, we disagree that the baseline NO_X emission rate we selected is unrepresentative of actual or reasonably foreseeable conditions.

Regarding the use of the Schenk feeder's capacity in emission calculations rather than the primary feeder's capacity, we note that the primary feeder's capacity is specified as simply ''NA'' in the Clarkdale Plant's Title V permit. Furthermore, this information was not provided by ADEQ or PCC in their comments or any other communication with EPA over the last 18 months.[201] In addition, while PCC has stated that use of the primary feeder's capacity, combined with other revisions to emission calculations, could result in 25 percent lower NO_X emissions, it has not provided supporting data to justify this claim, such as the primary feeder's capacity. The modeled baseline emission rate is within the range of actual emissions reported for the Clarkdale Plant, as noted in the previous paragraph. Thus, we consider that 645 lb/hour is a

[198] See *Guidance for Setting Reasonable Progress Goals Under the Regional Haze Program* (June 1, 2007) (''RP Guidance'') section 5.1 (recommending use of BART Guidelines and CCM for calculating costs of compliance for stationary sources); BART Guidelines, 70 FR at 39166–68 (Impact analysis part 1: How do I estimate the costs of control?).

[199] 70 FR 39170.

[200] *D-06c-AZ_RP_sources_all-Task9_2012-09-30.xlsx.*

[201] See, e.g. Summary of Communications and Consultation between EPA, Phoenix Cement Company (PCC), and Salt River Pima Maricopa Indian Community (SRPMIC) Regarding Potential Reasonable Progress (RP) Controls for Phoenix Cement Clarkdale Plant (January 27, 2014); Revision to the Regional Haze SIP for the State of Arizona with Technical Support Document (May 3, 2013); Attachments to the 2013 Arizona Regional Haze SIP revision (May 3, 2013).

representative characterization of the facility's baseline emission rate.

Comment: According to PCC, EPA post-processed its CALPUFF dispersion modeling results using IMPROVE Method 8b to compute extinction and delta deciview impacts attributable to the Clarkdale Plant's NO_X emissions. PCC said that EPA should re-propose the FIP to solicit comments on the applicability of Method 8b for the RHR, or propose its understanding of how best to assess source-specific visibility impacts in a separate notice and comment rulemaking, before it uses Method 8b in the regional haze context. In the alternative, EPA could issue a separate notice-and-comment rulemaking to explain the Agency's understanding of how best to assess source-specific visibility impacts using Method 8b before EPA uses Method 8b to impose legal obligations on the regulated community.

Response: The details of our visibility analyses are in the TSD and the public has had ample opportunity to comment on these analyses through the notice and comment process on our proposal. With regard to use of Method 8b in particular, the ''8'' in ''8b'' refers to ''method 8'' in CALPOST, a post-processor for the CALPUFF model, and indicates that CALPOST uses the revised IMPROVE equation for calculating visibility impact from pollutant concentrations (as opposed to ''method 6'' which specifies the original IMPROVE equation). The ''b'' refers to natural conditions on the 20 percent best days (as opposed to ''a'' for annual average natural conditions). As explained in our TSD, ''Method 8 is currently preferred by the [FLMs]'' and use of ''b'' (best 20 percent) is ''consistent with initial EPA recommendations for BART [and] current [FLM] guidance for assessing visibility impacts at Class I areas.'' [202] The commenter has not asserted or provided any evidence that EPA's reliance on method 8b is unreasonable or that use of another method is preferable in this instance. Therefore, we do not agree that any further notice and comment process is needed to evaluate our assessment of source-specific visibility impacts.

Comment: PCC noted that CALPUFF ''is nominally for great distances and, therefore, assumes the NO component of NO_X emissions is fully converted to NO_2 that is then 'available to form visibility-degrading particulate nitrate.' '' However, PCC is ''only 10.5 km'' from Sycamore Canyon Wilderness Area (SCWA), the nearest and most affected Class I area. PCC stated that EPA's sensitivity analysis is arbitrary and does not appear to support EPA's proposal to impose an SNCR-based standard on the Clarkdale Plant, given the significant reductions in SNCR-related visibility benefits in the SCWA that would result from lower NO–NO_2 conversion rates. PCC stated that EPA should re-propose the FIP using photochemical modeling to determine appropriate estimates of NO-to-NO_2 and NO_2-to-NO_3 conversions, the nitrogen species' effects on visibility in the SCWA, and the improvement in visibility that would result from the use of SNCR at the Clarkdale Plant.

Response: NO is converted to NO_2 and NO_3^- by oxidants such as ozone. This conversion takes some time, since the plume from the facility does not instantly mix into the ambient air containing oxidants. We agree with the PCC that NO emitted by the Clarkdale Plant may not fully convert to NO_2 by the time it reaches the nearby SCWA, and therefore may not fully form visibility-impairing nitrate (NO_3^-). However, we disagree CALPUFF can only be used to model great distances, that our sensitivity analysis is arbitrary, or photochemical modeling is necessary in this instance. PCC stated that CALPUFF ''is nominally for great distances.'' It is true that we promulgated CALPUFF with distances greater than 50 km in mind.[203] However, we also approved it for situations with complex wind situations, and specifically recommended CALPUFF for regional haze analyses. EPA's *Guideline on Air Quality Models* states that CALPUFF (Section A.3) may be applied when assessment is needed of reasonably attributable haze impairment or atmospheric deposition due to one or a small group of sources.[204] Further, the BART Guidelines provide that in situations where one is assessing visibility impacts for source-receptor distances less than 50 km, one should use expert modeling judgment in determining visibility impacts, giving consideration to both CALPUFF and other EPA-approved methods.[205] In this instance, we consider CALPUFF to be the most appropriate EPA-approved method, but have also conducted additional analyses to account for the limitations of CALPUFF at distances less than 50 km.

In particular, we acknowledge that CALPUFF's assumption that NO is totally converted to NO_2 and NO_3 might not be warranted for all circumstances. NO is converted to NO_2 and NO_3 by oxidants such as ozone. This conversion takes some time, since the plume from the facility does not instantly mix into the ambient air containing oxidants. The Clarkdale Plant is only 6.5 miles from the SCWA. We explored this issue in our proposal in the form of a sensitivity analysis described in the TSD [206] and an associated spreadsheet.[207] We scaled the nitrate portion of the visibility impact of the Clarkdale Plant on SCWA to reflect NO-to-NO_2 conversion rates ranging from 10 percent to 100 percent. We used 10 percent as an absolute lower bound because typically 10 percent of emitted NO_X (the sum of NO and NO_2) is already in the form of NO_2, but we consider 25 percent a more reasonable assumption, since there is time for some conversion during the plume's travel to SCWA. We disagree that this analysis is ''arbitrary'' as asserted by PCC, because it covers the full range of possible conversion rates, as shown in Table 7.

TABLE 7—SYCAMORE CANYON VISIBILITY BENEFIT FROM SNCR ON CLARKDALE CEMENT PLANT AS A FUNCTION OF NO CONVERSION [208]

	NO to NO_2 Conversion				
	10%	25%	50%	75%	100%
Base Visibility Impact (dv)	1.17	1.94	3.13	4.19	5.14
Visibility Impact with SNCR (dv)	0.92	1.42	2.07	2.68	3.30

[202] TSD at 13–14.

[203] ''Revision to the Guideline on Air Quality Models: Adoption of a Preferred Long Range Transport Model and Other Revisions'', 68 FR 18440, April 15, 2003.

[204] 40 CFR Appendix W, *Guideline on Air Quality Models* section 7.2.1.e. at the time of promulgation, 68 FR 18440, April 15, 2003; later moved to section 6.2.1.e, 70 FR 68218, November 9, 2005.

[205] 40 CFR part 51, appendix Y, IV.D.5. or 70 FR 39170.

[206] TSD section IV.C.3, p.109.

[207] Docket spreadsheet PhoenixCement_vis_NO2conv.xlsx.

TABLE 7—SYCAMORE CANYON VISIBILITY BENEFIT FROM SNCR ON CLARKDALE CEMENT PLANT AS A FUNCTION OF NO CONVERSION [208]—Continued

	NO to NO_2 Conversion				
	10%	25%	50%	75%	100%
Improvement (dv)	0.25	0.52	1.06	1.51	1.85

We also disagree that we must use photochemical modeling for this visibility assessment. The range of NO conversion rates assumed in our sensitivity analysis already spans whatever rate would be derived using a photochemical model. As noted in our proposed rule, considering that SNCR is very cost-effective in this instance, we consider a benefit of 0.25 dv at a single Class I area to be sufficient to warrant SNCR as a control for RP. Given that SNCR is warranted for any conversion rate, photochemical modeling would not alter our decision. Even if we were to perform such modeling, it would be strongly dependent on the background concentration of ozone and other oxidants in the local area for which no ozone measurements are available. The two ozone monitors nearest to the Clarkdale Plant are both about 28 miles away at Prescott to the southwest and in the opposite direction at Flagstaff.[209] One might also use modeled ozone, derived from photochemical modeling of NO_X and VOC sources over a large area, but such an estimate would have its own uncertainties. For example, the results may not be sufficiently precise at the 6.5-mile scale in question to provide an accurate ozone background. Therefore, we do not agree that photochemical modeling is preferable to CALPUFF or required in this instance.

Comment: PCC stated that EPA's conclusion that SNCR should be considered the basis of an RHR standard for the Clarkdale Plant is without reference to a decision-making threshold. EPA stated that ''the benefit of SNCR remained substantial even for the lowest (NO–NO_2) conversion assumption.'' However, PCC stated that EPA does not state or justify what visibility benefit is ''substantial'' enough to warrant imposition of RHR control technology-based standards on a BART-ineligible source. In PCC's case, PCC stated that EPA does not explain or justify how low the improvement in visibility would have had to go before EPA would have decided the visibility benefits are not ''substantial'' enough to impose a standard based on SNCR. Absent this, PCC believes EPA's decision to impose on PCC a standard based on SNCR is arbitrary. PCC stated EPA should re-propose the FIP to provide such explanation and justification for public comment, or provide them in the final FIP.

Response: We do not agree with this comment. The RHR does not require the development of specific thresholds for any of the RP factors. If 100 percent NO–NO_2 conversion is assumed, SNCR is expected to reduce Kiln 4's visibility impact at SCWA from 5.14 dv to 3.30 dv, resulting in a benefit of 1.85 dv, which is quite large.[210] Assuming only 10 percent conversion, SNCR is expected to reduce the Clarkdale Plant's visibility impact at SCWA from 1.17 dv to 0.92 dv, a benefit of 0.25 dv, which would still contribute to improved visibility.[211] Given that the four RP factors establish SNCR as a reasonable control for the Clarkdale Plant, we consider this visibility benefit sufficient to support installation of controls during this planning period. Indeed, because SNCR would reduce the facility's impact from more than 1 dv to less than 1 dv, the Clarkdale Plant would no longer cause visibility impairment at SCWA, but would instead only contribute to such impairment.[212]

Comment: PCC asserted that EPA used the wrong cost for ammonium hydroxide. PCC argued that the correct cost is $1,180/ton, not $1,000/ton, based on information PCC provided to EPA on December 20, 2013. PCC stated that EPA also used a 15 percent contingency on costs without reference to a promulgated rule for that percentage and without offering a reasoned justification of the use of that percentage generally or in PCC's case. PCC concluded that EPA should re-propose the FIP to include legally applicable inputs, explain why its inputs are not arbitrary, or revise its cost analysis accordingly in the final FIP. PCC added that EPA's analysis relied on EPA's CCM, which has no legal force because it has never been subjected to a notice and comment rulemaking. Therefore, PCC concluded that EPA should re-propose the FIP to eliminate its reliance on the CCM in PCC's case, or else adjust its determination for PCC in the final FIP to exclude all assumptions based on the CCM or justify such assumptions on their merits so that they are not arbitrary.

Response: We disagree with these comments. EPA's RP Guidance specifically recommends use of the CCM in evaluating the cost of controls for potentially affected RP sources.[213] While the CCM itself has not been subject to notice and comment rulemaking, our use of the CCM in this rulemaking has been subject to public notice and comment, and PCC has had ample opportunity to dispute all assumptions in our analysis.[214] In this instance, PCC provided its own SNCR cost estimate that also relied on information from the CCM for certain line items (such as direct and indirect installation costs), as well as internal cost estimates for other line items (SNCR purchased-equipment cost).[215] In our proposed rule, we accepted the majority of PCC's cost analysis and included all of the line items provided by PCC. In specific instances, where we found a particular line item cost to be excessive or unjustified, we revised the value provided by PCC in order to ensure a fair and meaningful comparison of costs between the Clarkdale Plant and other facilities. In no case did we entirely eliminate or disregard the cost of a line item provided by PCC.

In the case of reagent cost, PCC used a reagent cost of $0.59/lb (i.e., $1,180/ton), citing the cost-effectiveness analysis performed for the BACT analysis of the Drake Cement Plant's PSD construction permit in 2005. Based

[208] Id.

[209] See EPA's Air Quality System Database at *http://www.epa.gov/ttn/airs/airsaqs/*.

[210] Id.

[211] Id.

[212] See 70 FR 39120 (''States should consider a 1.0 deciview change or more from an individual source to 'cause' visibility impairment, and a change of 0.5 deciviews to 'contribute' to impairment.'').

[213] RP Guidance section 5.1.

[214] In addition to the public comment period on our proposed FIP, EPA previously provided PCC with two opportunities to review and provide feedback on our analysis for the Clarkdale Plant. See email from Colleen McKaughan, EPA, to Verle Martz, PCC (November 6, 2012); email from Charlotte Withey to George Tsiolis (December 11, 2013).

[215] F–42—2013–03–06 Comments from Phoenix Cement Co.pdf.

on the information provided by PCC, this estimate does not appear to have been updated or adjusted from its original 2005 estimate, nor has PCC explained why the estimate provided for a different plant is appropriate for the Clarkdale Plant. As noted in the proposed rule, we used a reagent cost of $1,000/ton, based on recent historical prices (about $500/ton) and increased it by a factor of two in order to account for potential fluctuations in ammonia prices over the 20-year useful life of the control equipment. Absent additional details from PCC indicating a more recent or site-specific justification for an ammonia cost of $1,180/ton, we consider our estimate of $1000/ton to be a reasonable and sufficiently conservative estimate for the price of ammonia.

In the case of cost contingency, we consider the 40 percent contingency suggested by PCC, without additional site-specific information to support it, to be excessive. The CCM uses contingency values ranging from five to 15 percent, depending upon the control device in question and the precise nature of the factors requiring contingency. We have used the upper end of this estimate in our cost calculation. In no instance does the CCM provide for a generic contingency value as high as 40 percent. We recognize, however, that retrofit installations may pose additional cost estimate uncertainty (i.e., cost contingency). Consequently, we have incorporated estimates of such additional costs at other facilities affected by our regional haze FIP actions.[216] In these instances, however, affected facilities provided greater detail regarding the additional costs, which we incorporated either as additional specific line items or as larger purchased equipment costs. We do not consider it appropriate to include these additional retrofit costs in a generic contingency value. Therefore, we are retaining the 15 percent contingency value.

Comment: PCC said that reliance on the EPA's CCM for the 20-year useful life presumption for amortization is inappropriate because the CCM was never subject to notice and comment rulemaking. PCC stated that the EPA should re-propose the FIP to eliminate its reliance on the CCM in PCC's case, or adjust its determination for PCC in the final FIP to exclude all presumptions based on the CCM, or justify such presumptions on their merits so that they are not arbitrary.

Response: We do not agree with this comment. EPA's RP Guidance recommends use of the CCM in considering the remaining useful life of potentially affected RP sources, and explains that ''the methods for calculating annualized costs in EPA's [CCM] require the use of a specified time period for amortization that varies based upon the type of control.'' [217] The CCM, in turn, provides that ''[a]n economic lifetime of 20 years is assumed for the SNCR system.'' [218] As noted in the previous response, while the CCM itself has not been subject to notice-and-comment rulemaking, our use of the CCM in this particular rulemaking has been subject to public notice and comment. PCC has had ample opportunity to dispute all assumptions in our analysis, including the 20-year amortization period. However, PCC has provided no evidence that our use of an equipment lifetime of 20 years is inappropriate in this instance. On the contrary, PCC submitted a four-factor analysis dated March 28, 2013, which states that Kiln 4 has a remaining useful life of roughly 50 years. Thus, there is no evidence in the record to suggest that an amortization period of less than 20 years is appropriate for capital costs of SNCR at Kiln 4.

Comment: Earthjustice disagreed with EPA's calculation of baseline emissions for Kiln 4, noting that the baseline value of 1,620 tpy employed by EPA is higher than actual annual emissions from 2005 through 2010. Earthjustice asserted that using baseline emissions that are higher than any of the baseline years is bad policy and bad precedent, and urged EPA to use the maximum of the actual observed emissions from the baseline period, which is 1,513 tpy in 2005.

Response: We disagree that the baseline emission rate should be adjusted in the manner suggested by Earthjustice. The challenges associated with accurately characterizing the baseline emissions for a source that exhibited such significant variation in cement production, annual emissions, and emission factors over the baseline period are documented in our proposed rule. We acknowledged in our proposed rule that our method marginally overstates the annual baseline emission rate. However, we do not consider the method proposed by Earthjustice, which involves using the maximum actual baseline value observed, to be a more accurate characterization of baseline emissions. We acknowledge that Earthjustice's method would result in a marginally lower annual emission limit,[219] but Earthjustice's method would also result in a higher lb/ton NO_X emission limit.[220] We do not consider the use of the maximum observed emission factor (lb/ton), which is the result of low levels of kiln production, as a realistic depiction of anticipated annual emissions from the source. Moreover, an adjustment of the baseline by this amount would not alter our determination that SNCR constitutes the appropriate RP control for Kiln 4.[221]

Comment: PCC noted an inconsistency between the proposed compliance date in the preamble applicable to the Clarkdale Plant, ''by December 31, 2018,'' and the compliance date in the proposed regulations, ''no later than (three years after date of publication of the final rule in the **Federal Register**).'' PCC stated that it needs the maximum flexibility that EPA can provide, and requested that the compliance date in the final rule be stated as ''no later than December 31, 2018.'' Similarly, ADEQ asserted that, given the difficulty of retrofitting Kiln 4 with SNCR, more than three years is necessary to demonstrate compliance. By contrast, Earthjustice commented that the proposed compliance time frame of 4.5 years to install SNCR on the kiln is too long, asserting that the proposed compliance deadline has no basis, and should be shortened to one year.

Response: EPA acknowledges that there is a discrepancy between the preamble and the regulatory language in the proposed FIP regarding the compliance date for the Clarkdale Plant. Unlike BART controls, which must be installed as expeditiously as practicable, RP controls are not subject to any particular compliance deadlines under the CAA and RHR, other than the overarching requirement to achieve reasonable progress during each planning period. PCC has indicated that it needs until December 31, 2018, to comply with any requirements of the FIP, which is also the end of the first planning period. While it may be technically feasible for the Plant to install SNCR before this date, we

[216] AEPCO Final Comments to AZ FIP_SIP_CBI included.pdf, C–37 Letter from Erik Bakken, TEP, to Greg Nudd, EPA, re TEP Sundt Modeling & Cost Information.

[217] RP Guidance section 5.4.

[218] CCM section 4.2, chapter 1, section 1.4.2, page 1–37.

[219] As a result of using a 1,513 tpy NO_X baseline emission rate instead of 1,620 tpy as described in the proposed rule.

[220] As a result of using a 3.69 lb/ton baseline emission factor instead of a 3.25 lb/ton emission factor as described in the proposed rule.

[221] Use of a 1,513 tpy baseline emission rate would result in an SNCR cost-effectiveness of $1,215/ton, rather than $1,162/ton in the proposed rule.

consider it appropriate in this instance to provide the facility until December 31, 2018. We have amended the regulatory text to require compliance with the NO_X emission limit and other NO_X-related requirements no later than December 31, 2018.

Comment: Earthjustice did not support revising the 30-day average emission limit in order to accommodate startup and shutdown events at the Clarkdale Plant. Earthjustice concluded that the proposed upward revision is not warranted. In contrast, PCC commented that the method EPA used to derive the 2.12 lb/ton emission limit is ''not unreasonable for being based on empirical data.''

Response: Under the CAA and EPA's implementing regulations, ''emission limitation'' is defined as a requirement which limits the quantity, rate, or concentration of emissions of air pollutants ''on a continuous basis.'' [222] Thus, the emission limits established in the FIP apply at all times, including periods of startup, shutdown, and malfunction. Malfunctions are, by definition, unforeseeable, and cannot be accounted for in setting emission limits. By contrast, startup and shutdown are part of normal operations, and must be included when establishing emission limits. As discussed in our proposed rule, the 30 percent upward revision from the annual emission rate to the 30-day lb/ton limit was based on an examination of daily emissions (lbs) and production (tons clinker) data over a multi-year period for cement kilns (operating without SNCR) in which we identified the highest rolling 30-day emission rate and the highest annual average emission rate, and examined the difference between these values. A similar approach was used to develop the rolling 30-day emission limits for TEP Sundt Unit 4, and a copy of the emission data is included in the docket.[223] Unlike the emission data for Sundt Unit 4, which are publicly available from EPA's CAMD, the data we examined for the cement kilns contain daily production information that is considered CBI and we are generally prohibited from making it available for public review. The method we applied in developing the 30-day emission limit for the cement plants, however, is the same as the method documented for Sundt Unit 4 that is available for public review. While alternative methods might exist to account for these emissions, we did not receive any comments describing any alternative or more refined approaches to address this issue. Accordingly, we are finalizing the emission limit of 2.12 lb/ton as proposed.

Comment: Earthjustice opposed setting an annual NO_X emission cap for the Clarkdale Plant's Kiln 4. According to Earthjustice, the cap is inexplicable because there is just the single kiln at the facility, and a cap is not needed. Earthjustice pointed out that EPA acknowledges that the facility can meet the cap without further controls. Earthjustice would support a combination of a unit-specific mass-based emission limit (e.g., ton/year or ton/day) and an output-based limit (e.g., lb/ton clinker) in some situations. Nevertheless, Earthjustice opposed the NO_X cap for Kiln 4 and urged EPA not to adopt the cap in the final rule.

Response: We disagree with this comment. The RHR does not preclude the establishment of an annual emission limit [224] for the purpose of achieving emissions reductions for reasonable progress. As proposed, an annual NO_X emission limit of 810 tpy represents a 50 percent reduction, consistent with the use of SNCR, relative to baseline emissions. In addition, we note that while the RHR does require the consideration of specific control technologies and emission reduction systems in BART and RP analyses, the emission limits established pursuant to the RHR do not specifically require the application of a specific control method or technology.[225] Although the emission limit itself is based on the reductions achievable from a considered control option, the source is not required to install a specific technology to demonstrate compliance with the limit, and may pursue other means of meeting the limit. In this instance, PCC may elect to comply with the 810 tpy NO_X limit by installing SNCR, or may elect to limit cement production to about half of pre-2008 production levels.

Comment: Earthjustice noted that EPA considered two BART controls options, SCR and SNCR, but that EPA rejected SCR as technically infeasible. Earthjustice disagreed with this decision, and provided information asserting that while SCR systems have proven impractical due to operational reasons at several European kilns, that is not the same as technical infeasibility. Earthjustice asserted that SCRs can work in cement kilns, but require additional maintenance that may impact the cost of the controls. However, because EPA did not do any cost analysis, Earthjustice asserted that it is impossible to state with certainty that SCR is not cost-effective, which Earthjustice alleged is what is implied from EPA's discussion. Thus, Earthjustice stated that EPA should not have conflated technical infeasibility and economic infeasibility when it rejected SCR.

Response: We agree that SCR is technically feasible. We clarify that although SCR was not further considered after Step 2 (Eliminate Technically Infeasible Options) of the RP analysis, we consider SCR a technically feasible control option. While we explicitly eliminated other control options (e.g., mixing air technologies) in Step 2 as technically infeasible, we elected not to consider further SCR due to a lack of information that would allow us to evaluate its effectiveness and cost of controls on cement kilns. In particular, we note that SCR has not been commercially applied to a cement plant of any type in the United States, and there is little information available about its use on cement kilns in other countries.[226] Thus, we lack sufficient information to conduct a four-factor analysis for SCR on cement kilns.

B. Comments on CalPortland Cement Rillito Plant

Comment: CPC asserted that the four-factor analysis for the Rillito Plant must be done within the context of the RPGs. In the current litigation over EPA's FIP governing three subject-to-BART power plants in Arizona, CPC noted that the petitioners argued that EPA erred by disapproving Arizona's BART determinations without considering whether the Arizona RH SIP demonstrated reasonable progress. According to CPC, EPA asserted in response:

> Given that there is no statute or regulation plainly requiring EPA to consider source-specific BART determinations in the context of a state's overall ''reasonable progress,'' the State must demonstrate that EPA's approach was an unreasonable interpretation of EPA's own regulations.

Whether EPA is correct with respect to BART determinations, CPC asserted that 40 CFR 51.308(d)(l) and (d)(l)(A) plainly require EPA to consider source-specific reasonable progress factors in the context of establishing RPGs. CPC concluded that EPA should not, and cannot, take a position in this matter

[222] 42 U.S.C. 7602(k), 40 CFR 51.100(z).

[223] See spreadsheet labeled ''E–45—TEP Sundt4 2001–12 Emission Calcs 2014–01–24.''

[224] Although the term ''cap'' was used to describe the limit on Kiln 4, the commenter is correct to note that only Kiln 4 is subject to the ''cap.'' The ''cap'', therefore, essentially functions as an emission limit for a single emission unit.

[225] We note, for example, that per 40 CFR 51.301 (Definitions), BART represents an emission limit, not necessarily a requirement to install a specific control technology.

[226] See TSD at 92–93.

that is patently inconsistent with its position currently pending before the Ninth Circuit Court of Appeals.

Response: We do not agree that our action here is in any way inconsistent with our Phase 1 action or our brief defending that action. Furthermore, while we agree that the RHR requires consideration of the RP factors in the context of setting RPGs, we do not agree that our proposed FIP failed to comply with this requirement. The RPGs are analytical benchmarks that reflect the visibility improvement at each Class I area that is estimated to occur by the end of the planning period on the 20 percent best and worst days after all reasonable control measures, including both RP determinations and BART determinations, have been implemented. In our proposed FIP, we proposed RPGs for Arizona's Class I areas that reflect the combination of control measures included in the approved portions of the Arizona RH SIP (Phases 1 and 2), the partial Arizona RH FIP (Phase 1), and the proposed partial Arizona RH FIP (Phase 3) that we are finalizing today with some modifications.[227] In addition, as explained elsewhere in this notice, we are now quantifying (in deciviews) the RPGs for each Class I area.

Comment: CPC stated that the estimated cost per dv improvement for Kilns 1–3 in Table 43 of the proposal notice does not reflect the cost for all three kilns. According to CPC, the Table 43 figures improperly compare the annual cost of SNCR at one kiln with the cumulative visibility improvement from requiring SNCR at all three kilns. CPC asserted that, based on EPA's estimates, the corrected values would be $4.5 million/dv (cumulative improvement) and $14.3 million/dv (maximum improvement). CPC also stated there are several errors in the proposed FIP's visibility modeling for Kilns 1–3.

Response: We agree that Table 43 reflects the annual cost of SNCR for one kiln, compared to the cumulative visibility improvement from requiring SNCR at all three kilns. However, this error had no impact on our proposed determination that no controls should be required for Kilns 1–3 at this time. Making the change suggested by CPC would further support this determination by increasing the $/dv value for SNCR at Kilns 1–3. Likewise, making the alterations in the modeling as suggested by CPC would not alter our determination that no controls are reasonable for Kilns 1–3 in this planning period.

Comment: CPC stated that the proposed FIP underestimates ammonia costs (citing Exhibit 1 submitted with the comments). CPC stated that its total annual cost estimate, which differs from the proposed FIP's only due to vendor quotes and site-specific information for ammonia costs, is $1,348,084.

Response: As part of its comments, CPC provided an ammonia vendor quote of $1,336/ton (compared to our ammonia cost of $1000/ton in our proposed rule). We have revised the ammonia costs in our cost estimate based upon the vendor quote provided by CPC. This change, together with other revisions described below, results in a cost-effectiveness of $1,850/ton, which we consider to be very cost-effective.

Comment: Earthjustice and NPS indicated that they do not agree with EPA's assessment of the control efficiency of SNCR for Kilns 1–3, which they believe is higher than 30 percent. In Earthjustice's opinion, EPA randomly chose a 25 percent control efficiency for SNCR without explanation, despite the Agency's acknowledgement that the technology is capable of reducing NO_X by as much as 40 percent.

With respect to two other control options, Mid Kiln Firing (MKF) and Mixing Air Technology (MAT), Earthjustice noted similar concerns in that EPA simply accepted the 20 percent reduction from CPC's observed range of 11 to 55 percent NO_X reduction, again without support or justification. Better support must be provided, or EPA should select a higher control efficiency for these control strategies.

NPS agreed with EPA that it is not reasonable to require controls at the kilns that will not operate again, but noted that it does not agree with how EPA conducted the analysis to arrive at the decision not to require controls, particularly with regard to control efficiency assumptions, and emphasized that before the kilns begin operating, they should be reevaluated.

Response: As noted in the proposed rule, and as pointed out by the commenters, we relied upon information provided by CPC to estimate the control efficiencies of various control options being analyzed for Kilns 1–3, specifically LNB, SNCR, and MKF. The information provided by CPC indicated a range of performances for each option. However, the site-specific information available for Kilns 1–3 was insufficient to allow us to determine that the maximum control efficiency values within the performance ranges were achievable at the kilns. Consequently, we reasonably chose to use control efficiency values that fell within the middle of the respective performance ranges. While the commenters advocate for control efficiency values at the high end of the performance ranges, they have provided no new site-specific information to demonstrate that more stringent levels of control are achievable. Finally, we note that Kilns 1–3 are long-dry kilns, whereas Kiln 4 is a preheater/precalciner kiln. Given that more information is available regarding the control efficiency of SNCR on preheater/precalciner kilns, we were able to estimate a higher control efficiency for SNCR at Kiln 4 (50 percent) than we were able to at Kilns 1–3.

Comment: Earthjustice disagreed with EPA's decision to require no further controls for Rillito Kilns 1–3. EPA justified its determination based on the fact that the kilns have not operated over the last five years, and the relatively high cost of controls. Earthjustice argued that EPA's justification is inadequate because the kilns are not required to be permanently removed and an enforceable commitment from the company should be put in place if these units are to be exempt from RP controls. By contrast, CPC agreed with EPA that controls are not appropriate on Kilns 1–3 at this time.

Response: As noted in our proposed rule, we do not consider it reasonable to require RP controls on Kilns 1–3 given the relatively high cost of the control options and the fact that these kilns last operated in 2008, and have therefore not generated any emissions for the last five years. With regard to an enforceable shutdown date, we do not consider it appropriate to require the shutdown of these units. As noted in our proposed rule, if Kilns 1–3 resume production, they should be re-evaluated for RP controls by ADEQ during the next regional haze planning period.

Comment: Earthjustice disagreed with EPA's rejection of SCR as a technically feasible control technology for Kiln 4. Earthjustice argued that the technology can be used on kilns, but it may require additional maintenance, which includes more frequent catalyst changes. Earthjustice stated that this can have an effect on the cost of controls, but because EPA did not conduct a cost analysis, the conclusion cannot be drawn that SCR is definitely not cost-effective. Infeasibility due to cost should not have been equated with technical infeasibility, if that is what EPA has done.

Response: We agree that SCR is technically feasible. As noted in our responses regarding to comments concerning PCC's Clarkdale Plant, we

[227] 79 FR 9363.

wish to clarify that although SCR was not considered after Step 2 of the RP analysis, we consider SCR to be a technically feasible control option. While we explicitly eliminated other control options (such as Mixing Air Technologies) in Step 2 as being technically infeasible, we elected to not further consider SCR further due to a lack of information that would allow us to evaluate its effectiveness and cost on cement plants. In particular, we note that SCR has not been commercially applied to a cement plant of any type in the United States and there is little information available about its use on cement kilns in other countries.[228] Thus, we lack sufficient information to conduct a four-factor analysis for SCR on cement kilns.

Comment: Earthjustice argued that EPA has not provided adequate support for the proposed 50 percent NO_X reduction at Kiln 4 using SNCR. Earthjustice acknowledged the existence of Table IV.B–7 in the TSD showing SNCR NO_X control efficiencies from different sources, but indicated that it could not tell based on the cited sources in that table that the test results would limit the control efficiency to 50 percent for Kiln 4 as well. Earthjustice indicated that SNCR performance is site-specific and can be optimized. Earthjustice said that the injection of ammonia or urea into an exhaust gas stream under certain conditions can reduce NO_X emissions significantly, but that the temperature range is important because at temperatures beyond a certain range, the reagent can oxidize to create NO, thereby increasing NO_X emissions. On the other hand, if the temperature is below a certain temperature range, the reaction rate is too slow for completion and the source might emit unreacted agent.

Reemphasizing the fact that the control efficiency of SNCR is variable and dependent on installation-specific variables, Earthjustice argued that it is possible to achieve NO_X reductions of 90 percent at cement kilns. Therefore, Earthjustice urged EPA to reconsider the 50 percent level of control and consider raising the control efficiency for Kiln 4 at Rillito. By contrast, NPS indicated that it agreed with EPA's estimate of 50 percent control efficiency for SNCR and believed this level of control is supported by estimates of 50 percent at similar kilns.

Response: We disagree that a 50 percent control efficiency estimate for SNCR is too low for the reasons provided in response to similar comments regarding PCC's Clarkdale Plant. In addition, in our proposed rule, we solicited comment regarding SNCR control efficiency on Kiln 4, and stated that if we receive additional information or data providing more site-specific information that justifies a different control efficiency at the Rillito Plant, we would revise our analysis accordingly. As noted later in our responses, CPC provided information regarding the design and operation of Kiln 4, and stated that only a 35 percent control efficiency was achievable. As described in greater detail below, we agree that 35 percent reflects an appropriate estimate of the degree of control achievable with SNCR at Kiln 4, and have revised our cost analysis to reflect a 35 percent control efficiency at Kiln 4.

However, in response to concerns raised by Earthjustice and in order to ensure that performance of the SNCR system installed at Kiln 4 is optimized, we are including in the final rule a series of control technology demonstration requirements. In particular, CPC is required to prepare and submit to EPA: (1) A design report describing the design of the ammonia injection system to be installed as part of the SNCR system; (2) data collected during a baseline period; (3) an optimization protocol; (4) data collected during an optimization period; (5) an optimization report establishing optimized operating parameters; and (6) a demonstration report including data collected during a demonstration period. While this type of control technology demonstration is not typically required as part of a regional haze plan, we consider it to be appropriate here, given the significant variability in control efficiencies achievable with SNCR at cement kilns. Based upon the data collected, EPA may revise the lb/ton emission limit in a future notice and comment rulemaking action.

Comment: CPC stated that the proposed FIP's estimate of 50 percent control of NO_X emissions using SNCR on Kiln 4 is inaccurate because it is based on feasibility studies at four other cement plants and data collection from an optimization protocol at CPC's Mojave cement plant. CPC asserted that for each of the four plants, the TSD incorrectly characterized them in Table IV.B–9 as ''a preheater/precalciner operating with existing combustion controls.'' According to the commenter, the Holcim Trident and Ash Grove Montana plants are long-wet kilns, which have fundamentally different combustion characteristics and emission profiles.

CPC added that, while initially estimating 30 percent control effectiveness for SNCR at Kiln 4, it had refined its analysis and determined that 35 percent control efficiency may be achievable, based on the data observed at Mojave and CPC's engineering judgment that accounts for the site-specific differences between the two kilns.

CPC stated that a critical difference between Kiln 4 and Mojave is that potential ammonia injection points at Kiln 4 are not within the optimum temperature range of 1,600 °F to l,900 °F. Moreover, CPC continued, because potential injection points at Kiln 4 are below the optimum temperature range, NO_X reduction reactions will be much slower, leading to less reduction of NO_X emissions. Another critical difference, according to CPC, is Kiln 4's unique modified loop calciner, which, due to its design, is less efficient at mixing exhaust gases and reagent than a cyclonic precalciner, such as the one at Mojave. CPC asserted that the inferior mixing in Kiln 4's modified loop calciner will impede the ability of the SNCR reactions to reduce NO_X concentrations. In addition, CPC stated that fuel combustion is less efficient in a modified loop calciner, which leads to significantly higher carbon monoxide (CO) and lower oxygen concentrations in Kiln 4's exhaust when compared to Mojave. Kiln 4 CO emissions are approximately ten times higher than at Mojave. CPC concluded that, collectively, these factors will reduce the potential NO_X control efficiency to no more than 35 percent for Kiln 4.

Response: In its ''Reasonable Progress Analysis for CalPortland Company Rillito Cement Plant Kilns'' dated May 2013, CPC estimated a 30 percent NO_X control efficiency, based in part on an SNCR optimization report for CPC's Mojave Plant in California. Emission data from this report, which CPC submitted to EPA on August 30, 2013, indicated a range of SNCR control efficiency of 30 to 60 percent at the Mojave Plant, depending upon operating parameters. Based on this information, and given the range of SNCR performance indicated from the first six months of Mojave Plant optimization protocol collection, we stated that the use of a 50 percent control efficiency for SNCR was appropriate for Kiln 4. We also noted that, if we received additional information or data providing more site-specific information that justified a different control efficiency at the Rillito Plant, we would revise our analysis accordingly.

As part of its comments on the proposed FIP, CPC submitted to EPA a

[228] See TSD at 92–93.

document entitled ''Evaluation of EPA's Reasonable Progress Analysis for Kiln 4 at CalPortland Company's Rillito Cement Plant dated March 2014,'' which, among other things, provided further information on the NO_X control efficiency that is assumed for applying SNCR to Kiln 4. This evaluation provided differences between Kiln 4 at the Rillito Plant and the cement kiln at the Mojave Plant that could lead to a lower NO_X control efficiency when applying SNCR to Kiln 4.

CPC stated that because of these differences, the SNCR NO_X control efficiencies obtained for the cement kiln at the Mojave Plant cannot be applied to Kiln 4 at Rillito. In addition to the differences cited above, CPC also stated in its March 2014 report that the emission data from the Mojave Plant are highly variable (due to the operational variability that is part of the optimization), and CPC has not determined what control efficiency or emission rate is appropriate to use as the basis for an emission limit for the Mojave Plant. Based on considered engineering judgment, CPC proposed that a 35 percent NO_X control efficiency would be an appropriate estimate for Kiln 4. Because we agree with the analysis in CPC's report, we are revising our analysis based on a 35 percent NO_X control efficiency for SNCR at Kiln 4. In addition, as explained above, we are including in the final rule a series of control technology demonstration requirements to ensure that performance of the SNCR system installed at Kiln 4 is optimized.

In our proposed rule, we proposed a 50 percent NO_X control efficiency using SNCR, with a corresponding emission limit of 2.05 lb/ton of clinker produced and a cost-effectiveness of $1,047/ton. A 35 percent control efficiency would result in a NO_X emission limit of 2.67 lb/ton of clinker produced and a cost-effectiveness of $1,850/ton. We consider $1,850/ton to be very cost-effective.

Comment: CPC stated that EPA should revise the proposed rolling 30-day emission limit for Kiln 4 to reflect more recent emissions data and 35 percent control efficiency for SNCR. CPC stated that the TSD for the proposed rule references an annual design value of 2.05 lb NO_X/ton clinker based on a pre-control emission rate estimate of 4.10 lb/ton, which omits data for 2011 and 2012. According to CPC, a six-year average based on the 2007 to 2012 time period yields a pre-control emission rate of 4.62 lb/ton. Over the 2009 to 2012 time period, the annual average emission rate has been 5.15 lb/ton.

CPC also stated that emission limits must account for changes in production rates that are a function of market forces beyond the company's control. CPC said that, to be achievable, any emission limit imposed must account for the inherently higher emission rates that occur during periods of reduced production. CPC stated that if an emission limit is based on 50 percent control efficiency and that level of control is not achievable, then the company will be at risk of an enforcement action, third party claim, and/or plant shutdown for failing to meet an unachievable standard.

Response: As noted above, we agree that 35 percent reflects an appropriate estimate of the degree of control achievable with SNCR at Kiln 4. Accordingly we are revising the 30-day rolling average for the NO_X emission limit at Kiln 4 from 2.05 lb/ton of clinker to 2.67 lb/ton of clinker. In addition, as explained above, we are including in the final rule a series of control technology demonstration requirements to ensure that performance of the SNCR system installed at Kiln 4 is optimized. If the data collected pursuant to these control demonstration requirements indicate that a different control efficiency is appropriate for this kiln, EPA may revise the lb/ton limit in a future notice-and-comment rulemaking action.

We do not agree that the lb/ton emission limit should be based solely on periods of reduced production. Such an approach does not ensure that the facility would achieve fully effective emission control during periods of full production, which exhibit lower lb/ton values. Conversely, a lb/ton limit based solely upon periods of full production would result in a low lb/ton value that may not be achievable during periods of reduced production. Although our baseline period did not include the most recent two years of data, it did incorporate emission data from periods of both full operation and reduced operation. As a result, we consider it to be a reasonable representation of baseline emissions. Therefore, we are not revising this value.

Comment: CPC stated that because Kiln 4 does not cause or contribute to visibility impairment, a source specific four-factor reasonable progress analysis was not necessary or appropriate. The commenter asserted that EPA, in its final partial approval/disapproval of the Arizona RH SIP, stated ''We are approving Arizona's BART threshold of 0.5 dv and its determination that West Phoenix Power Plant and the Rillito Cement Plant are not subject to BART.'' Thus, the commenter argued that if a facility was not required to undergo a five-factor BART analysis, it follows that the facility should not be required to undergo a similarly burdensome reasonable progress analysis either.

Response: We disagree that exemption from BART automatically exempts a facility from control for purposes of reasonable progress under the RHR. In this instance, EPA approved Arizona's determination to exempt Kiln 4 at the Rillito Plant from BART, but disapproved the State's reasonable progress analysis for point sources of NO_X. As part of our own analysis of point sources of NO_X, we identified the Rillito Plant as a potentially affected source because it had a Q/D value of 726, more than 70 times the threshold value of 10.[229] Furthermore, our modeling indicates that the plant causes visibility impairment at Saguaro National Park, where it has a baseline impact of 1.26 dv from all four kilns.[230] Therefore, we determined that a source-specific four-factor analysis was appropriate.

Comment: Earthjustice was not supportive of revising the 30-day average emission limit in order to accommodate startup and shutdown events. Earthjustice indicated that there is insufficient evidence in the record documenting the analysis referenced in the TSD[231] where EPA indicates it looked at emission factors over 2008 to 2011 for other preheater/precalciner kilns. Further, Earthjustice also questioned whether the data that EPA examined was with or without SNCR. In Earthjustice's opinion, if the data represented uncontrolled emissions, the variability would not remain the same after the installation of SNCR. According to Earthjustice, proper controls have the effect of reducing variability. Therefore, Earthjustice did not believe that the proposed 30 percent upward revision to the 30-day average was warranted or sufficiently documented in the record.

Response: As noted in our response to a similar comment for PCC's Clarkdale Plant, under the CAA and EPA's implementing regulations, an ''emission limitation'' is defined as a requirement which limits the quantity, rate, or concentration of emissions of air pollutants on a continuous basis.[232] Thus, the emission limits established in the FIP apply at all times, including periods of startup, shutdown, and

[229] See 79 FR 9352.

[230] TSD page 98, table IV.B–12

[231] The commenter cited the last paragraph on page 99 of EPA's TSD (EPA–R09–OR–2013–0588–0009).

[232] 42 U.S.C. 7602(k), 40 CFR 51.100(z).

malfunction. Malfunctions are, by definition, unforeseeable, and cannot be accounted for in setting emission limitations. By contrast, startup and shutdown are part of normal operations and emissions occurring during startup and shutdown must be accounted for when establishing emission limits.

As discussed in our proposed rule, the 30 percent upward revision was based upon an examination of daily emissions (lbs) and production (tons clinker) data over a multi-year period for cement kilns (operating without SNCR) in which we identified the highest rolling 30-day emission rate and the highest annual average emission rate, and examined the difference between these values. A similar approach was used to develop the rolling 30-day emission limits for TEP Sundt Unit 4, and a copy of the emission data was included in the docket.[233] Unlike the emission data for Sundt Unit 4, which is publicly available from EPA's CAMD Acid Rain database, the data set we examined for the cement kilns contains daily production data that is considered CBI, which we are prohibited from making available for public review. The methodology we applied in developing the 30-day emission rate for the cement plants, however, is the same as the methodology documented for Sundt Unit 4, which is available for public review. While there might be alternative methods to account for these emissions than the approach we adopted, we did not receive any comments describing any alternative or more refined approaches for addressing this issue. Accordingly, we have retained this methodology in establishing the emission limit in the final rule.

Comment: ADEQ said that, given the difficulty of retrofitting Kiln 4 with SNCR, more time is necessary to demonstrate compliance. ADEQ said that the three-year compliance time frame is not sufficient. By contrast, Earthjustice asserted that the compliance deadline should be shortened to one year.

Response: As noted in a response to a similar comment on PCC's Clarkdale Plant, unlike BART controls, which must be installed as expeditiously as practicable, RP controls are not subject to any particular compliance deadlines under the CAA and RHR, other than the overarching requirement to achieve reasonable progress during each planning period. CPC has indicated that it needs until the end of the first planning period that ends on December 31, 2018, to comply with any requirements of the FIP. While it may be technically feasible for the plant to install SNCR before that date, we consider it within our discretion and reasonable in this instance to provide the facility until December 31, 2018.

Comment: Earthjustice responded to EPA's request for comments on whether a NO_X emission cap should be set for the Rillito Plant. Earthjustice did not understand how EPA arrived at the proposed cap level and argued that the level is not commensurate with actual emissions data. The proposed level of 2,082 tpy would allow minimal to no control of NO_X at the plant, assuming that Kilns 1–3 do not operate. Therefore, Earthjustice asserted that it is unreasonable to propose a cap without a guarantee that the older kilns will permanently cease operation because this could mean no control at all for Kiln 4. Earthjustice suggested that the combination of a unit-specific mass-based emission limit (e.g., ton/year or ton/day) and process-based limits (e.g., lb/ton clinker) might be reasonable in some situations, but Earthjustice indicated that it is does not support the proposed cap.

CPC also expressed opposition to the annual emission cap. CPC stated that the proposed alternative NO_X emissions cap would require the permanent shutdown of Kilns 1–3, as installing SNCR on Kiln 4 would not be sufficient to meet the cap if the other kilns were operating. CPC noted that when Kilns 1–3 operate at full capacity, NO_X emissions from them exceed 1,900 tpy, so an annual cap of 2,082 tpy would require Kiln 4 to reduce emissions to around 150 tpy, which is more than a 90 percent reduction from current emission levels. CPC asserted that, because 90 percent control efficiency is not possible with SNCR, the only way it could meet this annual limit would be to permanently shut down at least two, and perhaps all three, of its smaller kilns.

Response: As noted in a response to a similar comment regarding PCC's Clarkdale Plant, the RHR does not preclude the establishment of an annual emission cap for the purposes of achieving emission reductions for reasonable progress. However, considering the issues raised by commenters, and the multi-unit nature of the proposed annual emission cap, we are not including the option of an annual emission cap for the Rillito Plant in the final rule.

Comment: CPC stated that the visibility modeling for Kiln 4 contains some errors and unsupported assumptions, leading to an overestimate of the visibility benefit due to SNCR, including assuming 50 percent control and inaccurately assuming constant background ammonia levels. CPC asserted that because modeling results are highly sensitive to the estimated ammonia value, the assumption of 1 ppb for winter greatly overestimates NO_X effects on regional haze. CPC stated that EPA used monthly background ammonia concentrations in the visibility modeling for the recently adopted Wyoming RH FIP and should do the same here given the available and representative monitoring data from the Chiricahua monitoring station, located less than 200 km from the Rillito Plant.

CPC also asserted that EPA's visibility modeling for Kiln 4 contains the following errors:

(1) The stack parameters in the worksheet labeled ''Stack Parameters'' are the parameters for Kiln 6 that was proposed for construction at the Rillito Cement Plant to replace Kilns I–4, but has not been constructed.

(2) EPA's contractor assumed a geometric mean diameter for coarse particulate matter of 0.48 microns in its CALPUFF modeling. Because coarse particles are larger than 2.5 microns in diameter, CPC's technical consultant, AECOM, assumed a geometric mean diameter of 6 microns.

(3) EPA's subcontractor used non-default minimum turbulence velocities sigma-v (SVMIN) and sigma-w (SWMIN) for each stability class over land and over water of 0.5 meter/second (m/s). According to comments in the subcontractor's CALPUFF modeling files, using the default values produced an error message. The only way to bypass the error and run the model to completion was to set SVMIN and SWMIN to 0.5 m/s. AECOM used the default values without encountering errors from CALPUFF.

Finally, CPC stated that AECOM reran the visibility modeling analysis using corrected and supportable inputs, demonstrating that the maximum visibility benefit from installing SNCR on Kiln 4 would be 0.15 dv, approximately seven times less than the human eye can detect. Citing the DC Circuit's decision in *American Corn Growers,* CPC stated that a source should not be required to spend millions of dollars for imperceptible visibility improvements.

Response: We partially agree with this comment. As explained above, we agree with CPC's assertion that a control efficiency of 35 percent is more appropriate for SNCR at Kiln 4 than our proposed efficiency of 50 percent. However, we do not agree that our use of the IQAQM default for background

[233] See spreadsheet labeled ''E–45—TEP Sundt4 2001–12 Emission Calcs 2014–01–24''.xlsx''.

ammonia of 1.0 ppb was improper. As explained in our response to comments from TEP on the BART determination for Sundt Unit 4, given the uncertainty and variability in ammonia values measured in Arizona, we consider the 1.0 ppb IWAQM default to be the most appropriate value to use here.[234]

We agree that we used the incorrect stack parameters. However, because these parameters have varying impacts on visibility benefits, this error had little effect overall. In particular, the lower stack height and smaller stack diameter tend to increase baseline visibility impacts and the visibility improvements due to controls, whereas the higher stack exit velocity and higher exit temperature tend to decrease visibility impacts and control benefits.

Similarly, the changes related to particle diameters have little effect on the modeling results because PM contributes only a few percent to the modeled visibility impacts. The changes related to default minimum turbulence velocities would tend to increase slightly atmospheric mixing and thus to reduce slightly pollution impacts and the benefit of controls. Overall, the effect of the changes to the modeling input parameter is much smaller than the change in SNCR control efficiency, and does not affect our control determination.

While CPC's comment cites the results of AECOM's modeling using variable ammonia background, AECOM also conducted modeling using constant 1.0 ppb ammonia background. As explained above, we consider use of constant 1.0 ppb ammonia background to be the most appropriate approach and we agree with CPC's other corrections to our contractor's modeling. Therefore, we accept the results of CPC's modeling using 1.0 ppb ammonia background as a generally reasonable estimate of visibility benefits expected from SNCR on Kiln 4. These results indicate that the benefit of SNCR at Kiln 4 would be somewhat less than EPA's modeling showed. In particular, EPA's modeling showed a benefit of 0.24 dv at Saguaro National Park, the area with the highest impact from Kiln 4, and a cumulative benefit over the 12 nearby Class I areas of 0.78 dv. By contrast, CPC's modeling showed a benefit of 0.18 dv at Saguaro National Park and a cumulative improvement of 0.59 dv.

Despite these decreased visibility benefits, EPA still considers SNCR to be reasonable for Kiln 4 for several reasons. First, as explained above, even with the revisions suggested by CPC in its comments, SNCR remains highly cost-effective at $1,850/ton. Second, even though the visibility benefits from SNCR at Kiln 4 at the Rillito Plant are lower than those expected to result from controls on other sources addressed in this FIP, they are not negligible, and together with controls on other sources now and in the future will achieve progress in improving visibility at multiple Class I areas. In particular, we note that, according to CPC's modeling, 12 different Class I areas will be improved, including Galiuro WA, for which the expected improvement is 0.16 dv, only slightly less than expected improvement of 0.18 dv at Saguaro National Park. Third, due to the close proximity of the Rillito Plant to the western unit of Saguaro National Park, there is significant uncertainty regarding the benefits of controls. In particular, EPA's modeling indicated that the benefit of SNCR at the western unit of Saguaro National Park (0.30 dv) is greater than the benefit at the eastern unit (0.24 dv), if 100 percent conversion of NO to NO_2 is assumed. EPA also conducted a sensitivity analysis to address the possibility that NO_x emitted from the Rillito Plant is not 100 percent in the form of NO_2. The results of this analysis are shown in Table 8.

TABLE 8—VISIBILITY BENEFIT AT WESTERN SAGUARO NP FROM SNCR ON RILLITO CEMENT PLANT AS A FUNCTION OF NO CONVERSION

NO to NO_2 Conversion	Conversion Rate				
	10%	25%	50%	75%	100%
Improvement (deciviews)	0.03	0.05	0.15	0.22	0.30

While we do not know for certain which of these scenarios is most realistic, it is worth noting that there also will be some benefit to the western unit of Saguaro, which is not directly reflected in the modeling provided by CPC.

Finally, we disagree with CPC's suggestion that human perceptibility of visibility improvement is a criterion for imposing controls for purposes of selecting source-specific controls for reasonable progress under the CAA and the RHR. No one control will be sufficient to achieve the visibility goals of the RHR. The effect of reasonable controls on the many contributing sources will cumulatively enable progress toward those goals.

Comment: CPC asserted that the reasonable progress analysis for Kiln 4 is inconsistent with EPA's analyses of other sources. CPC included a table comparing the proposed FIP's cost and visibility results for TEP Sundt Units 1–3 and CPC Rillito's Kiln 4, and concluded that for about the same annual cost, emission controls at Sundt would have a much greater beneficial impact on visibility at Saguaro National Park. CPC stated that the only factor that could explain this differential treatment is the ''cost/ton reduced'' metric, which the FIP estimates is higher for TEP Sundt than Rillito, thus demonstrating the limitations of the cost/ton reduced metric. CPC further stated that the FIP should not rely on this metric, which provides no insight on whether controls are cost-effective for achieving RPGs by improving visibility, the sole potential justification for establishing controls. With respect to TEP Sundt Units 1–3, CPC stated that EPA concluded ''the cost-effectiveness of ULNB is relatively high in light of the anticipated visibility benefit'' and argued that because the costs are similar and the visibility benefits are even smaller, the same conclusion must be reached for Kiln 4.

Concerning the reasonable progress analysis for El Paso's facilities and Pima County's Ina Road sewage plant, CPC included a table comparing the four-factor analyses for those facilities and Kiln 4. CPC asserted that there is no explanation or justification to support the proposed decision to require controls on Kiln 4, but not on these other sources. CPC noted that the cost of compliance is higher for Kiln 4 than the other sources, the time needed to comply is longer, energy and non-air quality impacts are equivalent, and the remaining useful life is assumed to be identical. CPC asserted that because the four factors set forth in 40 CFR

[234] Memorandum in docket, ''Full Technical Response to Modeling Comments for June 2014 Final Arizona Regional Haze FIP (Phase III),'' Colleen McKaughan and Scott Bohning, EPA, June 16, 2014.

51.308(d)(l) cannot justify this differential treatment, the proposed FIP justifies the decision to not require controls on these other sources based on a factor that is not listed in 40 CFR 51.308(d)(l), and stated that CPC should, and must, be treated equally, and no controls should be imposed during this first planning period.

Response: We do not agree with this comment. The CAA and RHR provide considerable discretion in how the four RP factors are weighed. Moreover, while the CAA and RHR explicitly require consideration of visibility improvement in BART analyses, they do not require consideration of such benefits for individual RP sources. Therefore, while we have taken visibility benefits into account as a supplementary factor, we have not weighed them as heavily for RP as we have for BART. Rather, we have placed more emphasis on cost, which is one of the enumerated statutory factors for RP analyses.[235] Accordingly, we do not agree with CPC's suggestion that we should consider $/dv as more important than $/ton in evaluating potential RP controls. Even with CPC's suggested modifications, the cost-effectiveness of SNCR at Kiln 4 ($1,850/ton) is two to four times less than the cost-effectiveness of controls at Sundt Units 1–3 ($4,400–$8,300/ton).[236] Accordingly, we do not agree that we are treating these units inconsistently.

With regard to El Paso's Compressor Station and Pima County's Ina Road sewage plant, we agree with the commenter that controls on these units would be more cost-effective than SNCR at Kiln 4, and that the results for the other three statutory factors are similar. However, we note that El Paso Natural Gas Company (EPNG) has asserted that EPA has underestimated the costs of compliance and time necessary for compliance.[237] Furthermore, as explained in our proposal, natural-gas engines similar to those at these facilities are dispersed throughout the State and it is not practical for EPA to control these sources. By contrast, the Rillito Plant is a single discrete facility for which SNCR is a cost-effective and otherwise reasonable control option. We also note that, while we do not have visibility modeling to gauge the impacts of the other facilities cited by CPC, the Q/D value for the Rillito Plant (a rough gauge of potential for visibility impairment) is more than ten times the Q/D value for any of the other sources. Under these circumstances, we consider it reasonable to require SNCR at the Rillito Plant and not to require additional controls at the compressor stations or the sewage treatment plant. We strongly encourage the State to consider development of a statewide rule to regulate natural-gas engines in the next planning period.

Comment: Arizona Rock Products Association expressed support for and incorporated by reference the comments of CPC and PCC.

Response: We have responded to CPC's and PCC's comments above.

C. Comments on Other Reasonable Progress NO_X Point Sources

Comment: NPS argued that SCR should be BART for APS Cholla Unit 1. NPS provided more details on the cost analysis for Cholla Unit 1, indicating that the calculated average and incremental cost-effectiveness values for SCR of $5,313/ton and $6,307/ton, respectively, are erroneously high. NPS noted that EPA's calculation methodology relied heavily upon IPM, and suggested several revisions and corrections to EPA's calculation that would have the effect of reducing the control costs. After applying the corrections, NPS concluded that an average cost-effectiveness of $5,263/ton is obtained which NPS considers to be reasonable. In addition, NPS provided its own set of cost calculations, relying primarily upon the cost equations contained in EPA's CCM. NPS estimated that the average cost-effectiveness of SCR is $4,353/ton, which is less than the values established by several states and EPA.

NPS also made similar comments about TEP Springerville Units 1 and 2. NPS asserted that EPA's estimates of SCR cost-effectiveness of $6,829/ton for Unit 1 and $6,085/ton for Unit 2 are erroneously high, and therefore the incremental cost-effectiveness of SCR over SNCR of $8,606/ton and $7,416/ton, respectively, are also too high. After applying the corrections discussed by NPS, average cost-effectiveness of $5,700 to $6,400/ton is obtained, which NPS considers to be reasonable. In addition, NPS provided its own cost calculations for Springerville Units 1 and 2, relying primarily upon the cost equations contained in EPA's CCM. NPS estimated that the average cost-effectiveness of SCR is $5,688 to $6,377/ton, which is less than the values established by several states and EPA for EGUs. Detailed calculations and analysis for Cholla Unit 1 and Springerville Units 1 and 2 are documented in Appendix C and E of NPS's submittal.

Response: We disagree with NPS's assertion that our calculations, based on IPM methodology, are overestimates. The revisions indicated by NPS consist primarily of lower urea/ammonia and catalyst costs. NPS made similar assertions regarding ammonia and catalyst costs in our analysis for TEP Sundt Unit 4. As described in our responses to those comments, we consider the values we used for ammonia and catalyst costs appropriate.

Regarding NPS's cost calculations that use the cost equations from the CCM (as opposed to using the information contained in IPM), we note that nothing in the RHR requires use of the CCM for calculating the cost of compliance for RP sources. Moreover, while EPA's RP Guidance recommends use of the CCM, it also allows for divergence from the CCM, provided that any difference from the CCM is documented.[238] In this and other RH rulemakings, we have not required strict adherence to the study level cost equations contained in the CCM, and have developed cost calculations based on a number of supplemental sources including certain site-specific data provided by the facility, vendor quotes, and information from other EPA rulemakings. As noted in our proposed rule and TSD,[239] IPM has been used by EPA in multiple regulatory actions, and we consider it an appropriate source of supplemental information.

Regarding the use of cost-effectiveness thresholds, we note that the examples cited by NPS consist of BART determinations and not RP determinations.[240] Given the differences between the BART factors and RP factors and the nature of the applicability criteria that would trigger BART and RP analyses,[241] we do not necessarily consider the cost-effectiveness and visibility benefit values from BART determinations to be directly comparable to RP analyses. Furthermore, the cost-effectiveness values that NPS finds reasonable are, in fact, higher than EPA has required for

[235] Our cost analyses also incorporate consideration of two other statutory factors: Remaining useful life and energy and non-air environmental impacts.

[236] See 79 FR 9358.

[237] EPNG Comment Letter at 1–2.

[238] See RP Guidance, section 5.1, note 23.

[239] TSD for the Proposed Phase 3 FIP, January 27, 2013, Page 19 of 233.

[240] We also note that while NPS refers to ''BART for Cholla Unit 1'', Cholla Unit 1 is, in fact, not BART-eligible and therefore not subject to BART. See 78 FR 46145.

[241] I.e., BART has very specific applicability criteria, and is a ''one-time'' analysis that is only performed on affected sources during the first planning period. The procedure for identifying candidate sources for RP controls is not as specific, may have more or less expansive criteria than BART, and can be potentially performed each planning period.

any BART source during this planning period.[242] While it may be necessary to require controls at this cost level for RP sources in future planning periods, we do not agree that this level of cost-effectiveness is reasonable at this time, given the significant emission reductions already achieved by BART and RP determinations during this planning period (see Table 12).

Comment: ADEQ expressed support for EPA's determination that it is not practical to control compressor stations due to their dispersed locations. Similarly, the owner of Williams and Flagstaff Compressor Stations (EPNG) said that it agreed with EPA's determination that it is not reasonable to require further controls at these two facilities. Even though EPNG supported EPA's decision, EPNG did not agree that the control technology, cost of compliance, and time to comply used by EPA in its analysis are appropriate.

Response: We acknowledge ADEQ's and EPNG's support on this issue. We note that our finding of impracticability with regard to the regulation of engines (including those found at compressor stations) only applies to regulation by EPA in this planning period. It does not apply to potential regulation by the State in future planning periods. Given the availability of cost-effective controls for these sources and the potential for significant emission reductions from a statewide rule applicable to such sources, we strongly encourage ADEQ to develop such a rule during the next planning period. We acknowledge the comments made by EPNG regarding our control technology analyses for the natural gas turbines, but have not revised our analysis at this time because it would not alter our determination not to control compressor stations at this time.

Comment: TEP, the owner of the Sundt and Springerville facilities, agreed with EPA's conclusion that additional controls are not required on Springerville Units 1 and 2 or Sundt Units 1–3 at this time. ADEQ similarly expressed support for the EPA's decision not to require low-NO_X burners for Sundt Units 1–3 because they are not cost-effective. TEP added that the same result would have been achieved if EPA had approved ADEQ's identical determination.

Response: We acknowledge TEP's support on this issue. We agree that, with regard to TEP Sundt Unit 1–3, our determinations are identical to those made by ADEQ. However, we note that, unlike ADEQ, EPA conducted a four-factor RP analysis for these units, as well as visibility modeling to evaluate potential visibility benefits, before concluding that no additional controls are reasonable at this time.

Comment: The owner of Tucson Compressor Station (EPNG) indicated that that the facility is no longer operating and should therefore be removed from the FIP.

Response: We appreciate the clarification. Our proposed FIP did not require any controls for this facility, so no revisions are needed.

D. Comments on Area Sources of NO_X and SO_2

Comment: Earthjustice argued that area sources should also be required to install reasonable progress controls. Earthjustice referred to an NPCA Report [243] that shows how Visibility Restoration Plans can help ensure that Class I areas achieve the glide path by 2064. The report indicated that Arizona's area sources are the largest contributors to visibility impairment at the Grand Canyon. Earthjustice noted that EPA looked at reasonable progress controls for area sources, but classified its analysis as ''limited in scope.'' Earthjustice explained that EPA identified the area source categories contributing the most to visibility impairment, but performed only a brief analysis because the inventories that were analyzed did not contain sufficient data (e.g., on the number, age, and design of the actual area sources). In Earthjustice's opinion, in order to conduct a thorough reasonable progress analysis in this case where there was limited information available, EPA should have obtained the data necessary to conduct a proper analysis. Further, Earthjustice said that the justification for no further controls based on no other regional haze SIP or FIP requiring controls on such sources primarily to ensure reasonable progress is not sufficient, because no other state had RPGs as poor as Arizona's.

Earthjustice highlighted the Visibility Restoration Plan that was submitted with the Earthjustice's public comments as a tool to help EPA in identifying other sources that impact visibility, and should be evaluated for reasonable progress controls. According to Earthjustice, the Visibility Restoration Plan could also be a helpful tool to the Agency by illustrating how a long-term strategy based on existing data can be developed to restore visibility by 2064. In Earthjustice's opinion, if the plan is adopted, this would assist states and EPA to implement the goals of the haze program's reasonable progress mandate.

Response: We do not agree that additional area source controls are reasonable for this planning period. According to our analysis, Arizona's area sources are typically the smallest contributor to anthropogenic nitrate and sulfate pollution at Arizona's Class I areas, including the Grand Canyon, where Arizona area sources contribute only 2.9 percent of the nitrate pollution and only 0.4 percent of the sulfate pollution.[244] EPA's analysis is based on source apportionment modeling conducted by the WRAP. As we note in the proposal, EPA has carefully evaluated that work and has determined it to be of sufficient quality to use in making policy decisions.

The NPCA Report suggests that the contribution of Arizona's area sources to haze at the Grand Canyon may be greater than indicated by our analysis. However, as acknowledged in the NPCA Report's Visibility Restoration Plan (VRP), there are significant limitations in the data on which the VRP is based.[245] Furthermore, the average apportionment provided in the VRP is based on the highest 10 daily-average $PM_{2.5}$ concentrations,[246] rather than the 20 percent most impaired days and the 20 percent least impaired days, on which RPGs are based. Therefore, the NPCA Report does not provide an adequate technical basis for revising our findings regarding the relative contribution of area sources at Arizona's Class I areas. Accordingly, for the reasons described in our proposal, we conclude that it is not reasonable to require additional controls on Arizona's area sources at this time.

Comment: EPNG said that it agrees with EPA's assessment that the potential visibility benefits from applying NO_X controls at natural gas compressor stations would be relatively small.

[242] See, e.g. BART EGU FIP Summary.

[243] National Parks Conservation Association, *On an Approach for Improving Visibility in Class I Areas Using Visibility Restoration Plans (VRPs) with an Example VRP for the Grand Canyon National Park* (2014). Exhibit 17 in Earthjustice's comments. Hereafter ''NPCA Report''.

[244] See 79 FR 9362, Tables 53 and 54.

[245] NPCA Report, section C.2 at 10 (''While we have currently accepted these findings for the purposes of developing the example VRP for the GCNP, the accuracy of these findings is questionable and a thorough analysis of the many emission inventories and modeling assumptions made in the WestJump study would be a necessary task in developing an actual VRP for any Class I area'').

[246] NPCA Report, Attachment B Development of Extinction Source Apportionment Data for the Visibility Restoration Plan, Particulate Matter Species Apportionment (''The average apportionment during the highest ten daily-average $PM_{2.5}$ concentrations was created for the six PM species corresponding to the six pollutants that account for the controllable contributions to B_{ext} (PMC, EC, NO_3, SOA, SO_4, and $PM_{2.5}$)'').

Response: We agree with this comment on a per-engine basis, but we strongly encourage the State to consider development of a statewide rule to regulate the categories of natural gas engines and sewage treatment plants in the next planning period.

E. Comments on Reasonable Progress Goals and Uniform Rate of Progress

Comment: Two commenters objected to the lack of numerical RPGs, expressed in deciviews, in EPA's proposed FIP. CPC asserted that because EPA disapproved Arizona's RPGs, EPA is required to establish its own RPGs, under 40 CFR 51.308(d). CPC noted that there is no statutory or regulatory provision that excuses compliance with 51.308(d)(1) due to time and resource limitations. CPC added that EPA would not approve a SIP that did not include numerical RPGs. For these reasons, CPC asserted that the FIP cannot be approved as proposed.

CPC also stated that there is no statutory or regulatory support for EPA's assertion that emission limitations are more critical components of an RH plan than RPGs. CPC stated that establishing RPGs, not emission limits, is the first ''core requirement'' listed in 51.308(d), and that other components, including emission limits established as part of an LTS, must be developed in consideration of RPGs.

CPC stated that future RH plans will be unable to comply with 40 CFR 51.308(f), (g), and (h) unless numerical RPGs are established now. Citing 40 CFR 51.308(f)(2) and (3), CPC noted that Arizona must evaluate the effectiveness of its LTS for achieving RPGs and affirm or revise its RPGs as part of the next 10-year RH SIP. CPC also noted that Arizona must submit a report to the Administrator every five years evaluating progress toward RPGs. CPC stated that such provisions are predicated on the establishment of numerical RPGs and that without this, the proposed FIP does not comply with the RHR today and prevents Arizona from complying with the RHR in the future.

Earthjustice also asserted that EPA should quantify its RPGs. Earthjustice stated that EPA's contention that it has limited time and resources to conduct this task is not justified because Arizona completed its analysis within months of EPA's request. Earthjustice further pointed out that EPA did analysis to determine RPGs in other haze FIPs, such as Hawaii and Montana. Earthjustice also found EPA's claim of insufficient time and resources weak considering the multiple extensions it has received on the consent decree deadlines to complete the FIP. Therefore, Earthjustice asserted that EPA's claim is not warranted and the Agency should have conducted this critical analysis. Earthjustice strongly urged EPA to conduct this analysis during this rulemaking to meet the RHR requirements and for the purpose of identifying emission reductions needed for future planning periods. Earthjustice contended that EPA and the public must have this information available in order to determine how progress will be made and how reasonable EPA's plan is.

Response: We agree that, having disapproved Arizona's RPGs, EPA is required to establish new RPGs under 40 CFR 51.308(d). Therefore, we proposed non-quantified RPGs consistent with the combination of approved control measures in the Arizona RH SIP, the Phase 1 RH FIP, and the proposed Phase 3 RH FIP.[247] We explained that ''[w]hile we would prefer to quantify these proposed RPGs for each of Arizona's 12 Class I areas based on the new State and Federal plans, we lack sufficient time and resources to conduct the type of regional-scale modeling required to develop such numerical RPGs.'' [248] The commenters underestimate the difficulty and time required for this task. While Earthjustice points to the effort of Arizona to provide for new RPGs, the State's effort was based on an extrapolation of historical monitoring trends into the future without any evaluation of whether these trends could reasonably be expected to continue through 2018.[249] Further, the RPGs that EPA promulgated for Hawaii and Montana are not directly comparable to the situation in Arizona. For Montana, EPA relied on WRAP modeling to set RPGs without updating the modeling to reflect additional controls included in the FIP.[250] For Hawaii, EPA employed unique, island-specific emission inventories to develop RPGs.[251]

Development of more refined numerical RPGs for each of Arizona's 12 Class 1 would require photochemical grid modeling of a multistate area, involving thousands of emission sources, unlike the comparatively simple single-source CALPUFF modeling used for individual BART assessments. In order to accurately reflect all emissions reductions expected to occur during this planning period, the new modeling would require an update of the emissions inventory for Arizona and the surrounding states to include not just the actions under this FIP, but all EPA and state regulatory actions on point, area, and mobile sources. After the inventory is developed and reviewed by the affected states for accuracy, it must be converted to a model-ready format before air quality modeling can be used to estimate the future visibility levels at the Class I areas.[252] This modeling would require specialized and extensive computing hardware and expertise. Developing all of the necessary input files, running the photochemical model, and post-processing the model outputs would take several months at a minimum. Finally, the specific controls we are requiring that would be inputs to the modeling changed from the proposal as a result of comments and supplemental information received from the affected facilities and other commenters. Some of these changes occurred only shortly before the deadline for this action, leaving insufficient time for the extensive modeling effort required to develop new RPGs based on photochemical modeling. Therefore, we were unable to conduct additional modeling to quantify the degree of progress that we expect to result from this new combination of controls.

Nonetheless, in order to provide RPGs that account for emission reductions from the FIP controls, we have used a method similar to the one that we used in our FIP for Hawaii, which is based on a scaling of visibility extinction components in proportion to emission changes. To determine the RPGs, we started with the 2018 projection of extinction components from the WRAP's CMAQ photochemical modeling of WRAP emissions scenario PRP18b (''Preliminary Reasonable Progress for 2018, version b''). This

[247] 79 FR 9363.

[248] *Id.*

[249] The State's analysis included monitored data for 2000 through 2010, *i.e.* including several years after the 2000–2004 baseline, during which the effect of emission changes from new controls and other causes might be expected to manifest. We did not find the evidence for downward trends compelling, partly because the year to year variability was comparable to the claimed decreases in visibility impairment. 78 FR 29297. A portion of the State analysis attempted to explain some periods of anomalously high sulfate impairment, with back trajectories suggesting that they were due to out-of-State sources. The difficulty of this analysis illustrates why recent monitored trends by themselves are not a reliable basis for projecting progress, and why multistate photochemical modeling is needed. Unlike trend analysis, such modeling accounts for out-of-State and other sources, along with the varying meteorology and atmospheric chemistry conditions encountered by the pollution plumes from these sources. In any case, the State's analysis and recent trend data do not provide us a basis for establishing numerical RPGs.

[250] 77 FR 23988, 24053.

[251] See 77 FR 31693, 31708.

[252] 79 FR 2437.

CMAQ PRP18b emission scenario included the results of State BART determinations and other SIP controls, as well as projected emissions from other point, area, and mobile sources.[253] We scaled the modeled visibility extinction components for sulfate (SO_4) and nitrate (NO_3) in proportion to the FIP's emission reductions for SO_2 and NO_X, respectively. The sulfate scaling factor was the CMAQ PRP18b SO_2 emissions with FIP controls for BART and RP sources in place, divided by the original CMAQ PRP18b SO_2 emissions.[254] We conducted the same scaling exercise with nitrate and NO_X. The scaled sulfate and nitrate extinctions were added to the unscaled extinctions for organic mass and other components to get total extinction, and then this was used to calculate post-FIP RPGs in deciviews.[255] The results of this analysis are shown in Tables 9 and 10.

TABLE 9—REASONABLE PROGRESS GOALS FOR 20 PERCENT WORST DAYS

[In deciviews]

Code	Class I area	IMPROVE monitor code	2000–2004 baseline	2064 natural conditions	2018 URP	2018 projection by WRAP	FIP effect	FIP 2018 RPG	Years to reach natural conditions
chir	Chiricahua NM.	CHIR1	13.43	7.20	11.98	13.35	-0.16	13.19	367
chrw	Chiricahua WA.	CHIR1	13.43	7.20	11.98	13.35	-0.16	13.19	367
gali	Galiuro WA.	CHIR1	13.43	7.20	11.98	13.35	-0.16	13.19	367
grca	Grand Canyon NP.	GRCA2	11.66	7.04	10.58	11.14	-0.11	11.02	101
maza	Mazatzal WA.	IKBA1	13.35	6.68	11.79	12.76	-0.13	12.63	131
moba	Mount Baldy WA.	BALD1	11.95	6.24	10.62	11.52	-0.13	11.40	141
pefo	Petrified Forest NP.	PEFO1	13.21	6.49	11.64	12.76	-0.12	12.64	165
pimo	Pine Mountain WA.	IKBA1	13.35	6.68	11.79	12.76	-0.13	12.63	131
sagu	Saguaro NP East.	SAGU1	14.83	6.46	12.88	14.82	-0.13	14.68	767
sagu	Saguaro NP West.	SAWE1	16.22	6.24	13.90	15.99	-0.12	15.87	397
sian	Sierra Ancha WA.	SIAN1	13.67	6.59	12.02	13.17	-0.12	13.05	159
supe	Superstition WA.	TONT1	14.16	6.61	12.40	13.85	-0.13	13.72	237
syca	Sycamore Canyon WA.	SYCA1	15.25	6.65	13.25	15.00	-0.08	14.92	360

TABLE 10—REASONABLE PROGRESS GOALS FOR 20 PERCENT BEST DAYS

[In deciviews]

Code	Class I area	IMPROVE monitor code	2000–2004 baseline	2064 natural conditions	2018 projection by WRAP	FIP effect	FIP 2018 RPG	Degradation?
chir	Chiricahua NM	CHIR1	4.91	1.83	4.90	-0.12	4.77	No.
chrw	Chiricahua WA	CHIR1	4.91	1.83	4.90	-0.12	4.77	No.
gali	Galiuro WA	CHIR1	4.91	1.83	4.90	-0.12	4.77	No.
grca	Grand Canyon NP	GRCA2	2.16	0.31	2.12	-0.10	2.02	No.
maza	Mazatzal WA	IKBA1	5.40	1.91	5.17	-0.11	5.07	No.
moba	Mount Baldy WA	BALD1	2.98	0.51	2.86	-0.10	2.76	No.
pefo	Petrified Forest NP.	PEFO1	5.02	1.07	4.73	-0.11	4.62	No.
pimo	Pine Mountain WA	IKBA1	5.40	1.91	5.17	-0.11	5.07	No.
sagu	Saguaro NP East	SAGU1	6.94	2.23	7.04	-0.11	6.93	No.
sagu	Saguaro NP West	SAWE1	8.58	2.50	8.34	-0.11	8.23	No.

[253] ''Simulation Specification for 2018 Preliminary Reasonable Progress Simulation version B'', WRAP Regional Modeling Center, August 11, 2009. Available at WRAP Regional Modeling Center Visibility Modeling Results Web page *http://pah.cert.ucr.edu/aqm/308/cmaq.shtml.*

[254] We assumed that the relevant inventory is the emissions in Arizona and all of its neighboring states.

[255] Additional details of the calculation are available in a spreadsheet in the docket, *FIP_RPG_estimates.xlsx.*

TABLE 10—REASONABLE PROGRESS GOALS FOR 20 PERCENT BEST DAYS—Continued

[In deciviews]

Code	Class I area	IMPROVE monitor code	2000–2004 baseline	2064 natural conditions	2018 projection by WRAP	FIP effect	FIP 2018 RPG	Degradation?
sian	Sierra Ancha WA	SIAN1	6.16	2.03	5.88	-0.10	5.78	No.
supe	Superstition WA	TONT1	6.46	2.03	6.22	-0.12	6.09	No.
syca	Sycamore Canyon WA.	SYCA1	5.58	0.98	5.49	-0.10	5.39	No.

Although we recognize that this method is not refined, it allows us to translate the emission reductions achieved through the FIP into quantitative RPGs, based on modeling previously performed by the WRAP. These RPGs reflect rates of progress that are faster than the rates projected by the State, but are still slower than the URP for each Class I areas. Nonetheless, we consider these rates to be reasonable for the reasons set forth in our proposal and in this final rule. We also note that RPGs, unlike the emission limits that apply to specific RP sources, are not directly enforceable.[256] Rather, they are an analytical tool used by EPA to evaluate whether measures in the implementation plan are sufficient to achieve reasonable progress.[257] Arizona may choose to use these RPGs for purposes of its progress report, or may develop new RPGs, based on new modeling or other appropriate techniques, in accordance with the requirements of 40 CFR 51.308(d)(1).

Comment: Citing 40 CFR 51.308(d)(1)(vi) and EPA's RP Guidance, CPC stated that emission reductions that will occur under other CAA requirements must be taken into account when establishing RPGs. For example, CPC cited the Portland Cement MACT that imposes a PM emission standard of 0.07 lb/ton clinker for existing kilns and clinker coolers. The revised Portland Cement MACT will significantly reduce PM emissions at the Rillito Cement Plant. CPC stated that this is particularly noteworthy because at Saguaro National Park and other Class I areas in Arizona, PM is a far more substantial contributor to regional haze than NO_X. CPC asserted that even if no additional controls are imposed as part of this initial RH plan, emissions of the primary visibility-impacting pollutant will substantially decrease at the Rillito Plant.

Response: We partly agree with this comment. The cited provision of the RHR prohibits the adoption of RPGs that represent less visibility improvement than is expected to result from implementation of other requirements of the CAA during the applicable planning period.[258] EPA's RP Guidance explains that states ''must therefore determine the amount of emission reductions that can be expected from identified sources or source categories as a result of requirements at the local, State, and federal levels during the planning period of the SIP and the resulting improvements in visibility at Class I areas.'' [259] The WRAP modeling that Arizona used to develop RPGs addressed this requirement by including all emission reductions expected at the time that the modeling was performed.[260] In addition, Arizona submitted a supplemental analysis of monitored coarse mass and fine soil impairment at the State's Class I areas, including an examination of the monitored visibility impairment at Class I areas near large stationary sources of PM_{10}.[261] Based on these analyses and EPA's supplemental analysis, as described in our supplemental notice of proposed rulemaking, we approved Arizona's conclusion that no further analysis of PM controls was necessary for this planning period.[262] Therefore, we do not agree that we are required to consider expected reductions in PM emissions from the Portland Cement MACT. Nonetheless, we note that, according to information supplied by CPC, implementation of the cement MACT at Kiln 4 would result in a relatively modest decrease in emissions from 9.6 pounds/hour (lb/hour) to 9.0 lb/hour, a difference of 0.6 lb/hour or 6.25 percent.[263] According to modeling performed by the WRAP, based on an emission rate of 1.43 grams/second (g/s) (about 11.3 lb/hour), the baseline impact of PM emissions from Kiln 4 at the Rillito Plant would be 0.02 dv or less at all potentially affected Class I areas.[264] While the expected emission reductions from Kilns 1–3 are greater, these kilns have not operated since 2008, so there would be no practical impact from this change. Therefore, the overall visibility improvement expected from implementation of the Portland Cement MACT at the Rillito Plant would be *de minimis.*

Comment: CPC stated that EPA's proposed demonstration that its RPGs are reasonable does not and cannot comply with all requirements of 51.308(d)(1)(ii), which state that a RH plan ''must provide to the public for review an assessment of the number of years it would take to attain natural conditions if visibility improvement continues at the rate of progress selected by the State as reasonable.'' As the FIP does not contain this analysis, CPC asserted that the proposed rule does not comply with these requirements.

CPC further stated that once EPA establishes RPGs based on the controls proposed for BART sources, it may learn that 40 CFR 51.308(d)(l)(ii) is not even applicable. CPC asserted that given the significant additional controls proposed for BART sources, it is likely that several Class I Areas will be on pace to meet or exceed URPs, eliminating the need to provide the assessment required here. For example, CPC stated that at Saguaro National Park, EPA has estimated that its proposed BART controls on the Hayden Smelter, Miami Smelter, and Apache Power Plant will have a collective visibility benefit of 2.68 dv, more than enough to meet the URP with no additional controls. CPC added that if Saguaro National Park is already on pace to meet the URP, then

[256] 40 CFR 51.308(d)(1)(v).

[257] Id.

[258] 40 CFR 51.308(d)(1)(vi).

[259] RP Guidance section 4.1.

[260] See Arizona RH SIP at 167 (explaining that Arizona's RPGs are based on, among other things, ''the results of the CMAQ modeling . . . which includes ''on-the-books'' controls and other emission inputs'' and Appendix C (list of CMAQ model emission inputs) Section 11.3.3, and the BART review described in Chapter 10. *http://wrapedms.org/InventoryDesc.aspx.*

[261] Arizona RH SIP Supplement, page 97.

[262] See 78 FR 29298 (proposing to concur with the State's decision to omit coarse mass and fine soil from its four-factor reasonable progress analysis for this planning period); 78 FR 46175, codified at 40 CFR 52.120(c)(154)(ii)(A)(2) and (c)(158) (approving the Arizona Regional Haze SIP, except for specified sections).

[263] See CPC Comments, Exhibit 2.

[264] Summary of WRAP RMC BART Modeling for Arizona Draft#5, May 25, 2007, at 2 (Table 1) and 17, SRC04 Arizona Portland Cement: PM Only (98th percentile 3 Year Average).

it would be reasonable to conclude that additional controls are not necessary for Kiln 4 at this time.

Response: We disagree with this comment. As shown in Table 9 above, even accounting for BART and RP controls, the RPG for Saguaro National Park on the 20 percent worst days is still well above the URP, and it is expected to take hundreds years to reach natural conditions. It is important to note that deciview improvements modeled for individual BART and RP sources using CALPUFF are not directly comparable to RPGs. In particular, modeling for individual BART and RP sources is performed using natural background conditions, rather than current, degraded conditions. EPA explained the rationale for this approach in the preamble to the BART Guidelines:

> Using existing conditions as the baseline for single source visibility impact determinations would create the following paradox: the dirtier the existing air, the less likely it would be that any control is required. This is true because of the nonlinear nature of visibility impairment. In other words, as a Class I area becomes more polluted, any individual source's contribution to changes in impairment becomes geometrically less. Therefore the more polluted the Class I area would become, the less control would seem to be needed from an individual source. . . . Such a reading would render the visibility provisions meaningless, as EPA and the States would be prevented from assuring ''reasonable progress'' and fulfilling the statutorily-defined goals of the visibility program. [265]

Thus, EPA has determined that it is appropriate to use natural background conditions in order to gauge the impacts of an individual source and the expected benefits of controls on an individual source.

By contrast, RPGs are intended to reflect actual conditions at a future date. Accordingly, they are typically set using regional-scale photochemical grid modeling that accounts for the visibility impacts of numerous sources over a large geographic area. Under this approach, the impact attributable to any one source (and the benefits available from controls on any one source) are quite small. Therefore, the expected degree of visibility improvement (in dv) from controls on individual sources does not translate directly into the same degree of improvement in RPGs.

Comment: Citing 40 CFR 51.308(d)(1)(iv), CPC stated that the RHR imposes an obligation to consult with states that may reasonably be anticipated to cause or contribute to visibility impairment in Arizona's Class 1 areas. CPC stated that the proposed FIP does not identify this requirement or explain how it complies with it. CPC concluded that because this consultation must occur when developing each RPG, the proposed FIP does not comply with this requirement.

Response: We do not agree with this comment. As explained in our proposal, the Arizona RH FIP covers only those elements of the RHR for which we disapproved the Arizona RH SIP.[266] Although we disapproved Arizona's RPGs, we did not disapprove the Arizona RH SIP with respect to the consultation requirements 40 CFR 51.308(d)(iv). As explained in our proposal on the Arizona RH SIP, ''Arizona consulted with other states and tribes using the WRAP forums and processes. In particular, Arizona consulted with California, Colorado, New Mexico, and Utah using the primary vehicle of the WRAP Implementation Work Group (IWG).'' [267] EPA also consulted with these other states through our participation in the WRAP.[268] Furthermore, as explained elsewhere in this notice, we have relied upon modeling performed by the WRAP to help quantify RPGs for Arizona. In addition, through our actions on other states' RH SIPs, EPA has considered the impacts of emissions from other states on Arizona's Class I areas.[269] Therefore, we do not agree that we failed to comply with 40 CFR 51.308(d)(1)(iv) or that further consultation was necessary for purposes of today's FIP.

Comment: CPC asserted that 40 CFR 51.308(i)(2) requires that FLMs must be provided with an opportunity for consultation at least 60 days before holding any public hearing on a regional haze implementation plan, and must be provided an opportunity to discuss their recommendations on development of RPGs. CPC stated that the proposed FIP neither identifies nor explains how these requirements were met.

Response: We do not agree with these comments. As noted above, the Arizona RH FIP covers only those elements of the RHR for which we disapproved the Arizona RH SIP.[270] We approved the Arizona RH SIP with respect to the requirements of 40 CFR 51.308(i).[271] Therefore, no FIP is required for this element under the RHR. Nonetheless, we consulted the FLMs during development of the proposed FIP and we have considered and responded to their comments on our proposal, as documented elsewhere in this notice. We note that, while the FLMs have urged EPA to require additional RP controls, they expressed support for EPA's proposed determinations with regard to CPC's Rillito Plant.[272]

Comment: NPS indicated that it agreed with EPA that it is not likely that all of Arizona's Class I areas will meet the URP during this planning period. But, according to NPS, this is partly because EPA and states have not done enough to properly address emissions from RP sources. NPS expressed disappointment that although EPA has acknowledged that certain control technologies are cost-effective, it still proceeded to reject certain controls because they would lead to insufficient improvements in visibility. According to NPS, a fundamental principle of the RHR is the recognition that a decline in visibility is due to a number of sources that contribute to a cumulative visibility issue. NPS argued that EPA's approach of disaggregating each source's contributions to visibility impairment does not solve the problem. The EGU sources that EPA analyzed for reasonable progress, i.e., Cholla Unit 1 and Springerville Units 1 and 2, combined to cause a cumulative 32 dv of impairment at Class I areas in the State. By installing controls on these units, NPS said that emissions could be reduced by more than 4,400 tpy and decrease visibility impacts by 2.6 dv at a cost of $25 million annually. NPS asserted that, by not requiring controls on these units, EPA has failed to meet its obligation to show that it has taken all reasonable measures to make reasonable progress at this time.

Response: We agree with NPS that a fundamental principle of the RHR is the

[265] See 70 FR 39124.

[266] See also CAA section 302(y), 42 U.S.C. 7602(y) (defining FIP as a ''plan (or portion thereof) promulgated by the Administrator *to fill all or a portion of a gap or otherwise correct all or a portion of an inadequacy in a [SIP]* . . .'').

[267] 79 FR 75730.

[268] See, e.g. *http://www.wrapair.org/commforum.html* (describing and listing membership of various WRAP forums, committees and work groups).

[269] See, e.g. 76 FR 13944, 13953 (discussing the ''very small impact on visibility impairment'' of emissions from California on Grand Canyon NP and Sycamore Canyon NP); 77 FR 50936, 50937 (discussing expected improvement in visibility at Grand Canyon NP from BART at Reid Gardner Generating Station in Nevada); 79 FR 26909, 26917, Table 4 (showing expected visibility improvement at Grand Canyon NP and Petrified Forest NP from BART at San Juan Generating Station in New Mexico).

[270] See also CAA section 302(y), 42 U.S.C. 7602(y) (defining FIP as a ''plan (or portion thereof) promulgated by the Administrator *to fill all or a portion of a gap or otherwise correct all or a portion of an inadequacy in a [SIP]* . . .'').

[271] See 77 FR 75734 (proposing to find that Arizona met the requirements for coordination with the FLMs under 40 CFR 51.308(i)); 78 FR 46175 (codified at 40 CFR 52.120(c)(154)(ii)(A)(2) and (c)(158)) (approving the Arizona Regional Haze SIP, except for specified sections).

[272] NPS Comment Letter at 7–8, 10–11.

recognition that visibility impairment at Class I areas is caused by a multitude of different sources. However, in this particular action, EPA is only considering the reasonableness of controls for point sources of NO_X and area sources of NO_X and SO_2. As for the specific EGUs referenced in this comment, we have addressed NPS's concerns about these sources elsewhere in this notice. Therefore, we do not agree that EPA has failed to meet its obligation to ensure reasonable progress. We will continue to work with NPS, the State, and other stakeholders to ensure that reasonable progress is made at Arizona's Class I areas.

Comment: PCC agreed with EPA that it is necessary to consider the degree of improvement in visibility that would be achieved by the imposition of control technology-based standards under 40 CFR 51.308(d)(1)(i)(A), but noted the requirement of 40 CFR 51.308(d)(1)(i)(B) to consider the uniform rate of improvement in visibility. PCC stated that, although EPA has appropriately concluded it is not reasonable to provide for rates of progress at any of Arizona's Class I areas consistent with the URP in this planning period, EPA should make clear the functional distinction between 40 CFR 51.308(d)(1)(i) [RP analysis] and 308(e)(1)(ii)(A) [BART analysis] or else the distinction might appear to be irrelevant. PCC said this clarity is needed where BART-ineligible sources are concerned, particularly PCC, for which EPA characterized the proposed standard as ''EPA's proposed BART,'' even though PCC is a BART-ineligible source.

Response: We agree that the Clarkdale Plant is not BART-eligible. The reference in the TSD to ''EPA's proposed BART'' for the Clarkdale Plant was a clerical error. Thus, our analysis of the Clarkdale Plant is based solely on the RP requirements. There are several distinctions in the applicable requirements for RP sources and BART sources, which are reflected in our analyses for the respective source types. First, unlike for BART, the expected degree of visibility improvement is not listed in the RHR as a required factor for consideration in relation to individual RP sources. While we have considered visibility improvement as a supplementary factor for RP sources, we have not given it the same weight as in our BART determinations, for which it is a mandatory statutory factor. Second, ''the time necessary for compliance'' is a required factor for RP, but not for BART, and we have considered it as such. Third, BART controls must be installed ''as expeditiously as practicable,'' whereas there is no similar requirement for RP sources. Thus, we do not consider the distinction between BART and RP sources to be irrelevant.

Comment: Earthjustice stated that EPA's proposed FIP fails to meet the goals of the regional haze program. The commenter asserted that EPA's RPGs and reasonable progress determination are in violation of the CAA. Earthjustice said that Arizona's regional haze plan, which EPA disapproved, was far from meeting the RPGs and would have delayed natural visibility for Arizona's national parks and wilderness areas by hundreds, even thousands of years. According to Earthjustice, it is now EPA's responsibility to step in and ensure that a Federal haze plan makes reasonable progress toward the national goals, because Arizona's plan failed to do so. However, in Earthjustice's opinion, EPA's proposal failed to comply with the regional haze program's reasonable progress requirements. Earthjustice pointed out that the Agency admitted that the Federal plan will not achieve reasonable progress towards the 2064 goal. Earthjustice continued by stating that EPA has failed to meet the requirements of 40 CFR 51.308(d)(1)(ii) to demonstrate that (1) the 2064 goal is unreasonable at each of Arizona's Class I areas and that (2) EPA's RPGs are reasonable.

Earthjustice stated that EPA should have determined the necessary emissions reductions needed to remain on the 2064 glide path and whether those reductions would be reasonable based on the four reasonable progress factors. According to Earthjustice, instead of doing this EPA promptly determined that the 2064 glide path was unachievable because the individual source-by-source reasonable progress determinations would not be enough to meet the glide path. Earthjustice acknowledged and appreciates the work EPA has done in place of Arizona's inadequate haze plan. However, Earthjustice thought that the approach EPA has followed is inadequate because it is not bound to the overarching 2064 natural visibility goal. Specifically, it is not known what level of emissions reductions (1,000, 100,000 or 1,000,000 tpy) will ensure that the State of Arizona will meet the glide path for each Class I area. Nor is it known how those reductions could be achieved and if those reductions would be reasonable. Because these analyses have not been conducted, Earthjustice argued that EPA has not shown that it would be unreasonable for Arizona's Class I areas to achieve the glide path.

Earthjustice pointed to a brief filed by EPA in *American Corn Growers,* where EPA stated that:

> Certainly the courts would not find it difficult to affirm an EPA decision finding a State plan ''unreasonable'' if a State proposes to improve visibility so slowly that the national visibility goal would not be achieved for 200 or 300 years despite the availability of more stringent, cost-effective measures.[273]

Earthjustice stated, however, that under EPA's proposal it is very likely that it would take even longer to restore Class I areas to their natural visibility. In spite of recent EPA actions and the proposed pollution controls, the FIP does not, in Earthjustice's opinion, have sufficient emissions reductions to bring Arizona's Class I areas back on track to the glide path. Earthjustice asserted that additional controls are needed, and without further controls, it could still take centuries or millennia to restore natural visibility.

Similarly, CPC stated that because the proposed FIP contains no discussion of what measures would be required to meet a uniform rate of improvement in Arizona's Class 1 areas, the proposed rule does not comply with 40 CFR 51.308(d)(1)(i)(B).

Response: The commenters' focus on the URP for the 20 percent worst days is misguided for a number of reasons. First, the URP is not binding. A state or EPA can set RPGs that provide for less progress than the URP if those RPGs are demonstrated to be reasonable (and achievement of the URP to be unreasonable) based upon an analysis of the four RP factors.[274] Second, as explained further below, much of the visibility impairment on the 20 percent worst days at many Class I areas implicated in this plan is caused by sources that are either non-anthropogenic or not feasible to control. Under these circumstances, projections regarding progress on those days are of limited value in determining the reasonableness of additional controls. Lastly, the only source categories and pollutants at issue in this action are non-BART point sources of NO_X and area sources of NO_X and SO_2. All other source categories and pollutants were addressed by EPA's action on the State's SIP.[275]

EPA disagrees with Earthjustice's assertion that we have not demonstrated that it is unreasonable to attain the URP. The commenter correctly notes that the

[273] Corrected Final Brief of Respondent EPA at 80–81, *Am. Corn Growers Ass'n* v. *EPA,* 291 F.3d 1 (D.C. Cir. 2002) (No. 99–1348). Submitted with the comments as Exhibit 15.

[274] See 64 FR 35730–35731.

[275] See 78 FR 46172.

State's RPGs provide little visibility improvement on the 20 percent worst days, leading to long estimates of the time that would be required to attain ''natural'' levels of visibility. Earthjustice implicitly assumes that most of the visibility impairment on the 20 percent worst days is from controllable, anthropogenic sources. As EPA explained in our previous action on the Arizona RH SIP, the causes of haze on the 20 percent worst days in the Class I areas of Arizona are often due to largely uncontrollable sources.[276] Table 8 in our December 21, 2012, proposed action on the Arizona RH SIP shows the causes of haze at the Class I areas in Arizona. Earthjustice highlighted seven Class I areas that are projected to make particularly slow progress in visibility improvement on the 20 percent worst days: Saguaro National Park East Unit (SAGU1 monitor), Chiricahua National Monument, Chiricahua Wilderness and Galiuro Wilderness (all represented by the CHIR1 monitor), Saguaro National Park West Unit (SAWE1 monitor), Sycamore Canyon Wilderness (SYCA1 monitor) and Superstition Wilderness (TONT1 monitor).[277] As shown in Table 11, in each of these Class I areas, the majority of impairment on the 20 percent worst days is attributable to organic carbon, elemental carbon, coarse mass, fine soil and sea salt.

TABLE 11—PERCENTAGE CONTRIBUTION FROM ORGANIC CARBON, ELEMENTAL CARBON, COARSE MASS, FINE SOIL ON 20 PERCENT WORST DAYS DURING BASELINE PERIOD[278]

IMPROVE Monitor	Contribution from organic carbon, elemental carbon, coarse mass, fine soil and sea salt (percent)
SAGU1	65.9
CHIR1	68.9
SAWE1	72.9
SYCA1	81.8
TONT1	66.8

We previouslyapproved Arizona's RP determinations for this planning period with respect to each of these pollutants.[279] We also approved the State's determination that it is not reasonable to require additional controls on mobile sources of NO_X and SO_2 and that it is not reasonable to require additional SO_2 reductions from point sources in this planning period for RP purposes.[280] Thus, the only RP issue at question in this action is whether it is appropriate to require controls on non-BART point sources of NO_X or area sources of NO_X and SO_2 in order to ensure reasonable progress in visibility improvement. As explained elsewhere in this notice, based on our analyses of the four RP factors and the potential for visibility improvement from additional controls, we have determined that it reasonable to require installation of SNCR on two cement kilns by 2018, but that additional RP controls are not reasonable at this time.

Comment: Earthjustice strongly urged EPA to require additional RP controls beyond the proposal for control on only two cement kilns, to make sure Arizona returns to the glide path to meet natural visibility goal in 2064. According to Earthjustice, in EPA's explanation of why it did not require any of the other sources of NO_X to install pollution controls, EPA recognized that reasonable progress controls on these other sources are generally reasonable and EPA said that the decision of no control for these sources should be revisited in future planning periods. Earthjustice argued that taking into account how far off Arizona Class I areas are from their glide paths, EPA should require reasonable progress controls on these other sources during the current planning period. Earthjustice cited 40 CFR 51.308(d)(3)(ii), which requires ''all measures necessary'' be implemented to achieve reasonable progress. Earthjustice said that additional NO_X reductions can be achieved at both cement plants and should be pursued in order to ensure Arizona Class I areas move closer towards the glide path.

While acknowledging that EPA's proposal is an improvement over the State's plan, Earthjustice questioned whether it represents all measures that should be taken to reduce SO_2, NO_X, and PM that impair visibility at places like the Grand Canyon and the many other renowned national parks in Arizona and the Southwest. To the extent that it does not, Earthjustice encouraged EPA to compel further reductions. Earthjustice stated that it is good that EPA has acted, particularly in the earlier phase of the Arizona plan that compels controls on the Cholla, Coronado, and Apache coal-fired power plants, but Earthjustice asserted that given the level of impairment and numerous sources responsible, more should be done.

Response: As explained in our response to the previous comment, the URP is not binding and a state or EPA can set RPGs that provide for less progress than the URP if those RPGs are demonstrated to be reasonable (and achievement of the URP to be unreasonable) based upon an analysis of the four RP factors.[281] EPA disagrees with the Earthjustice's interpretation of 40 CFR 51.308(d)(3)(ii), which requires the State (or EPA in the case of a FIP) to implement all measures necessary to achieve the RPG. As explained in the previous response, due to our previous partial approval of the State's SIP, our RP analysis is limited to point sources of NO_X and area sources of NO_X and SO_2. Our responses to comments regarding specific sources are included elsewhere in this notice. As explained in those responses, EPA does not agree that additional controls are warranted in this implementation period.

F. Other Comments on Reasonable Progress

Comment: ADEQ commented that even though EPA has disapproved the RPGs in Arizona's RH SIP, the Agency has been unable to develop specific goals, except for the ones based on the WRAP modeling results. The only thing EPA has added to the LTS for Arizona, besides new BART or reasonable progress control requirements, was ''enforceable measures.'' However, ADEQ asserted that many of these measures are already in place. For example, ADEQ asserted that ''EPA admits that the current Title V permit for the Miami Smelter provide[s] sufficient enforceability.'' Therefore, ADEQ argued that EPA has no basis for disapproving those portions of the Arizona RH SIP and should not impose a FIP for that reason.

Response: These comments largely pertain to EPA's partial disapproval of the Arizona RH SIP and are therefore untimely, as EPA has already taken final action on the SIP.[282] To the extent that that comments suggest that EPA has not fulfilled the requirements of the RHR, we do not agree. As explained above, we are now quantifying the RPGs that we proposed. These RPGs show greater

[276] The pollutants in question are organic carbon, elemental carbon, coarse mass, fine soil and sea salt. We explained in our action on the State's SIP that these pollutants are not reasonable to control at this time. See 77 FR 75728 for a discussion on sources of organic carbon and elemental carbon (fires), and 78 FR 29297–29299 for a discussion of coarse mass and fine soil.

[277] See 77 FR 75717.

[278] See Table 8 on 77 FR 75717.

[279] See 77 FR 75728 for a discussion on sources of organic carbon and elemental carbon (fires), and 78 FR 29297–29299 for a discussion of coarse mass and fine soil.

[280] 78 FR 46146.

[281] See 64 FR 35730–35731.

[282] 78 FR 46142.

reasonable progress at all of the State's Class 1 areas than Arizona's RPGs. Furthermore, we note that our FIP includes enforceable emission limits and related requirements applicable to six different sources. The Arizona RH SIP did not include any such enforceable measures. With regard to the Miami Smelter in particular, as explained elsewhere in this notice, we are incorporating the relevant NESHAP requirements as part of the final FIP in order to ensure the federal enforceability of ADEQ's BART determination for PM_{10}.

Comment: Earthjustice commented that additional PM reductions could be achieved by using improved fabric filter materials at the cement plants' fabric filters.

Response: Because we previously approved the State's RP analysis for PM, we did not evaluate additional PM controls at any sources for purposes of our FIP. However, we note that, as detailed in CPC's comments, the Rillito Plant will be required to improve its PM controls in order to comply with the Portland cement MACT.

VIII. Responses to Comments on Statutory and Executive Order Reviews

Comment: CPC stated that, with the exception of Consultation and Coordination with Indian Tribal Governments (Executive Order 13175), the proposed FIP asserts that the statutes and executive orders (E.O. or Order) are inapplicable in this matter, but does not adequately explain why. With respect to Regulatory Planning and Review (Executive Order 12866), the proposed FIP stated that it is not a ''significant regulatory action'' and is not a rule of general applicability. CPC stated that the proposed FIP will have an adverse material effect on several sectors of the economy, in particular the cement and copper industries, and includes requirements that have statewide, general applicability. According to CPC, one of the provisions of Executive Order 12866 requires agencies to consider alternatives. CPC stated that had the Proposed FIP considered and evaluated alternatives, such as deferring controls on CPC during this first planning period, then it would be possible to conduct a full and fair evaluation to see if the benefits are worth the costs. Without this analysis of alternatives, CPC believes the proposed FIP is incomplete. Regarding the Unfunded Mandates Reform Act (UMRA), CPC asserted that given the extremely high costs to comply with the rule (about $81,000,000 for the Hayden Smelter alone), it is likely that the aggregate costs will exceed the $100,000,000 threshold in at least one year. Similarly, according to CPC, when combined with the BART controls imposed by the FIP on three power plants, annual expenditures will exceed the UMRA's threshold ''in any one year.'' CPC stated EPA should not circumvent UMRA by subdividing a regulatory action, in this case the adoption of a FIP, into multiple parts. Regarding Executive Order 13563, CPC asserted that EPA must redo the proposed FIP to establish new RPGs, and identify controls as necessary to meet the RPGs. As part of that process, Executive Order 13563 should be followed so that EPA identifies and uses the best, most innovative, and least burdensome tools to achieve reasonable progress. CPC asserted that complying with the statutes and Executive Orders governing the rulemaking process is good public policy and the decision to disregard these principles has led to arbitrary and capricious results.

Response: We do not agree that our proposed FIP is inconsistent with the requirements of any applicable Executive Orders (E.O.s) or statutes, or that we failed to explain the applicability of these requirements. Under E.O. 12866, ''Regulatory Action'' is defined as ''any substantive action by an agency . . . that promulgates or is expected to lead to the promulgation of a final rule or regulation.'' [283] ''Regulation'' or ''rule,'' in turn, is defined as ''an agency statement of general applicability and future effect.'' [284] E.O. 12866 does not define ''statement of general applicability,'' but this term commonly refers to statements that apply to groups or classes, as opposed to statements which apply only to named entities. The Phase 3 partial FIP for Arizona's regional haze program is not a rule of general applicability because its requirements are tailored to six individually identified facilities. Thus, it is not a ''rule'' or ''regulation'' within the meaning of E.O. 12866 and this action is not a ''regulatory action'' subject to 12866.

Executive Order 13563, Improving Regulation and Regulatory Review, is supplemental to and reaffirms the principles, structures, and definitions governing contemporary regulatory review that were established in EO 12866. In general, the Order seeks to ensure the regulatory process is based on the best available science; allows for public participation and an open exchange of ideas; promotes predictability and reduces uncertainty; identifies and uses the best, most innovative, and least burdensome tools for achieving regulatory ends; and takes into account benefits and costs, both quantitative and qualitative. However, nothing in the Order shall be construed to impair or otherwise affect the authority granted by law to the Agency. As explained in our proposal, this action is not an action subject to review under Executive Orders 12866 and 13563. In particular, as explained above, this action is not a ''regulatory action'' as defined under E.O. 12866. Nonetheless, we have followed the principles of E.O. 13563 in developing this action. We have applied the best available science, sought information and feedback from potentially affected sources, carefully considered costs and benefits, provided a public comment period and two public hearings, and offered flexibility on compliance mechanisms (e.g., a BART alternative for TEP Sundt, performance standards rather than emissions standards for the copper smelters, adjusted averaging times for the Nelson Lime Plant, and the option of annual emission limits for the cement plants).

Under section 202 of UMRA, before promulgating any final rule for which a general notice of proposed rulemaking was published, EPA must prepare a written statement, including a cost-benefit analysis, if that rule includes any ''Federal mandates'' that may result in expenditures to state, local, and tribal governments, in the aggregate, or to the private sector, of $100 million or more (adjusted for inflation) in any one year. As of 2013, the inflation-adjusted threshold was $150 million.[285] UMRA defines the term ''Federal private sector mandate'' to mean any provision in regulation that would impose an enforceable duty upon the private sector. Under UMRA, the term ''regulation'' or ''rule'' means any rule for which the agency publishes a general notice of proposed rulemaking. This final rule is limited to addressing the remaining requirements of the RHR for Arizona and does not include other regional haze actions occurring in separate rulemakings. We estimate that the total annual costs of this rulemaking action will not exceed $32,012,772.[286]

[283] Executive Order 12866, 58 FR 51735 (October 4, 1993), section 3(e).

[284] Id. section 3(d).

[285] See *http://www.cbo.gov/publication/45209*.

[286] See ''Summary of Costs for Final Rule: Promulgation of Air Quality Implementation Plans; Arizona; Regional Haze and Interstate Visibility Transport Federal Implementation Plan, EPA–R09–OAR–2013–0588.'' We do not agree with the commenter that we should use total capital costs instead of annualized costs. The UMRA threshold is based on annual costs. It is not known in exactly which year capital costs associated with controls would be incurred. Thus it is not possible to allocate these costs to specific years. Instead, our

Even if this were added to the annual costs of our prior Phase 1 FIP for Arizona ($65 million), the total cost is still less than the inflation-adjusted annual threshold. Furthermore, the cost estimates we have provided are based on conservative assumptions (i.e., tending to overestimate rather than underestimate costs) and do not account for the fact that certain controls (e.g., SO_2 controls for the smelters) may be required under other provisions of the CAA prior to the implementation deadlines in this FIP.

Comment: One commenter (Representative Gosar) expressed concern that the proposed FIP does not adequately assess the potential negative economic impacts on small businesses. The commenter noted that EPA states in the **Federal Register** that this proposed rule will not have a significant economic impact on a substantial number of small businesses as none of the facilities subject to this proposed rule are owned by a small entity. While conceding that the six facilities addressed in the FIP are technically not small businesses, the commenter asserted that the rule will harm small businesses with services that are dependent on the facilities. The commenter contended that putting these facilities out of business or causing them to increase their rates to pay for the new technology mandates will certainly have a trickle-down effect on a significant number of small businesses.

Response: This comment appears to refer to EPA's certification under the Regulatory Flexibility Act (RFA) that the FIP will not have a significant economic impact on a substantial number of small entities. Courts have interpreted the RFA to require a regulatory flexibility analysis only when a substantial number of small entities will be subject to the requirements of the Agency's action.[287] None of the facilities subject to this rule is owned by a small entity.[288] Thus, no regulatory flexibility analysis is required. Nonetheless, EPA sought comments regarding the cost of controls from all entities affected by this action and carefully considered all relevant information. None of the affected entities, nor any other commenter, has provided any evidence that the requirements of today's rule would cause any company to go out of business. As described elsewhere, this final action is necessary to achieve the objectives of the CAA and RHR based on our determination that the visibility improvements justify the costs of this rule.

IX. Responses to Other Comments

A. Comments on Preamble Language

Comment: LNA recommended a number of corrections and clarifications to the preamble language in our proposed rule published on February 18, 2014.

Response: We acknowledge the corrections and clarifications from LNA. While we cannot revise the text of the proposal preamble, we have addressed the substantive issues identified by LNA in our responses to comments in this final rule.

B. Comments on Rule Language

Comment: Two commenters (LNA and ASARCO) suggested various corrections and clarifications to the proposed rule language.

Response: We acknowledge the corrections and clarifications suggested by LNA and ASARCO. We have addressed the substantive issues identified by LNA and ASARCO in our responses to comments in this final rule. Where we agree with LNA's and ASARCO's suggestions, we have made the appropriate revisions to the regulatory text.

C. Comments on Other Benefits of the Regional Haze Program

Comment: Two commenters expressed concern about the health effects of the pollutants that cause or contribute to regional haze. Earthjustice stated that, in addition to improving visibility, the regional haze program for Arizona will yield significant public health benefits if properly implemented. Earthjustice noted that the same pollutants that impair scenic views at national parks and wilderness areas also cause significant public health impacts, including the following:

- NO_X is a precursor to ground level ozone, which is associated with respiratory diseases, asthma attacks, and decreased lung function.
- NO_X also reacts with ammonia, moisture, and other compounds to form particulates that can cause and worsen respiratory diseases, aggravate heart disease, and lead to premature death.
- SO_2 increases asthma symptoms, leads to increased hospital visits, and can form particulates that aggravate respiratory and heart diseases and cause premature death.
- PM can penetrate deep into the lungs and cause a host of health problems, such as aggravated asthma and heart attacks.

Earthjustice believes that Arizona's regional haze program will reduce the serious public health toll imposed on Arizonans by the State's power plants, copper smelters, and other sources of pollution.

A private citizen expressed concerns specifically about the health effects that are a result of burning coal, which the commenter said is a form of energy that leads to some of the worst air pollution compared to renewable energy sources such as wind, solar and geothermal power. The commenter said that 87 percent of NO_X emissions, 94 percent of SO_2 emissions, and 98 percent of mercury emissions from the utility sector are from utilities that burn coal. The commenter discussed the health effects of these pollutants and specifically mentioned the negative health effects of NO_X, which can cause throat irritation at low levels of exposure and serious damage to the tissues in the respiratory tract, fluid buildup in the lungs, and death at high levels of exposure.

Response: We agree that the same pollutants that contribute to haze also cause significant public health problems and that to the extent that this FIP reduces these pollutants, there are co-benefits for public health. However, for purposes of this regional haze action, we have not considered these benefits.

Comment: Earthjustice stated the regional haze program for Arizona will provide substantial economic benefits, noting that EPA values the regional haze program's health benefits nationally at $8.4 to $9.8 billion annually. Earthjustice also noted that requiring sources to invest in modern pollution controls is a job-creating mechanism in itself, as each installation creates short-term construction jobs, as well as permanent operations and management positions. Earthjustice pointed out that the regional haze program protects national parks and wilderness areas, which are of great natural and cultural value, as well as serving to sustain local economies. According to Earthjustice, in 2012 more than 4.4 million people visited the Grand Canyon. This tourism supported more than 6,000 jobs and resulted in more than $453 million in visitor spending. Another example is that over 1.2 million people visited Petrified Forest and Saguaro National Parks in 2012, which supported more than 1,000 jobs and resulted in more than $76 million in visitor spending. Earthjustice added that studies show that national park visitors prioritize

total annual cost estimate includes both annualized capital costs and variable annual costs (i.e., operation and maintenance costs).

[287] See, e.g., *Mid-Tex Elec. Co-op, Inc.* v. *FERC,* 773 F.2d 327, 342 (D.C. Cir. 1985).

[288] See Regulatory Flexibility Act Screening Analysis for Proposed Arizona Regional Haze Federal Implementation Plan (EPA–R09–OAR–2013–0588).

enjoying beautiful scenery when visiting national parks and will visit parks less during hazy conditions. Earthjustice concluded that the Arizona regional haze program will noticeably improve visibility at Arizona's national parks, and thereby increase revenue to the parks and surrounding communities.

Response: We agree that our action today, together with prior actions by the State and EPA, will provide economic benefits. However, for purposes of this action, we have not calculated these benefits.

Comment: Earthjustice stated the regional haze program for Arizona will provide important environmental benefits because in addition to impairing visibility, NO_X, SO_2, and PM pollution harms plants and animals, soil health, and entire ecosystems in the following ways:

- NO_X and SO_2 are the primary causes of acid rain, which acidifies lakes and streams and can damage certain types of trees and soils. Acid rain also accelerates the decay of building materials and paints, including irreplaceable buildings and statues that are part of our nation's cultural heritage.
- Nitrogen deposition, caused by wet and dry deposition of nitrates derived from NO_X emissions, causes well-known adverse impacts on ecological systems. At times, nitrogen deposition exceeds ''critical loads'' beyond the tolerance of various ecosystems.
- NO_X is also a precursor to ozone. Ground-level ozone affects plants and ecosystems by interfering with plants' ability to produce food and increasing susceptibility to disease and insects. Ozone also contributes to wildfires and bark beetle outbreaks in the West by depressing plant water levels and growth.

Response: We agree that NO_X, SO_2, and PM can have negative impacts on plants and ecosystems. However, while we note the potential for co-benefits to ecosystem health resulting from our action today, we have not taken these potential benefits into account in this action.

D. Miscellaneous Comments

Comment: PCC incorporated by reference its previous comments on EPA's proposal for partial approval and partial disapproval of Arizona's RH SIP published in a final rule dated July 30, 2013. PCC also incorporated the comments that ADEQ made on EPA's proposed action on the Arizona RH SIP. ADEQ's comments were in regard to federalism and deference that EPA owes to the State's decision-making under the regional haze provisions of the CAA, especially as they relate to non-BART sources of NO_X and PCC's facility in particular.

Response: To the extent that previous comments from PCC and ADEQ regarding our Phase 2 SIP action are relevant here, we incorporate by reference our responses to those comments in the final SIP rule published on July 30, 2013.[289]

Comment: One private citizen acknowledged EPA's proposal addressing regional haze in Arizona, but submitted comments regarding controlled burns that occur in the White Mountain area of North Arizona, and in other areas of the country.

Response: We agree that wildfires also contribute to regional haze. However, today's rule does not address wildfires. We will continue to work with the State to address emissions from wildfires.

Comment: One private citizen pointed out that natural resources come in two forms, and some are finite, including coal and natural gas. The commenter noted that as those run out, we have to come up with other sources of energy, so we might as well start thinking about that sooner rather than later. The commenter went on to say that he would rather pay more for energy or not have technology at all if it is going to have a negative effect on health and medical costs. The commenter asked that EPA provide information, not only about the science, but also the social science of using finite resources.

Response: This comment is not relevant to this rulemaking.

X. Summary of Final Action

A. Regional Haze

EPA's is promulgating a FIP to address the remaining portions of the Arizona RH SIP that we disapproved on July 30, 2013. This final rule establishes limits on NO_X and SO_2 emissions at four BART sources and on NO_X emissions at two RP sources. We estimate that these emission limits on all six facilities will result in total annual emission reductions of about 2,900 tons/year of NO_X and 29,300 tons/year of SO_2 as shown in Table 12. While the rule also establishes emission limits for PM_{10} on the four BART facilities, these limits are based on existing controls.

TABLE 12—EMISSIONS REDUCTIONS BY SOURCE

Source	Control technology	Emission reductions (tons/year)	
		NO_X	SO_2
Sundt Unit 4 (BART)	SNCR and DSI	393	1,502
Nelson Lime Plant Kilns 1 and 2	SNCR and Lower sulfur fuel	983	925
Hayden Smelter (multiple units)	Amine scrubber for secondary capture	.....	20,036
Miami Smelter (multiple units)	Improve primary and new secondary capture systems, additional controls as needed.	.....	6,845
PCC Clarkdale Plant Kiln 4	SNCR	810	.....
CPC Rillito Plant Kiln 4	SNCR	729	.....
Total	.....	2,915	29,308

The estimated costs associated with the NO_X and SO_2 emission reductions are shown in Tables 13 and 14 for each of the six sources, and are based on the control technology corresponding with the final emission limits.

[289] 78 FR 46142.

TABLE 13—SUMMARY OF COSTS FOR NO_X CONTROLS

Source	Capital cost ($)	Annualized capital cost ($/year)	Annual O&M ($/year)	Total annualized cost ($/year)	Cost-effectiveness ($/ton)
TEP Sundt Unit 4	$3,079,089	$290,644	$975,124	$1,265,768	$3,222
Nelson Lime Plant Kiln 1	450,000	42, 477	358,459	400,936	817
Nelson Lime Plant Kiln 2	450,000	42,477	354,981	397,458	807
Phoenix Cement Kiln 4	1,500,000	140,000	800,000	940,000	1,162
CalPortland Cement Kiln 4	1,300,000	128,000	1,220,000	1,350,000	1,850

TABLE 14—SUMMARY OF COSTS FOR SO_2 CONTROLS

Source	Capital cost ($)	Annualized capital cost ($/year)	Annual O&M ($/year)	Total annualized cost ($/year)	Cost-effectiveness ($/ton)
TEP Sundt Unit 4	$3,250,000	$306,777	$2,482,107	$2,788,884	$1,857
Nelson Lime Plant Kiln 1	.....	.....	313,096	313,096	856
Nelson Lime Plant Kiln 2	.....	.....	458,179	458,179	819
Hayden Smelter	85,000,000	8,023,399	9,300,000	17,323,399	865
Miami Smelter	47,850,000	4,516,701	2,258,351	6,775,052	990

Based on air quality modeling, the emission reductions should result in improved visibility at 17 Class I areas in four states, including Arizona. The maximum and cumulative visibility benefits (i.e., the sum of benefits over affected areas) are shown in Table 15 for each source and type of control.

TABLE 15—SUMMARY OF VISIBILITY BENEFITS

Source	Maximum visibility benefit, (deciviews)	Cumulative visibility benefit (deciviews)	Control technology
Sundt Unit 4	0.49	1.4	SNCR and DSI.
Sundt Unit 4: BART Alternative	1.06	2.7	Natural gas.
Nelson Lime Plant Kilns 1 and 2 (NO_X)	0.58	0.85	SNCR.
Nelson Lime Plant Kilns 1 and 2 (SO_2)	0.10	0.29	Lower sulfur fuel.
Hayden Smelter (multiple units)	1.44	10.2	Amine scrubber for secondary capture.
Miami Smelter (multiple units)	0.41	1.7	Improve primary and new secondary capture systems, additional controls as needed.
PCC Clarkdale Plant Kiln 4	0.52–1.85	1.7–3.0.	SNCR
CPC Rillito Plant Kiln 4	0.18	0.6	SNCR.

This final rule, along with the previously approved portions of the Arizona RH SIP and a previously finalized FIP, constitute Arizona's regional haze implementation plan for the first planning period that ends in 2018.

B. Interstate Transport

We also are finalizing our determination that the interstate transport visibility requirement of section 110(a)(2)(D)(i)(II) for the 1997 8-hour ozone, 1997 $PM_{2.5}$, and 2006 $PM_{2.5}$ NAAQS is satisfied by a combination of measures in the Arizona RH SIP and FIP. These measures are in the approved portions of the Arizona RH SIP and in our two FIP actions, this final rule and our final rule on December 5, 2012.

XI. Statutory and Executive Order Reviews

A. Executive Order 12866: Regulatory Planning and Review and Executive Order 13563: Improving Regulation and Regulatory Review

This action finalizes a Regional Haze FIP for six individually named facilities in Arizona. This action is not a rule of general applicability and therefore not a ''regulatory action'' under the terms of Executive Order (EO) 12866 (58 FR 51735, October 4, 1993). This type of action is exempt from review under EO 12866 and is therefore not subject to review under Executive Order 13563 (76 FR 3821, January 21, 2011).

B. Paperwork Reduction Act

This action does not impose an information collection burden under the provisions of the Paperwork Reduction Act, 44 U.S.C. 3501 et seq. Burden is defined at 5 CFR 1320.3(b). Because this action will finalize a Regional Haze FIP for only six facilities in Arizona, the Paperwork Reduction Act does not apply. See 5 CFR 1320.3(c). An agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid Office of Management and Budget (OMB) control number. The OMB control numbers for our regulations in 40 CFR are listed in 40 CFR part 9.

C. Regulatory Flexibility Act

The Regulatory Flexibility Act (RFA) generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act or any other statute unless the agency certifies

that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small organizations, and small governmental jurisdictions. For purposes of assessing the impacts of this rule on small entities, small entity is defined as: (1) A small business as defined by the Small Business Administration's (SBA) regulations at 13 CFR 121.201; (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for profit enterprise which is independently owned and operated and is not dominant in its field.

After considering the economic impacts of this action on small entities, I certify that this action will not have a significant economic impact on a substantial number of small entities. This final rule will not impose any requirements on small entities. None of the facilities subject to this rule is owned by a small entity.[290]

D. Unfunded Mandates Reform Act (UMRA)

Unfunded Mandates Reform Act of 1995 (UMRA), Public Law 104–4, establishes requirements for Federal agencies to assess the effects of their regulatory actions on State, local, and Tribal governments and the private sector. Under section 202 of UMRA, EPA generally must prepare a written statement, including a cost-benefit analysis, for proposed and final rules with ''Federal mandates'' that may result in expenditures to State, local, and Tribal governments, in the aggregate, or to the private sector, of $100 million or more (adjusted for inflation) in any one year. Before promulgating an EPA rule for which a written statement is needed, section 205 of UMRA generally requires EPA to identify and consider a reasonable number of regulatory alternatives and to adopt the least costly, most cost-effective, or least burdensome alternative that achieves the objectives of the rule. The provisions of section 205 of UMRA do not apply when they are inconsistent with applicable law. Moreover, section 205 of UMRA allows EPA to adopt an alternative other than the least costly, most cost-effective, or least burdensome alternative if the Administrator publishes with the final rule an explanation why that alternative was not adopted. Before EPA establishes any regulatory requirements that may significantly or uniquely affect small governments, including Tribal governments, it must have developed under section 203 of UMRA a small government agency plan. The plan must provide for notifying potentially affected small governments, enabling officials of affected small governments to have meaningful and timely input in the development of EPA regulatory proposals with significant Federal intergovernmental mandates, and informing, educating, and advising small governments on compliance with the regulatory requirements.

Under Title II of UMRA, EPA has determined that this rule does not contain a Federal mandate that may result in expenditures that exceed the inflation-adjusted UMRA threshold of $100 million (in 1996 dollars) by State, local, or Tribal governments or the private sector in any 1 year. In addition, this rule does not contain a significant Federal intergovernmental mandate as described by section 203 of UMRA nor does it contain any regulatory requirements that might significantly or uniquely affect small governments.

E. Executive Order 13132: Federalism

This rule will not have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132. In this action, EPA is fulfilling our statutory duty under CAA Section 110(c) to promulgate a partial Regional Haze FIP. Thus, Executive Order 13132 does not apply to this action.

F. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments

Subject to the Executive Order 13175 (65 FR 67249, November 9, 2000) EPA may not issue a regulation that has tribal implications, that imposes substantial direct compliance costs, and that is not required by statute, unless the Federal government provides the funds necessary to pay the direct compliance costs incurred by tribal governments, or EPA consults with tribal officials early in the process of developing the proposed regulation and develops a tribal summary impact statement.

EPA has concluded that this action will have tribal implications, because it will impose substantial direct compliance costs on tribal governments and the Federal government will not provide the funds necessary to pay those costs. PCC is a division of Salt River Pima Maricopa Indian Community (SRPMIC or the Community) and profits from the Phoenix Cement Clarkdale Plant are used to provide government services to SRPMIC's members. Therefore, EPA is providing the following tribal summary impact statement as required by section 5(b).

EPA consulted with tribal officials early in the process of developing this regulation so that they could have meaningful and timely input into its development. In November 2012, we shared our initial analyses with SRPMIC and PCC to ensure that the tribe had an early opportunity to provide feedback on potential controls at the Clarkdale Plant. PCC submitted comments on this initial analysis as part of the rulemaking on the Arizona Regional Haze SIP and we revised our initial analysis based on these comments. On November 6, 2013, the EPA Region 9 Regional Administrator met with the President and other representatives of SRPMIC to discuss the potential impacts of the FIP on SRPMIC. Following this meeting, staff from EPA, SPRMIC and PCC shared further information regarding the Plant and potential impacts of the FIP on SRPMIC.[291]

In our February 18, 2014 proposal, EPA proposed to require installation of SNCR at Kiln 4 at the Clarkdale Plant by December 31, 2018 and sought comment on the possibility of establishing an annual cap on NO_X emissions from Kiln 4 in lieu of a lb/ton emission limit. We explained that an annual cap would allow SRPMIC to delay installation of controls until the Plant's production returns to pre-recession levels and would thus help to address the Community's concerns about the budgetary impacts of control requirements.

In its comments on the proposal, PCC expressed support for the cap ''as long as the final FIP expressly provides that it would be at PCC's election whether to meet this cap effective December 31, 2018 or instead meet the applicable lbs/ton limit effective December 31, 2018.'' [292] EPA subsequently requested clarification of this request from PCC.[293] On May 22, 2014, SRPMIC submitted a letter to EPA describing a proposal that would enable PCC to elect either emission limit and subsequently switch from one to other every five years. In response, EPA suggested that, if SRPMIC wished to change the emission

[290] See Regulatory Flexibility Act Screening Analysis for Proposed Arizona Regional Haze Federal Implementation Plan (EPA–R09–OAR–2013–0588).

[291] See Memorandum to Docket: Summary of Communications and Consultation between EPA, PCC and SRPMIC (January 27, 2014).

[292] PCC Comment Letter at 2.

[293] See Memo to Final—Communications with PCC and SRPMIC.

limit after 2018, it could seek to do so through a SIP revision.[294] Consistent with this approach, in this final rule SRPMIC must elect which limit (i.e. either the lb/ton limit or the ton/year limit) by June 30, 2018. After that point, SRPMIC may seek to change the limit through a revision to the Arizona SIP.

G. Executive Order 13045: Protection of Children From Environmental Health Risks and Safety Risks

Executive Order 13045: Protection of Children from Environmental Health Risks and Safety Risks (62 FR 19885, April 23, 1997), applies to any rule that: (1) Is determined to be economically significant as defined under Executive Order 12866; and (2) concerns an environmental health or safety risk that we have reason to believe may have a disproportionate effect on children. EPA interprets EO 13045 as applying only to those regulatory actions that concern health or safety risks, such that the analysis required under section 5–501 of the EO has the potential to influence the regulation. This action is not subject to EO 13045 because it implements specific standards established by Congress in statutes. Also, because this action only applies to six sources and is not a rule of general applicability, it is not economically significant as defined under Executive Order 12866, and the rule also does not have a disproportionate effect on children. However, to the extent this action will limit emissions of NO_X, SO_2, and PM_{10}, the rule will have a beneficial effect on children's health by reducing air pollution that causes or exacerbates childhood asthma and other respiratory issues.

H. Executive Order 13211: Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use

This action is not subject to Executive Order 13211 (66 FR 28355 (May 22, 2001)), because it is not a significant regulatory action under Executive Order 12866.

I. National Technology Transfer and Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (NTTAA), Public Law 104–113, 12(10) (15 U.S.C. 272 note) directs EPA to use voluntary consensus standards (VCS) in its regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical. VCS are technical standards (e.g., materials specifications, test methods, sampling procedures and business practices) that are developed or adopted by the VCS bodies. The NTTAA directs EPA to provide Congress, through annual reports to OMB, with explanations when the Agency decides not to use available and applicable VCS. This action does not require the public to perform activities conducive to the use of VCS.

J. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations

Executive Order 12898 (59 FR 7629, February 16, 1994), establishes federal executive policy on environmental justice. Its main provision directs federal agencies, to the greatest extent practicable and permitted by law, to make environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations in the United States.

We have determined that this rule will not have disproportionately high and adverse human health or environmental effects on minority or low-income populations because it increases the level of environmental protection for all affected populations without having any disproportionately high and adverse human health or environmental effects on any population, including any minority or low-income population. This rule limits emissions of NO_X, PM_{10}, and SO_2 from six facilities in Arizona.

K. Congressional Review Act

The Congressional Review Act, 5 U.S.C. 801 et seq., as added by the Small Business Regulatory Enforcement Fairness Act of 1996, generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of the Congress and to the Comptroller General of the United States. Section 804 exempts from section 801 the following types of rules: (1) Rules of particular applicability; (2) rules relating to agency management or personnel; and (3) rules of agency organization, procedure, or practice that do not substantially affect the rights or obligations of non-agency parties. 5 U.S.C. 804(3). EPA is not required to submit a rule report regarding this action under section 801 because this is a rule of particular applicability that only applies to six named facilities.

L. Petitions for Judicial Review

Under section 307(b)(1) of the Clean Air Act, petitions for judicial review of this action must be filed in the United States Court of Appeals for the appropriate circuit by November 3, 2014. Filing a petition for reconsideration by the Administrator of this final rule does not affect the finality of this rule for the purposes of judicial review nor does it extend the time within which a petition for judicial review may be filed, and shall not postpone the effectiveness of such rule or action. This action may not be challenged later in proceedings to enforce its requirements. See CAA section 307(b)(2).

List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Incorporation by reference, Intergovernmental relations, Nitrogen oxides, Sulfur dioxide, Particulate matter, Reporting and recordkeeping requirements, Visibility, Volatile organic compounds.

Dated: June 27, 2014.

Gina McCarthy,

Administrator.

For the reasons stated in the preamble, part 52, chapter I, title 40 of the Code of Federal Regulations is amended as follows:

PART 52—APPROVAL AND PROMULGATION OF IMPLEMENTATION PLANS

■ 1. The authority citation for part 52 continues to read as follows:

Authority: 42 U.S.C. 7401 *et seq.*

Subpart D—Arizona

■ 2. Amend § 52.145 by adding paragraphs (i), (j), (k), (l), and (m) and appendices (A) and (B) to read as follow:

§ 52.145 Visibility protection.

* * * * *

(i) *Source-specific federal implementation plan for regional haze at Nelson Lime Plant*—(1) *Applicability.* This paragraph (i) applies to the owner/operator of the lime kilns designated as Kiln 1 and Kiln 2 at the Nelson Lime Plant located in Yavapai County, Arizona.

(2) *Definitions.* Terms not defined in this paragraph (i)(2) shall have the meaning given them in the Clean Air Act or EPA's regulations implementing the Clean Air Act. For purposes of this paragraph (i):

[294] Email from Colleen McKaughan to Verle Martz (May 30, 2014).

Ammonia injection shall include any of the following: Anhydrous ammonia, aqueous ammonia, or urea injection.

Continuous emission monitoring system or CEMS means the equipment required by this section to sample, analyze, measure, and provide, by means of readings recorded at least once every 15 minutes (using an automated data acquisition and handling system (DAHS)), a permanent record of NO_X emissions, SO_2 emissions, diluent, and stack gas volumetric flow rate.

Kiln means either of the kilns identified in paragraph (i)(1) of this section.

Kiln 1 means lime kiln 1, as identified in paragraph (i)(1) of this section.

Kiln 2 means lime kiln 2, as identified in paragraph (i)(1) of this section.

Kiln operating day means a 24-hour period between 12 midnight and the following midnight during which there is operation of Kiln 1, Kiln 2, or both kilns at any time.

Kiln operation means any period when any raw materials are fed into the Kiln or any period when any combustion is occurring or fuel is being fired in the Kiln.

Lime product means the product of the lime-kiln calcination process, including calcitic lime, dolomitic lime, and dead-burned dolomite.

NO_X means oxides of nitrogen.

Owner/operator means any person who owns or who operates, controls, or supervises a kiln identified in paragraph (i)(1) of this section.

SO_2 means sulfur dioxide.

(3) *Emission limitations.* (i) The owner/operator of the kilns identified in paragraph (i)(1) of this section shall not emit or cause to be emitted pollutants in excess of the following limitations in pounds of pollutant per ton of lime product (lb/ton), from any kiln. Each emission limit shall be based on a 12-month rolling basis.

Kiln ID		Pollutant emission limit
NO_X	SO_2	
Kiln 1	3.80	9.32
Kiln 2	2.61	9.73

(ii) The owner/operator of the kilns identified in paragraph (i)(1) of this section shall not emit or cause to be emitted pollutants in excess of 3.27 tons of NO_X per day and 10.10 tons of SO_2 per day, combined from both kilns, based on a rolling 30-kiln-operating-day basis.

(iii) In addition, if the owner/operator installs an ammonia injection system to comply with the limits specified in paragraph (i)(3) of this section, the owner/operator shall also comply with the control technology demonstration requirements set forth in paragraph (i)(5) of this section.

(4) *Compliance dates.* (i) The owner/operator of each kiln shall comply with the NO_X emission limitations and other NO_X-related requirements of this paragraph (i) no later than September 4, 2017.

(ii) The owner/operator of each kiln shall comply with the SO_2 emission limitations and other SO_2-related requirements of this paragraph (i) no later than March 3, 2016.

(5) *Control technology demonstration requirements.* If the owner/operator of a kiln installs an ammonia injection system to comply with the limits specified in paragraph (i)(3) of this section, the owner/operator must comply with the following requirements for implementing combustion and process optimization measures.

(i) *Design report.* Prior to commencing construction of an ammonia injection system used to comply with the limits specified in paragraph (i)(3) of this section, the owner/operator shall submit to EPA for review a Design Report as described in Appendix B of this section.

(ii) *Optimization protocol.* Prior to commencement of the Optimization Program, the owner/operator shall submit to EPA for review an Optimization Protocol which shall include the procedures, as described in Appendix B of this section, to be used during the Optimization Program for the purpose of adjusting operating parameters and minimizing emissions.

(iii) *Optimization period.* Following EPA review of the Optimization Protocol, the owner/operator shall operate the ammonia injection system and collect data in accordance with the Optimization Protocol. The owner/operator shall operate the ammonia injection system in such a manner for no longer than 180 kiln operating days, or the duration specified in the Optimization Protocol, whichever is longer in duration.

(iv) *Optimization report.* Within 60 calendar days following the conclusion of the Optimization Program, the owner/operator shall submit to EPA for review an Optimization Report, as described in Appendix B of this section, demonstrating conformance with the Optimization Protocol, and establishing optimized operating parameters for the ammonia injection system as well as other facility processes.

(v) *Demonstration period.* Following EPA review of the Optimization Report, the owner/operator shall operate the ammonia injection system consistent with the optimized operations of the facility and ammonia injection system specified in the Optimization Report. The owner/operator shall operate the ammonia injection system in such a manner for a period of 360 kiln operating days, or the duration specified in the Optimization Report, whichever is longer. The Demonstration Period may be shortened or lengthened as provided for in appendix B of this section.

(vi) *Demonstration report.* Within 60 calendar days following the conclusion of the Demonstration Program, the owner/operator shall submit a Demonstration Report, as described in appendix B of this section, which identifies a proposed rolling 12-month emission limit for NO_X. In a subsequent regulatory action, EPA may seek to lower the NO_X emission limits in paragraph (i)(3) of this section in view of, among other things, the information contained in the Demonstration Report. The proposed rolling 12-month emission limit shall be calculated in accordance with the following formula:

$X = \mu + 1.65\sigma$

Where:

X = Rolling 12-month emission limit, in pounds of NO_X per ton of lime product;

μ = Arithmetic mean of all of the rolling 12-month emission rates;

σ = Standard deviation of all of the rolling 12-month emission rates, as calculated in the following manner:

$$\sigma = \sqrt{\frac{1}{N}\sum_{i=1}^{N}(x_i - \bar{x})^2}$$

Where:

N = The total number of rolling 12-month emission rates;

x_i = Each rolling 12-month emission rate;

$\bar{x}$ = The mean value of all of the rolling 12-month emission rates.

(6) *Compliance determination*—(i) *Continuous emission monitoring system.* At all times after the compliance dates specified in paragraph (i)(4) of this section, the owner/operator of kilns 1 and 2 shall maintain, calibrate, and operate a CEMS, in full compliance with the requirements found at 40 CFR 60.13 and 40 CFR part 60, appendices B and F, to accurately measure diluent, stack gas volumetric flow rate, and concentration by volume of NO_X and SO_2 emissions into the atmosphere from kilns 1 and 2. The CEMS shall be used by the owner/operator to determine compliance with the emission limitations in paragraph (i)(3) of this section, in combination with data on actual lime production. The owner/

operator must operate the monitoring system and collect data at all required intervals at all times that an affected kiln is operating, except for periods of monitoring system malfunctions, repairs associated with monitoring system malfunctions, and required monitoring system quality assurance or quality control activities (including, as applicable, calibration checks and required zero and span adjustments).

(ii) *Ammonia consumption monitoring.* Upon and after the completion of installation of ammonia injection on a kiln, the owner or operator shall install, and thereafter maintain and operate, instrumentation to continuously monitor and record levels of ammonia consumption for that kiln.

(iii) *Compliance determination for lb per ton NO_X limit.* Compliance with the NO_X emission limits described in paragraph (i)(3)(i) of this section shall be determined based on a rolling 12-month basis. The 12-month rolling NO_X emission rate for each kiln shall be calculated within 30 days following the end of each calendar month in accordance with the following procedure: Step one, sum the hourly pounds of NO_X emitted for the month just completed and the eleven (11) months preceding the month just completed to calculate the total pounds of NO_X emitted over the most recent twelve (12) month period for that kiln; Step two, sum the total lime product, in tons, produced during the month just completed and the eleven (11) months preceding the month just completed to calculate the total lime product produced over the most recent twelve (12) month period for that kiln; Step three, divide the total amount of NO_X calculated from Step one by the total lime product calculated from Step two to calculate the 12-month rolling NO_X emission rate for that kiln. Each 12-month rolling NO_X emission rate shall include all emissions and all lime product that occur during all periods within the 12-month period, including emissions from startup, shutdown, and malfunction.

(iv) *Compliance determination for lb per ton SO_2 limit.* Compliance with the SO_2 emission limits described in paragraph (i)(3)(i) of this section shall be determined based on a rolling 12-month basis. The 12-month rolling SO_2 emission rate for each kiln shall be calculated within 30 days following the end of each calendar month in accordance with the following procedure: Step one, sum the hourly pounds of SO_2 emitted for the month just completed and the eleven (11) months preceding the month just completed to calculate the total pounds of SO_2 emitted over the most recent twelve (12) month period for that kiln; Step two, sum the total lime product, in tons, produced during the month just completed and the eleven (11) months preceding the month just completed to calculate the total lime product produced over the most recent twelve (12) month period for that kiln; Step three, divide the total amount of SO_2 calculated from Step one by the total lime product calculated from Step two to calculate the 12-month rolling SO_2 emission rate for that kiln. Each 12-month rolling SO_2 emission rate shall include all emissions and all lime product that occur during all periods within the 12-month period, including emissions from startup, shutdown, and malfunction.

(v) *Compliance determination for ton per day NO_X limit.* Compliance with the NO_X emission limit described in paragraph (i)(3)(ii) of this section shall be determined based on a rolling 30-kiln-operating-day basis. The rolling 30-kiln operating day NO_X emission rate for the kilns shall be calculated for each kiln operating day in accordance with the following procedure: Step one, sum the hourly pounds of NO_X emitted from both kilns for the current kiln operating day and the preceding twenty-nine (29) kiln-operating-day period for both kilns; Step two, divide the total pounds of NO_X calculated from Step one by two thousand (2,000) to calculate the total tons of NO_X; Step three, divide the total tons of NO_X calculated from Step two by thirty (30) to calculate the rolling 30-kiln operating day NO_X emission rate for both kilns. Each rolling 30-kiln operating day NO_X emission rate shall include all emissions that occur from both kilns during all periods within any kiln operating day, including emissions from startup, shutdown, and malfunction.

(vi) *Compliance determination for ton per day SO_2 limit.* Compliance with the SO_2 emission limit described in paragraph (i)(3)(ii) of this section shall be determined based on a rolling 30-kiln-operating-day basis. The rolling 30-kiln operating day SO_2 emission rate for the kilns shall be calculated for each kiln operating day in accordance with the following procedure: Step one, sum the hourly pounds of SO_2 emitted from both kilns for the current kiln operating day and the preceding twenty-nine (29) kiln operating days, to calculate the total pounds of SO_2 emitted over the most recent thirty (30) kiln operating day period for both kilns; Step two, divide the total pounds of SO_2 calculated from Step one by two thousand (2,000) to calculate the total tons of SO_2; Step three, divide the total tons of SO_2 calculated from Step two by thirty (30) to calculate the rolling 30-kiln operating day SO_2 emission rate for both kilns. Each rolling 30-kiln operating day SO_2 emission rate shall include all emissions that occur from both kilns during all periods within any kiln operating day, including emissions from startup, shutdown, and malfunction.

(7) *Recordkeeping.* The owner/operator shall maintain the following records for at least five years:

(i) All CEMS data, including the date, place, and time of sampling or measurement; parameters sampled or measured; and results.

(ii) All records of lime production.

(iii) Monthly rolling 12-month emission rates of NO_X and SO_2, calculated in accordance with paragraphs (i)(6)(iii) and (iv) of this section.

(iv) Daily rolling 30-kiln operating day emission rates of NO_X and SO_2 calculated in accordance with paragraphs (i)(6)(v) and (vi) of this section.

(v) Records of quality assurance and quality control activities for emissions measuring systems including, but not limited to, any records specified by 40 CFR part 60, appendix F, Procedure 1, as well as the following:

(A) The occurrence and duration of any startup, shutdown, or malfunction, performance testing, evaluations, calibrations, checks, adjustments maintenance, duration of any periods during which a CEMS or COMS is inoperative, and corresponding emission measurements.

(B) Date, place, and time of measurement or monitoring equipment maintenance activity;

(C) Operating conditions at the time of measurement or monitoring equipment maintenance activity;

(D) Date, place, name of company or entity that performed the measurement or monitoring equipment maintenance activity and the methods used; and

(E) Results of the measurement or monitoring equipment maintenance.

(vi) Records of ammonia consumption, as recorded by the instrumentation required in paragraph (i)(6)(ii) of this section.

(vii) Records of all major maintenance activities conducted on emission units, air pollution control equipment, CEMS, and lime production measurement devices.

(viii) All other records specified by 40 CFR part 60, appendix F, Procedure 1.

(8) *Reporting.* All reports required under this section shall be submitted by the owner/operator to the Director,

Enforcement Division (Mail Code ENF–2–1), U.S. Environmental Protection Agency, Region 9, 75 Hawthorne Street, San Francisco, California 94105–3901. All reports required under this section shall be submitted within 30 days after the applicable compliance date(s) in paragraph (i)(4) of this section and at least semiannually thereafter, within 30 days after the end of a semiannual period. The owner/operator may submit reports more frequently than semiannually for the purposes of synchronizing reports required under this section with other reporting requirements, such as the title V monitoring report required by 40 CFR 70.6(a)(3)(iii)(A), but at no point shall the duration of a semiannual period exceed six months.

(i) The owner/operator shall submit a report that lists the daily rolling 30-kiln operating day emission rates for NO_X and SO_2, calculated in accordance with paragraphs (i)(6)(iii) and (iv) of this section.

(ii) The owner/operator shall submit a report that lists the monthly rolling 12-month emission rates for NO_X and SO_2, calculated in accordance with paragraphs (i)(6)(v) and (vi) of this section.

(iii) The owner/operator shall submit excess emissions reports for NO_X and SO_2 limits. Excess emissions means emissions that exceed any of the emissions limits specified in paragraph (i)(3) of this section. The reports shall include the magnitude, date(s), and duration of each period of excess emissions; specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the kiln; the nature and cause of any malfunction (if known); and the corrective action taken or preventative measures adopted.

(iv) The owner/operator shall submit a summary of CEMS operation, to include dates and duration of each period during which the CEMS was inoperative (except for zero and span adjustments and calibration checks), reason(s) why the CEMS was inoperative and steps taken to prevent recurrence, and any CEMS repairs or adjustments.

(v) The owner/operator shall submit results of all CEMS performance tests required by 40 CFR part 60, appendix F, Procedure 1 (Relative Accuracy Test Audits, Relative Accuracy Audits, and Cylinder Gas Audits).

(vi) When no excess emissions have occurred or the CEMS has not been inoperative, repaired, or adjusted during the reporting period, the owner/operator shall state such information in the semiannual report.

(9) *Notifications.* All notifications required under this section shall be submitted by the owner/operator to the Director, Enforcement Division (Mail Code ENF–2–1), U.S. Environmental Protection Agency, Region 9, 75 Hawthorne Street, San Francisco, California 94105–3901.

(i) The owner/operator shall submit notification of commencement of construction of any equipment which is being constructed to comply with the NO_X emission limits in paragraph (i)(3) of this section.

(ii) The owner/operator shall submit semiannual progress reports on construction of any such equipment.

(iii) The owner/operator shall submit notification of initial startup of any such equipment.

(10) *Equipment operations.* (i) At all times, including periods of startup, shutdown, and malfunction, the owner/operator shall, to the extent practicable, maintain and operate the kilns, including associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions. Pollution control equipment shall be designed and capable of operating properly to minimize emissions during all expected operating conditions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Regional Administrator, which may include, but is not limited to, monitoring results, review of operating and maintenance procedures, and inspection of the kilns.

(ii) After completion of installation of ammonia injection on a kiln, the owner/operator shall inject sufficient ammonia to achieve compliance with the NO_X emission limits from paragraph (i)(3) of this section for that kiln while preventing excessive ammonia emissions.

(11) *Enforcement.* Notwithstanding any other provision in this implementation plan, any credible evidence or information relevant as to whether the kiln would have been in compliance with applicable requirements if the appropriate performance or compliance test had been performed can be used to establish whether or not the owner/operator has violated or is in violation of any standard or applicable emission limit in the plan.

(j) *Source-specific federal implementation plan for regional haze at H. Wilson Sundt Generating Station*—(1) *Applicability.* This paragraph (j) applies to the owner/operator of the electricity generating unit (EGU) designated as Unit I4 at the H. Wilson Sundt Generating Station located in Tucson, Pima County, Arizona.

(2) *Definitions.* Terms not defined in this paragraph (j)(2) shall have the meaning given them in the Clean Air Act or EPA's regulations implementing the Clean Air Act. For purposes of this paragraph (j):

Ammonia injection shall include any of the following: Anhydrous ammonia, aqueous ammonia, or urea injection.

Boiler operating day means a 24-hour period between 12 midnight and the following midnight during which any fuel is combusted at any time in the unit.

Continuous emission monitoring system or CEMS means the equipment required by 40 CFR part 75 and this paragraph (j).

MMBtu means one million British thermal units.

Natural gas means a naturally occurring fluid mixture of hydrocarbons as defined in 40 CFR 72.2.

NO_X means oxides of nitrogen.

Owner/operator means any person who owns or who operates, controls, or supervises the EGU identified in paragraph (j)(1) of this section.*PM* means total filterable particulate matter.

PM_{10} means total particulate matter less than 10 microns in diameter.

SO_2 means sulfur dioxide.

Unit means the EGU identified paragraph (j)(1) of this section.

(3) *Emission limitations.* The owner/operator of the unit shall not emit or cause to be emitted pollutants in excess of the following limitations, in pounds of pollutant per million British thermal units (lb/MMBtu), from the subject unit.

Pollutant	Pollutant emission limit
NO_X	0.36
PM	0.030
SO_2	0.23

(4) *Alternative emission limitations.* The owner/operator of the unit may choose to comply with the following limitations in lieu of the emission limitations listed in paragraph (j)(3) of this section.

(i) The owner/operator of the unit shall combust only natural gas or natural gas combined with landfill gas in the subject unit.

(ii) The owner/operator of the unit shall not emit or cause to be emitted pollutants in excess of the following limitations, in pounds of pollutant per million British thermal units (lb/MMBtu), from the subject unit.

Pollutant	Pollutant emission limit
NO_X	0.25
PM_{10}	0.010
SO_2	0.057

(iii) If the results of the initial performance test conducted in accordance with paragraph (j)(8)(iv) of this section show PM_{10} emissions greater than the limit in paragraph (j)(4)(ii) of this section, the owner/operator may elect to comply with an emission limit equal to the result of the initial performance test, in lieu of the PM_{10} emission limit in paragraph (j)(4)(ii).

(5) *Compliance dates.* (i) The owner/operator of the unit subject to this paragraph (j)(5) shall comply with the NO_X and SO_2 emission limitations of paragraph (j)(3) of this section no later than September 4, 2017.

(ii) The owner/operator of the unit subject to this paragraph (j)(5) shall comply with the PM emission limitation of paragraph (j)(3) of this section no later than April 16, 2015.

(6) *Alternative compliance dates.* If the owner/operator chooses to comply with paragraph (j)(4) of this section in lieu of paragraph (j)(3) of this section, the owner/operator of the unit shall comply with the NO_X, SO_2, and PM_{10} emission limitations of paragraph (j)(4) of this section no later than December 31, 2017.

(7) *Compliance determination*—(i) *Continuous emission monitoring system.* (A) At all times after the compliance date specified in paragraph (j)(5)(i) of this section, the owner/operator of the unit shall maintain, calibrate, and operate CEMS, in full compliance with the requirements found at 40 CFR part 75, to accurately measure SO_2, NO_X, diluent, and stack gas volumetric flow rate from the unit. All valid CEMS hourly data shall be used to determine compliance with the emission limitations for NO_X and SO_2 in paragraph (j)(3) of this section. When the CEMS is out-of-control as defined by 40 CFR part 75, the CEMS data shall be treated as missing data and not used to calculate the emission average. Each required CEMS must obtain valid data for at least 90 percent of the unit operating hours, on an annual basis.

(B) The owner/operator of the unit shall comply with the quality assurance procedures for CEMS found in 40 CFR part 75. In addition to the requirements in part 75 of this chapter, relative accuracy test audits shall be calculated for both the NO_X and SO_2 pounds per hour measurement and the heat input measurement. The CEMS monitoring data shall not be bias adjusted. Calculations of relative accuracy for lb/hour of NO_X, SO_2, and heat input shall be performed each time the CEMS undergo relative accuracy testing.

(ii) *Ammonia consumption monitoring.* Upon and after the completion of installation of ammonia injection on the unit, the owner/operator shall install, and thereafter maintain and operate, instrumentation to continuously monitor and record levels of ammonia consumption for that unit.

(iii) *Compliance determination for NO_X.* Compliance with the NO_X emission limit described in paragraph (j)(3) of this section shall be determined based on a rolling 30 boiler-operating-day basis. The 30-boiler-operating-day rolling NO_X emission rate for the unit shall be calculated for each boiler operating day in accordance with the following procedure: Step one, sum the hourly pounds of NO_X emitted for the current boiler operating day and the preceding twenty-nine (29) boiler operating days to calculate the total pounds of NO_X emitted over the most recent thirty (30) boiler-operating-day period for that unit; Step two, sum the total heat input, in MMBtu, during the current boiler operating day and the preceding twenty-nine (29) boiler operating days to calculate the total heat input over the most recent thirty (30) boiler-operating-day period for that unit; Step three, divide the total amount of NO_X calculated from Step one by the total heat input calculated from Step two to calculate the rolling 30-boiler-operating-day NO_X emission rate, in pounds per MMBtu for that unit. Each rolling 30-boiler-operating-day NO_X emission rate shall include all emissions and all heat input that occur during all periods within any boiler operating day, including emissions from startup, shutdown, and malfunction. If a valid NO_X pounds per hour or heat input is not available for any hour for the unit, that heat input and NO_X pounds per hour shall not be used in the calculation of the rolling 30-boiler-operating-day emission rate.

(iv) *Compliance determination for SO_2.* Compliance with the SO_2 emission limit described in paragraph (j)(3) of this section shall be determined based on a rolling 30 boiler-operating-day basis. The rolling 30-boiler-operating-day SO_2 emission rate for the unit shall be calculated for each boiler operating day in accordance with the following procedure: Step one, sum the hourly pounds of SO_2 emitted for the current boiler operating day and the preceding twenty-nine (29) boiler operating days to calculate the total pounds of SO_2 emitted over the most recent thirty (30) boiler-operating-day period for that unit; Step two, sum the total heat input, in MMBtu, during the current boiler operating day and the preceding twenty-nine (29) boiler operating days to calculate the total heat input over the most recent thirty (30) boiler-operating-day period for that unit; Step three, divide the total amount of SO_2 calculated from Step one by the total heat input calculated from Step two to calculate the rolling 30-boiler-operating-day SO_2 emission rate, in pounds per MMBtu for that unit. Each rolling 30-boiler-operating-day SO_2 emission rate shall include all emissions and all heat input that occur during all periods within any boiler operating day, including emissions from startup, shutdown, and malfunction. If a valid SO_2 pounds per hour or heat input is not available for any hour for the unit, that heat input and SO_2 pounds per hour shall not be used in the calculation of the rolling 30-boiler-operating-day emission rate.

(v) *Compliance determination for PM.* Compliance with the PM emission limit described in paragraph (j)(3) of this section shall be determined from annual performance stack tests. Within sixty (60) days either preceding or following the compliance deadline specified in paragraph (j)(5)(ii) of this section, and on at least an annual basis thereafter, the owner/operator of the unit shall conduct a stack test on the unit to measure PM using EPA Methods 1 through 5, in 40 CFR part 60, appendix A. Each test shall consist of three runs, with each run at least one hundred twenty (120) minutes in duration and each run collecting a minimum sample of sixty (60) dry standard cubic feet. Results shall be reported in lb/MMBtu using the calculation in 40 CFR part 60, appendix A, Method 19.

(8) *Alternative compliance determination.* If the owner/operator chooses to comply with the emission limits of paragraph (j)(4) of this section, this paragraph (j)(8) may be used in lieu of paragraph (j)(7) of this section to demonstrate compliance with the emission limits in paragraph (j)(4) of this section.

(i) *Continuous emission monitoring system.* (A) At all times after the compliance date specified in paragraph (j)(6) of this section, the owner/operator of the unit shall maintain, calibrate, and operate CEMS, in full compliance with the requirements found at 40 CFR part 75, to accurately measure NO_X, diluent, and stack gas volumetric flow rate from the unit. All valid CEMS hourly data shall be used to determine compliance

with the emission limitation for NO_X in paragraph (j)(4) of this section. When the CEMS is out-of-control as defined by 40 CFR part 75, the CEMS data shall be treated as missing data and not used to calculate the emission average. Each required CEMS must obtain valid data for at least ninety (90) percent of the unit operating hours, on an annual basis.

(B) The owner/operator of the unit shall comply with the quality assurance procedures for CEMS found in 40 CFR part 75. In addition to these part 75 requirements, relative accuracy test audits shall be calculated for both the NO_X pounds per hour measurement and the heat input measurement. The CEMS monitoring data shall not be bias adjusted. Calculations of relative accuracy for lb/hr of NO_X and heat input shall be performed each time the CEMS undergo relative accuracy testing.

(ii) *Compliance determination for NO_X.* Compliance with the NO_X emission limit described in paragraph (j)(4) of this section shall be determined based on a rolling 30 boiler-operating-day basis. The rolling 30-boiler-operating-day NO_X emission rate for the unit shall be calculated for each boiler operating day in accordance with the following procedure: Step one, sum the hourly pounds of NO_X emitted for the current boiler operating day and the preceding twenty-nine (29) boiler-operating-days to calculate the total pounds of NO_X emitted over the most recent thirty (30) boiler-operating-day period for that unit; Step two, sum the total heat input, in MMBtu, during the current boiler operating day and the preceding twenty-nine (29) boiler-operating-days to calculate the total heat input over the most recent thirty (30) boiler-operating-day period for that unit; Step three, divide the total amount of NO_X calculated from Step one by the total heat input calculated from Step two to calculate the rolling 30-boiler-operating-day NO_X emission rate, in pounds per MMBtu for that unit. Each rolling 30-boiler-operating-day NO_X emission rate shall include all emissions and all heat input that occur during all periods within any boiler operating day, including emissions from startup, shutdown, and malfunction. If a valid NO_X pounds per hour or heat input is not available for any hour for the unit, that heat input and NO_X pounds per hour shall not be used in the calculation of the rolling 30-boiler-operating-day emission rate.

(iii) *Compliance determination for SO_2.* Compliance with the SO_2 emission limit for the unit shall be determined from fuel sulfur documentation demonstrating the use of either natural gas or natural gas combined with landfill gas.

(iv) *Compliance determination for PM_{10}.* Compliance with the PM_{10} emission limit for the unit shall be determined from performance stack tests. Within sixty (60) days following the compliance deadline specified in paragraph (j)(6) of this section, and at the request of the Regional Administrator thereafter, the owner/operator of the unit shall conduct a stack test on the unit to measure PM_{10} using EPA Methods 1 through 4, 201A, and Method 202, per 40 CFR part 51, appendix M. Each test shall consist of three runs, with each run at least one hundred twenty (120) minutes in duration and each run collecting a minimum sample of sixty (60) dry standard cubic feet. Results shall be reported in lb/MMBtu using the calculation in 40 CFR part 60, appendix A, Method 19.

(9) *Recordkeeping.* The owner/operator shall maintain the following records for at least five years:

(i) CEMS data measuring NO_X in lb/hr, SO_2 in lb/hr, and heat input rate per hour.

(ii) Daily rolling 30-boiler operating day emission rates of NO_X and SO_2 calculated in accordance with paragraphs (j)(7)(iii) and (iv) of this section.

(iii) Records of the relative accuracy test for NO_X lb/hr and SO_2 lb/hr measurement, and hourly heat input measurement.

(iv) Records of quality assurance and quality control activities for emissions systems including, but not limited to, any records required by 40 CFR part 75.

(v) Records of all major maintenance activities conducted on emission units, air pollution control equipment, and CEMS.

(vi) Any other records required by 40 CFR part 75.

(vii) Records of ammonia consumption for the unit, as recorded by the instrumentation required in paragraph (j)(7)(ii) of this section.

(viii) All PM stack test results.

(10) *Alternative recordkeeping requirements.* If the owner/operator chooses to comply with the emission limits of paragraph (j)(4) of this section, the owner/operator shall maintain the records listed in this paragraph (j)(10) in lieu of the records contained in paragraph (j)(9) of this section. The owner/operator shall maintain the following records for at least five years:

(i) CEMS data measuring NO_X in lb/hr and heat input rate per hour.

(ii) Daily rolling 30-boiler operating day emission rates of NO_X calculated in accordance with paragraph (j)(8)(ii) of this section.

(iii) Records of the relative accuracy test for NO_X lb/hr measurement and hourly heat input measurement.

(iv) Records of quality assurance and quality control activities for emissions systems including, but not limited to, any records required by 40 CFR part 75.

(v) Records of all major maintenance activities conducted on emission units, air pollution control equipment, and CEMS.

(vi) Any other records required by 40 CFR part 75.

(vii) Records sufficient to demonstrate that the fuel for the unit is natural gas or natural gas combined with landfill gas.

(viii) All PM_{10} stack test results.

(11) *Notifications.* All notifications required under this section shall be submitted by the owner/operator to the Director, Enforcement Division (Mail Code ENF–2–1), U.S. Environmental Protection Agency, Region 9, 75 Hawthorne Street, San Francisco, California 94105–3901.

(i) By March 31, 2017, the owner/operator shall submit notification by letter whether it will comply with the emission limits in paragraph (j)(3) of this section or whether it will comply with the emission limits in paragraph (j)(4) of this section. In the event that the owner/operator does not submit timely and proper notification by March 31, 2017, the owner/operator may not choose to comply with the alternative emission limits in paragraph (j)(4) of this section and shall comply with the emission limits in paragraph (j)(3) of this section.

(ii) The owner/operator shall submit notification of commencement of construction of any equipment which is being constructed to comply with either the NO_X or SO_2 emission limits in paragraph (j)(3) of this section.

(iii) The owner/operator shall submit semiannual progress reports on construction of any such equipment.

(iv) The owner/operator shall submit notification of initial startup of any such equipment.

(v) The owner/operator shall submit notification of its intent to comply with the PM_{10} emission limit in paragraph (j)(4)(iii) of this section within one hundred twenty (120) days following the compliance deadline specified in paragraph (j)(6) of this section. The notification shall include results of the initial performance test and the resulting applicable emission limit.

(12) *Reporting.* All reports required under this section shall be submitted by the owner/operator to the Director, Enforcement Division (Mail Code ENF–

2–1), U.S. Environmental Protection Agency, Region 9, 75 Hawthorne Street, San Francisco, California 94105–3901. All reports required under this section shall be submitted within 30 days after the applicable compliance date(s) in paragraph (j)(5) of this section and at least semiannually thereafter, within 30 days after the end of a semiannual period. The owner/operator may submit reports more frequently than semiannually for the purposes of synchronizing reports required under this section with other reporting requirements, such as the title V monitoring report required by 40 CFR 70.6(a)(3)(iii)(A), but at no point shall the duration of a semiannual period exceed six months.

(i) The owner/operator shall submit a report that lists the daily rolling 30-boiler operating day emission rates for NO_X and SO_2.

(ii) The owner/operator shall submit excess emission reports for NO_X and SO_2 limits. Excess emissions means emissions that exceed the emission limits specified in paragraph (j)(3) of this section. Excess emission reports shall include the magnitude, date(s), and duration of each period of excess emissions; specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the unit; the nature and cause of any malfunction (if known); and the corrective action taken or preventative measures adopted.

(iii) The owner/operator shall submit a summary of CEMS operation, to include dates and duration of each period during which the CEMS was inoperative (except for zero and span adjustments and calibration checks), reason(s) why the CEMS was inoperative and steps taken to prevent recurrence, and any CEMS repairs or adjustments.

(iv) The owner/operator shall submit the results of any relative accuracy test audits performed during the two preceding calendar quarters.

(v) When no excess emissions have occurred or the CEMS has not been inoperative, repaired, or adjusted during the reporting period, the owner/operator shall state such information in the semiannual report.

(vi) The owner/operator shall submit results of any PM stack tests conducted for demonstrating compliance with the PM limit specified in paragraph (j)(3) of this section.

(13) *Alternative reporting requirements.* If the owner/operator chooses to comply with the emission limits of paragraph (j)(4) of this section, the owner/operator shall submit the reports listed in this paragraph (j)(13) in lieu of the reports contained in paragraph (j)(12) of this section. All reports required under this paragraph (j)(13) shall be submitted by the owner/operator to the Director, Enforcement Division (Mail Code ENF–2–1), U.S. Environmental Protection Agency, Region 9, 75 Hawthorne Street, San Francisco, California 94105–3901. All reports required under this paragraph (j)(13) shall be submitted within 30 days after the applicable compliance date(s) in paragraph (j)(6) of this section and at least semiannually thereafter, within 30 days after the end of a semiannual period. The owner/operator may submit reports more frequently than semiannually for the purposes of synchronizing reports required under this section with other reporting requirements, such as the title V monitoring report required by 40 CFR 70.6(a)(3)(iii)(A), but at no point shall the duration of a semiannual period exceed six months.

(i) The owner/operator shall submit a report that lists the daily rolling 30-boiler operating day emission rates for NO_X.

(ii) The owner/operator shall submit excess emissions reports for NO_X limits. Excess emissions means emissions that exceed the emission limit specified in paragraph (j)(4) of this section. The reports shall include the magnitude, date(s), and duration of each period of excess emissions; specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the unit; the nature and cause of any malfunction (if known); and the corrective action taken or preventative measures adopted.

(iii) The owner/operator shall submit CEMS performance reports, to include dates and duration of each period during which the CEMS was inoperative (except for zero and span adjustments and calibration checks), reason(s) why the CEMS was inoperative and steps taken to prevent recurrence, and any CEMS repairs or adjustments.

(iv) The owner/operator shall submit the results of any relative accuracy test audits performed during the two preceding calendar quarters.

(v) When no excess emissions have occurred or the CEMS has not been inoperative, repaired, or adjusted during the reporting period, the owner/operator shall state such information in the semiannual report.

(vi) The owner/operator shall submit results of any PM_{10} stack tests conducted for demonstrating compliance with the PM_{10} limit specified in paragraph (j)(4) of this section.

(14) *Equipment operations.* (i) At all times, including periods of startup, shutdown, and malfunction, the owner/operator shall, to the extent practicable, maintain and operate the unit, including associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions. Pollution control equipment shall be designed and capable of operating properly to minimize emissions during all expected operating conditions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Regional Administrator, which may include, but is not limited to, monitoring results, review of operating and maintenance procedures, and inspection of the unit.

(ii) After completion of installation of ammonia injection on a unit, the owner/operator shall inject sufficient ammonia to achieve compliance with the NO_X emission limit contained in paragraph (j)(3) of this section for that unit while preventing excessive ammonia emissions.

(15) *Enforcement.* Notwithstanding any other provision in this implementation plan, any credible evidence or information relevant as to whether the unit would have been in compliance with applicable requirements if the appropriate performance or compliance test had been performed can be used to establish whether or not the owner/operator has violated or is in violation of any standard or applicable emission limit in the plan.

(k) *Source-specific federal implementation plan for regional haze at Clarkdale Cement Plant and Rillito Cement Plant*—(1) *Applicability.* This paragraph (k) applies to each owner/operator of the following cement kilns in the state of Arizona: Kiln 4 located at the cement plant in Clarkdale, Arizona, and kiln 4 located at the cement plant in Rillito, Arizona.

(2) *Definitions.* Terms not defined in this paragraph (k)(2) shall have the meaning given them in the Clean Air Act or EPA's regulations implementing the Clean Air Act. For purposes of this paragraph (k):

Ammonia injection shall include any of the following: Anhydrous ammonia, aqueous ammonia or urea injection.

Continuous emission monitoring system or CEMS means the equipment required by this section to sample, analyze, measure, and provide, by means of readings recorded at least once every 15 minutes (using an automated data acquisition and handling system (DAHS)), a permanent record of NO_X

emissions, diluent, or stack gas volumetric flow rate.

Kiln operating day means a 24-hour period between 12 midnight and the following midnight during which the kiln operates at any time.

Kiln operation means any period when any raw materials are fed into the kiln or any period when any combustion is occurring or fuel is being fired in the kiln.

NO_X means nitrogen oxides.

Owner/operator means any person who owns or who operates, controls, or supervises a cement kiln identified in paragraph (k)(1) of this section.

Unit means a cement kiln identified in paragraph (k)(1) of this section.

(3) *Emissions limitations.* (i) The owner/operator of kiln 4 of the Clarkdale Plant, as identified in paragraph (k)(1) of this section, shall not emit or cause to be emitted from kiln 4 NO_X in excess of 2.12 pounds of NO_X per ton of clinker produced, based on a rolling 30-kiln operating day basis. In addition, if the owner/operator installs an ammonia injection system to comply with the limits specified in this paragraph (k)(3), the owner/operator shall also comply with the control technology demonstration requirements set forth in paragraph (k)(6) of this section.

(ii) The owner/operator of kiln 4 of the Rillito Plant, as identified in paragraph (k)(1) of this section, shall not emit or cause to be emitted from kiln 4 NO_X in excess of 3.46 pounds of NO_X per ton of clinker produced, based on a rolling 30-kiln operating day basis. In addition, if the owner/operator installs an ammonia injection system to comply with the limits specified in this paragraph (k)(3), the owner/operator shall also comply with the control technology demonstration requirements set forth in paragraph (k)(6) of this section.

(4) *Alternative emissions limitation.* In lieu of the emission limitation listed in paragraph (k)(3)(i) of this section, the owner/operator of kiln 4 of the Clarkdale Plant may choose to comply with the following limitation by providing notification per paragraph (k)(13)(iv) of this section. The owner/operator of kiln 4 of the Clarkdale Plant, as identified in paragraph (k)(1) of this section, shall not emit or cause to be emitted from kiln 4 NO_X in excess of 810 tons per year, based on a rolling 12 month basis.

(5) *Compliance date.* (i) The owner/operator of each unit identified in paragraph (k)(1) of this section shall comply with the NO_X emissions limitations and other NO_X-related requirements of paragraph (k)(3) of this section no later than December 31, 2018.

(ii) If the owner/operator of the Clarkdale Plant chooses to comply with the emission limit of paragraph (k)(4) of this section in lieu of paragraph (k)(3)(i) of this section, the owner/operator shall comply with the NO_X emissions limitations and other NO_X-related requirements of paragraph (k)(4) of this section no later than December 31, 2018.

(6) *Control technology demonstration requirements.* If the owner/operator of a unit installs an ammonia injection system to comply with the limits specified in paragraph (k)(3) of this section, the owner/operator must comply with the following requirements for implementing combustion and process optimization measures.

(i) *Design report.* Prior to commencing construction of an ammonia injection system used to comply with the limits specified in paragraph (k)(3) of this section, the owner/operator shall submit to EPA for review a Design Report as described in appendix A of this section.

(ii) *Optimization protocol.* Prior to commencement of the Optimization Program, the owner/operator shall submit to EPA for review an Optimization Protocol which shall include the procedures, as described in appendix A of this section, to be used during the Optimization Program for the purpose of adjusting operating parameters and minimizing emissions.

(iii) *Optimization period.* Following EPA review of the Optimization Protocol, the owner/operator shall operate the ammonia injection system and collect data in accordance with the Optimization Protocol. The owner/operator shall operate the ammonia injection system in such a manner for no longer than 180 kiln operating days, or the duration specified in the Optimization Protocol, whichever is longer in duration.

(iv) *Optimization report.* Within 60 calendar days following the conclusion of the Optimization Program, the owner/operator shall submit to EPA for review an Optimization Report, as described in appendix A of this section, demonstrating conformance with the Optimization Protocol, and establishing optimized operating parameters for the ammonia injection system as well as other facility processes.

(v) *Demonstration period.* Following EPA review of the Optimization Report, the owner/operator shall operate the ammonia injection system consistent with the optimized operations of the facility and ammonia injection system specified in the Optimization Report. The owner/operator shall operate the ammonia injection system in such a manner for a period of 270 kiln operating days, or the duration specified in the Optimization Report, whichever is longer. The Demonstration Period may be shortened or lengthened as provided for in appendix A of this section.

(vi) *Demonstration report.* Within 60 calendar days following the conclusion of the Demonstration Program, the owner/operator shall submit a Demonstration Report, as described in appendix A of this section, which identifies a proposed rolling 30-kiln operating day emission limit for NO_X. In a subsequent regulatory action, EPA may seek to lower the emission limits in paragraphs (k)(3) and/or (k)(4) of this section in view of, among other things, the information contained in the Demonstration Report. The proposed rolling 30-kiln operating day emission limit shall be calculated in accordance with the following formula:

$$X = \mu + 1.65\sigma$$

Where:

X = Rolling 30-kiln operating day emission limit, in pounds of NOx per ton of clinker;

μ = Arithmetic mean of all of the rolling 30-kiln operating day emission rates;

σ = Standard deviation of all of the rolling 30-kiln operating day emission rates, as calculated in the following manner:

$$\sigma = \sqrt{\frac{1}{N}\sum_{i=1}^{N}(x_i - \bar{x})^2}$$

Where:

N = The total number of rolling 30-kiln operating day emission rates;

x_i = Each rolling 30-kiln operating day emission rate;

$\bar{x}$ = The mean value of all of the rolling 30-kiln operating day emission rates.

(7) *Compliance determination*—(i) *Continuous emission monitoring system.* (A) At all times after the compliance date specified in paragraph (k)(5) of this section, the owner/operator of the unit at the Clarkdale Plant shall maintain, calibrate, and operate a CEMS, in full compliance with the requirements found at 40 CFR 60.63(f) and (g), to accurately measure concentration by volume of NO_X, diluent, and stack gas volumetric flow rate from the in-line/raw mill stack, as well as the stack gas volumetric flow rate from the coal mill stack. The CEMS shall be used by the owner/operator to determine compliance with the emission limitation in paragraph (k)(3) of this section, in combination with data on actual clinker production. The owner/operator must operate the

monitoring system and collect data at all required intervals at all times the affected unit is operating, except for periods of monitoring system malfunctions, repairs associated with monitoring system malfunctions, and required monitoring system quality assurance or quality control activities (including, as applicable, calibration checks and required zero and span adjustments).

(B) At all times after the compliance date specified in paragraph (k)(5) of this section, the owner/operator of the unit at the Rillito Plant shall maintain, calibrate, and operate a CEMS, in full compliance with the requirements found at 40 CFR 60.63(f) and (g), to accurately measure concentration by volume of NO_X, diluent, and stack gas volumetric flow rate from the unit. The CEMS shall be used by the owner/operator to determine compliance with the emission limitation in paragraph (k)(3) of this section, in combination with data on actual clinker production. The owner/operator must operate the monitoring system and collect data at all required intervals at all times the affected unit is operating, except for periods of monitoring system malfunctions, repairs associated with monitoring system malfunctions, and required monitoring system quality assurance or quality control activities (including, as applicable, calibration checks and required zero and span adjustments).

(ii) *Methods.* (A) The owner/operator of each unit shall record the daily clinker production rates.

(B)(*1*) The owner/operator of each unit shall calculate and record the 30-kiln operating day average emission rate of NO_X, in lb/ton of clinker produced, as the total of all hourly emissions data for the cement kiln in the preceding 30-kiln operating days, divided by the total tons of clinker produced in that kiln during the same 30-day operating period, using the following equation:

$$E_D = k\frac{1}{(n)}\sum_{i=1}^{n}\frac{C_i Q_i}{P_i}$$

Where:

E[D] = 30 kiln operating day average emission rate of NO_X, lb/ton of clinker;
C[i] = Concentration of NO_X for hour i, ppm;
Q[i] = Volumetric flow rate of effluent gas for hour i, where C[i] and Q[i] are on the same basis (either wet or dry), scf/hr;
P[i] = Total kiln clinker produced during production hour i, ton/hr;
k = Conversion factor, 1.194 x 10<-7> for NO_X; and
n = Number of kiln operating hours over 30 kiln operating days, n = 1 up to 720.

(*2*) For each kiln operating hour for which the owner/operator does not have at least one valid 15-minute CEMS data value, the owner/operator must use the average emissions rate (lb/hr) from the most recent previous hour for which valid data are available. Hourly clinker production shall be determined by the owner/operator in accordance with the requirements found at 40 CFR 60.63(b).

(C) At the end of each kiln operating day, the owner/operator shall calculate and record a new 30-day rolling average emission rate in lb/ton clinker from the arithmetic average of all valid hourly emission rates for the current kiln operating day and the previous 29 successive kiln operating days.

(D) Upon and after the completion of installation of ammonia injection on a unit, the owner/operator shall install, and thereafter maintain and operate, instrumentation to continuously monitor and record levels of ammonia consumption that unit.

(8) *Alternative compliance determination.* If the owner/operator of the Clarkdale Plant chooses to comply with the emission limits of paragraph (k)(4) of this section, this paragraph (k)(8) may be used in lieu of paragraph (k)(7) of this section to demonstrate compliance with the emission limits in paragraph (k)(4) of this section.

(i) *Continuous emission monitoring system.* At all times after the compliance date specified in paragraph (k)(5) of this section, the owner/operator of the unit at the Clarkdale Plant shall maintain, calibrate, and operate a CEMS, in full compliance with the requirements found at 40 CFR 60.63(f) and (g), to accurately measure concentration by volume of NO_X, diluent, and stack gas volumetric flow rate from the in-line/raw mill stack, as well as the stack gas volumetric flow rate from the coal mill stack. The CEMS shall be used by the owner/operator to determine compliance with the emission limitation in paragraph (k)(3) of this section, in combination with data on actual clinker production. The owner/operator must operate the monitoring system and collect data at all required intervals at all times the affected unit is operating, except for periods of monitoring system malfunctions, repairs associated with monitoring system malfunctions, and required monitoring system quality assurance or quality control activities (including, as applicable, calibration checks and required zero and span adjustments).

(ii) *Method.* Compliance with the ton per year NO_X emission limit described in paragraph (k)(4) of this section shall be determined based on a rolling 12 month basis. The rolling 12-month NO_X emission rate for the kiln shall be calculated within 30 days following the end of each calendar month in accordance with the following procedure: Step one, sum the hourly pounds of NO_X emitted for the month just completed and the eleven (11) months preceding the month just completed, to calculate the total pounds of NO_X emitted over the most recent twelve (12) month period for that kiln; Step two, divide the total pounds of NO_X calculated from Step one by two thousand (2,000) to calculate the total tons of NO_X. Each rolling 12-month NO_X emission rate shall include all emissions that occur during all periods within the 12-month period, including emissions from startup, shutdown and malfunction.

(iii) Upon and after the completion of installation of ammonia injection on the unit, the owner/operator shall install, and thereafter maintain and operate, instrumentation to continuously monitor and record levels of ammonia consumption for that unit.

(9) *Recordkeeping.* The owner/operator of each unit shall maintain the following records for at least five years:

(i) All CEMS data, including the date, place, and time of sampling or measurement; emissions and parameters sampled or measured; and results.

(ii) All records of clinker production.

(iii) Daily 30-day rolling emission rates of NO_X, calculated in accordance with paragraph (k)(7)(ii) of this section.

(iv) Records of quality assurance and quality control activities for emissions measuring systems including, but not limited to, any records specified by 40 CFR part 60, appendix F, Procedure 1.

(v) Records of ammonia consumption, as recorded by the instrumentation required in paragraph (k)(7)(ii)(D) of this section.

(vi) Records of all major maintenance activities conducted on emission units, air pollution control equipment, CEMS and clinker production measurement devices.

(vii) Any other records specified by 40 CFR part 60, subpart F, or 40 CFR part 60, appendix F, Procedure 1.

(10) *Alternative recordkeeping requirements.* If the owner/operator of the Clarkdale Plant chooses to comply with the emission limits of paragraph (k)(4) of this section, the owner/operator shall maintain the records listed in this paragraph (k)(10) in lieu of the records contained in paragraph (k)(9) of this section. The owner or operator shall maintain the following records for at least five years:

(i) All CEMS data, including the date, place, and time of sampling or measurement; emissions and parameters sampled or measured; and results.

(ii) Monthly rolling 12-month emission rates of NO_X, calculated in accordance with paragraph (k)(8)(ii) of this section.

(iii) Records of quality assurance and quality control activities for emissions measuring systems including, but not limited to, any records specified by 40 CFR part 60, appendix F, Procedure 1.

(iv) Records of ammonia consumption, as recorded by the instrumentation required in paragraph (k)(8)(iii) of this section.

(v) Records of all major maintenance activities conducted on emission units, air pollution control equipment, and CEMS measurement devices.

(vi) Any other records specified by 40 CFR part 60, subpart F, or 40 CFR part 60, appendix F, Procedure 1.

(11) *Reporting.* All reports required under this section shall be submitted by the owner/operator to the Director, Enforcement Division (Mailcode ENF–2–1), U.S. Environmental Protection Agency, Region 9, 75 Hawthorne Street, San Francisco, California 94105–3901. All reports required under this section shall be submitted within 30 days after the applicable compliance date in paragraph (k)(5) of this section and at least semiannually thereafter, within 30 days after the end of a semiannual period. The owner/operator may submit reports more frequently than semiannually for the purposes of synchronizing reports required under this section with other reporting requirements, such as the title V monitoring report required by 40 CFR 70.6(a)(3)(iii)(A), but at no point shall the duration of a semiannual period exceed six months.

(i) The owner/operator shall submit a report that lists the daily 30-day rolling emission rates for NO_X.

(ii) The owner/operator shall submit excess emissions reports for NO_X limits. Excess emissions means emissions that exceed the emissions limits specified in paragraph (k)(3) of this section. The reports shall include the magnitude, date(s), and duration of each period of excess emissions, specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the unit, the nature and cause of any malfunction (if known), and the corrective action taken or preventative measures adopted.

(iii) The owner/operator shall submit CEMS performance reports, to include dates and duration of each period during which the CEMS was inoperative (except for zero and span adjustments and calibration checks), reason(s) why the CEMS was inoperative and steps taken to prevent recurrence, and any CEMS repairs or adjustments.

(iv) The owner/operator shall also submit results of any CEMS performance tests specified by 40 CFR part 60, appendix F, Procedure 1 (Relative Accuracy Test Audits, Relative Accuracy Audits, and Cylinder Gas Audits).

(v) When no excess emissions have occurred or the CEMS has not been inoperative, repaired, or adjusted during the reporting period, the owner/operator shall state such information in the reports required by paragraph (k)(9)(ii) of this section.

(12) *Alternative reporting requirements.* If the owner/operator of the Clarkdale Plant chooses to comply with the emission limits of paragraph (k)(4) of this section, the owner/operator shall submit the reports listed in this paragraph (k)(12) in lieu of the reports contained in paragraph (k)(11) of this section. All reports required under this section shall be submitted by the owner/operator to the Director, Enforcement Division (Mailcode ENF–2–1), U.S. Environmental Protection Agency, Region 9, 75 Hawthorne Street, San Francisco, California 94105–3901. All reports required under this section shall be submitted within 30 days after the applicable compliance date in paragraph (k)(5) of this section and at least semiannually thereafter, within 30 days after the end of a semiannual period. The owner/operator may submit reports more frequently than semiannually for the purposes of synchronizing reports required under this section with other reporting requirements, such as the title V monitoring report required by 40 CFR 70.6(a)(3)(iii)(A), but at no point shall the duration of a semiannual period exceed six months.

(i) The owner/operator shall submit a report that lists the monthly rolling 12-month emission rates for NO_X.

(ii) The owner/operator shall submit excess emissions reports for NO_X limits. Excess emissions means emissions that exceed the emissions limits specified in paragraph (k)(3) of this section. The reports shall include the magnitude, date(s), and duration of each period of excess emissions, specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the unit, the nature and cause of any malfunction (if known), and the corrective action taken or preventative measures adopted.

(iii) The owner/operator shall submit CEMS performance reports, to include dates and duration of each period during which the CEMS was inoperative (except for zero and span adjustments and calibration checks), reason(s) why the CEMS was inoperative and steps taken to prevent recurrence, and any CEMS repairs or adjustments.

(iv) The owner/operator shall also submit results of any CEMS performance tests specified by 40 CFR part 60, appendix F, Procedure 1 (Relative Accuracy Test Audits, Relative Accuracy Audits, and Cylinder Gas Audits).

(v) When no excess emissions have occurred or the CEMS has not been inoperative, repaired, or adjusted during the reporting period, the owner/operator shall state such information in the reports required by paragraph (k)(9)(ii) of this section.

(13) *Notifications.* (i) The owner/operator shall submit notification of commencement of construction of any equipment which is being constructed to comply with the NO_X emission limits in paragraph (k)(3) of this section.

(ii) The owner/operator shall submit semiannual progress reports on construction of any such equipment.

(iii) The owner/operator shall submit notification of initial startup of any such equipment.

(iv) By June 30, 2018, the owner/operator of the Clarkdale Plant shall notify the Regional Administrator by letter whether it will comply with the emission limits in paragraph (k)(3)(i) of this section or whether it will comply with the emission limits in paragraph (k)(4) of this section. In the event that the owner/operator does not submit timely and proper notification by June 30, 2018, the owner/operator of the Clarkdale Plant may not choose to comply with the alternative emission limits in paragraph (k)(4) of this section and shall comply with the emission limits in paragraph (k)(3)(i) of this section.

(14) *Equipment operation.* (i) At all times, including periods of startup, shutdown, and malfunction, the owner or operator shall, to the extent practicable, maintain and operate the unit including associated air pollution

control equipment in a manner consistent with good air pollution control practices for minimizing emissions. Pollution control equipment shall be designed and capable of operating properly to minimize emissions during all expected operating conditions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Regional Administrator which may include, but is not limited to, monitoring results, review of operating and maintenance procedures, and inspection of the unit.

(ii) After completion of installation of ammonia injection on a unit, the owner or operator shall inject sufficient ammonia to achieve compliance with NO_X emission limits set forth in paragraph (k)(3) of this section for that unit while preventing excessive ammonia emissions.

(15) *Enforcement.* Notwithstanding any other provision in this implementation plan, any credible evidence or information relevant as to whether the unit would have been in compliance with applicable requirements if the appropriate performance or compliance test had been performed, can be used to establish whether or not the owner or operator has violated or is in violation of any standard or applicable emission limit in the plan.

(l) *Source-specific federal implementation plan for regional haze at Hayden Copper Smelter*—(1) *Applicability.* This paragraph (l) applies to each owner/operator of batch copper converters #1, 3, 4 and 5 and anode furnaces #1 and #2 at the copper smelting plant located in Hayden, Gila County, Arizona.

(2) *Definitions.* Terms not defined in this paragraph (l)(2) shall have the meaning given them in the Clean Air Act or EPA's regulations implementing the Clean Air Act. For purposes of this paragraph (l):

Anode furnace means a furnace in which molten blister copper is refined through introduction of a reducing agent such as natural gas.

Batch copper converter means a Peirce-Smith converter in which copper matte is oxidized to form blister copper by a process that is performed in discrete batches using a sequence of charging, blowing, skimming, and pouring.

Blister copper means an impure form of copper, typically between 96 and 98 percent pure copper that is the output of the converters.

Calendar day means a 24 hour period that begins and ends at midnight, local standard time.

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.

Continuous emission monitoring system or CEMS means the equipment required by this section to sample, analyze, measure, and provide, by means of readings recorded at least once every 15 minutes (using an automated data acquisition and handling system (DAHS)), a permanent record of SO_2 emissions, other pollutant emissions, diluent, or stack gas volumetric flow rate.

Copper matte means a material predominately composed of copper and iron sulfides produced by smelting copper ore concentrates.

NO_X means nitrogen oxides.

Owner/operator means any person who owns or who operates, controls, or supervises the equipment identified in paragraph (l)(1) of this section.

Regional Administrator means the Regional Administrator of EPA Region 9 or his or her designated representative.

SO_2 means sulfur dioxide.

(3) *Emission capture.* (i) The owner/operator must operate a capture system that has been designed to maximize collection of process off gases vented from each converter identified in paragraph (l)(1) of this section. The capture system must include primary and secondary capture systems as described in 40 CFR 63.1444(d)(2).

(ii) The operation of the batch copper converters, primary capture system, and secondary capture system shall be optimized to capture the maximum amount of process off gases vented from each converter at all times.

(iii) The owner/operator shall prepare a written operation and maintenance plan according to the requirements in paragraph (l)(3)(iv) of this section and submit this plan to the Regional Administrator 180 days prior to the compliance date in paragraph (l)(5)(ii) of this section. The Regional Administrator shall approve or disapprove the plan within 180 days of submittal. At all times when one or more converters are blowing, the owner/operator must operate the capture system consistent with this plan.

(iv) The written operations and maintenance plan must address the following requirements as applicable to the capture system or control device.

(A) *Preventative maintenance.* The owner/operator must perform preventative maintenance for each capture system and control device according to written procedures specified in owner/operator's operation and maintenance plan. The procedures must include a preventative maintenance schedule that is consistent with the manufacturer's or engineer's instructions for routine and long-term maintenance.

(B) *Capture system inspections.* The owner/operator must perform capture system inspections for each capture system in accordance with the requirements of 40 CFR 63.1447(b)(2).

(C) *Copper converter department capture system operating limits.* The owner/operator must establish, according to the requirements 40 CFR 63.1447(b)(3)(i) through (iii), operating limits for the capture system that are representative and reliable indicators of the optimized performance of the capture system, consistent with paragraph (l)(3)(ii) of this section, when it is used to collect the process off-gas vented from batch copper converters during blowing.

(4) *Emission limitations and work practice standards.* (i) SO_2 emissions collected by any primary capture system required by paragraph (l)(3) of this section must be controlled by one or more control devices and reduced by at least 99.8 percent, based on a 365-day rolling average.

(ii) SO_2 emissions collected by any secondary capture system required by paragraph (l)(3) of this section must be controlled by one or more control devices and reduced by at least 98.5 percent, based on a 365-day rolling average.

(iii) The owner/operator must not cause or allow to be discharged to the atmosphere from any primary capture system required by paragraph (l)(3) of this section off-gas that contains nonsulfuric acid particulate matter in excess of 6.2 mg/dscm as measured using the test methods specified in 40 CFR 63.1450(b).

(iv) The owner/operator must not cause or allow to be discharged to the atmosphere from any secondary capture system required by paragraph (l)(3) of this section off-gas that contains particulate matter in excess of 23 mg/dscm as measured using the test methods specified in 40 CFR 63.1450(a).

(v) Total NO_X emissions from anode furnaces #1 and #2 and the batch copper converters shall not exceed 40 tons per 12-continuous month period.

(vi) Anode furnaces #1 and #2 shall only be charged with blister copper or higher purity copper. This charging

limitation does not extend to the use or addition of poling or fluxing agents necessary to achieve final casting chemistry.

(5) *Compliance dates.* (i) The owner/operator of each batch copper converter identified in paragraph (l)(1) of this section shall comply with the emissions limitations in paragraphs (l)(4)(ii) and (l)(4)(iv) of this section and other requirements of this section related to the secondary capture system no later than September 3, 2018.

(ii) The owner/operator of each batch copper converter identified in paragraph (l)(1) of this section shall comply with the emissions limitations in paragraphs (l)(4)(i), (l)(4)(iii), (l)(4)(v), and (l)(4)(vi) of this section and other requirements of this section, except those requirements related to the secondary capture system, no later than September 4, 2017.

(6) *Compliance determination*—(i) *Continuous emission monitoring system.* At all times after the compliance date specified in paragraph (l)(5) of this section, the owner/operator of each batch copper converter identified in paragraph (l)(1) of this section shall maintain, calibrate, and operate a CEMS, in full compliance with the requirements found at 40 CFR 60.13 and 40 CFR part 60, appendices B and F, to accurately measure the mass emission rate in pounds per hour of SO_2 emissions entering each control device used to control emissions from the converters, and venting from the converters to the atmosphere after passing through a control device or an uncontrolled bypass stack. The CEMS shall be used by the owner/operator to determine compliance with the emission limitation in paragraph (l)(4) of this section. The owner/operator must operate the monitoring system and collect data at all required intervals at all times that an affected unit is operating, except for periods of monitoring system malfunctions, repairs associated with monitoring system malfunctions, and required monitoring system quality assurance or quality control activities (including, as applicable, calibration checks and required zero and span adjustments).

(ii) *Compliance determination for SO_2 limit for the converters.* The 365-day rolling SO_2 emission control efficiency for the converters shall be calculated separately for the primary capture system and the secondary capture system for each calendar day in accordance with the following procedure: Step one, sum the hourly pounds of SO_2 vented to each uncontrolled bypass stack and to each control device used to control emissions from the converters for the current calendar day and the preceding three-hundred-sixty-four (364) calendar days, to calculate the total pounds of pre-control SO_2 emissions over the most recent three-hundred-sixty-five (365) calendar day period; Step two, sum the hourly pounds of SO_2 vented to each uncontrolled bypass stack and emitted from the release point of each control device used to control emissions from the converters for the current calendar day and the preceding three-hundred-sixty-four (364) calendar days, to calculate the total pounds of post-control SO_2 emissions over the most recent three-hundred-sixty-five (365) calendar day period; Step three, divide the total amount of post-control SO_2 emissions calculated from Step two by the total amount of pre-control SO_2 emissions calculated from Step one, subtract the resulting ratio from one, and multiply the difference by 100 percent to calculate the 365-day rolling SO_2 emission control efficiency as a percentage.

(iii) *Compliance determination for nonsulfuric acid particulate matter.* Compliance with the emission limit for nonsulfuric acid particulate matter in paragraph (l)(4)(iii) of this section shall be demonstrated by the procedures in 40 CFR 63.1451(b) and 63.1453(a)(2). The owner/operator shall conduct an initial compliance test within 180 days after the compliance date specified in paragraph (l)(5) of this section unless a test performed according to the procedures in 40 CFR 63.1450 in the past year shows compliance with the limit.

(iv) *Compliance determination for particulate matter.* Compliance with the emission limit for particulate matter in paragraph (l)(4)(iv) of this section shall be demonstrated by the procedures in 40 CFR 63.1451(a) and 63.1453(a)(1). The owner/operator shall conduct an initial compliance test within 180 days after the compliance date specified in paragraph (l)(5) of this section unless a test performed according to the procedures in 40 CFR 63.1450 in the past year shows compliance with the limit.

(v) *Compliance determination for NO_X.* Compliance with the emission limit for NO_X in paragraph (l)(4)(v) of this section shall be demonstrated by monitoring natural gas consumption in each of the units identified in paragraph (l)(1) of this section for each calendar day. At the end of each calendar month, the owner/operator shall calculate 12-consecutive month NO_X emissions by multiplying the daily natural gas consumption rates for each unit by an approved emission factor and adding the sums for all units over the previous 12-consecutive month period.

(7) *Alternatives to requirements to install CEMS.* The requirement in paragraph (l)(6)(i) of this section to install CEMS to measure the mass of SO_2 entering a control device or venting to the atmosphere through uncontrolled bypass stacks will be waived if the owner/operator complies with one of the options in this paragraph (l)(7).

(i) *Acid plants.* The owner/operator may calculate the pounds of SO_2 entering an acid plant during a calendar day by adding the pounds of SO_2 emitted through the acid plant tail stack and 0.653 times the daily production of anhydrous sulfuric acid from the acid plant.

(ii) *Uncontrolled bypass stack.* The owner/operator may calculate the pounds of SO_2 venting to the atmosphere through an uncontrolled bypass stack based on test data provided the facility operates according to a startup, shutdown, and malfunction plan consistent with 40 CFR 63.6(e)(3) and the Regional Administrator has approved a calculation methodology for planned and unplanned bypass events.

(8) *Capture system monitoring.* For each operating limit established under the capture system operation and maintenance plan required by paragraph (l)(4) of this section, the owner/operator must install, operate, and maintain an appropriate monitoring device according to the requirements in 40 CFR 63.1452(a)(1) through (6) to measure and record the operating limit value or setting at all times the required capture system is operating. Dampers that are manually set and remain in the same position at all times the capture system is operating are exempted from these monitoring requirements.

(9) *Recordkeeping.* The owner/operator shall maintain the following records for at least five years:

(i) All CEMS data, including the date, place, and time of sampling or measurement; parameters sampled or measured; and results.

(ii) Records of quality assurance and quality control activities for emissions measuring systems including, but not limited to, any records required by 40 CFR part 60, appendix F, Procedure 1.

(iii) Records of all major maintenance activities conducted on emission units, air pollution control equipment, and CEMS.

(iv) Any other records required by 40 CFR part 60, subpart F, or 40 CFR part 60, appendix F, Procedure 1.

(v) Records of all monitoring required by paragraph (l)(8) of this section.

(vi) Records of daily sulfuric acid production in tons per day of pure,

anhydrous sulfuric acid if the owner/operator chooses to use the alternative compliance determination method in paragraph (l)(7)(i) of this section.

(vii) Records of planned and unplanned bypass events and calculations used to determine emissions from bypass events if the owner/operator chooses to use the alternative compliance determination method in paragraph (l)(7)(ii) of this section.

(viii) Records of daily natural gas consumption in each units identified in paragraph (l)(1) of this section and all calculations performed to demonstrate compliance with the limit in paragraph (l)(4)(vi) of this section.

(10) *Reporting.* All reports required under this section shall be submitted by the owner/operator to the Director, Enforcement Division (Mail Code ENF–2–1), U.S. Environmental Protection Agency, Region 9, 75 Hawthorne Street, San Francisco, California 94105–3901. All reports required under this section shall be submitted within 30 days after the applicable compliance date in paragraph (l)(5) of this section and at least semiannually thereafter, within 30 days after the end of a semiannual period. The owner/operator may submit reports more frequently than semiannually for the purposes of synchronizing reports required under this section with other reporting requirements, such as the title V monitoring report required by 40 CFR 70.6(a)(3)(iii)(A), but at no point shall the duration of a semiannual period exceed six months.

(i) The owner/operator shall promptly submit excess emissions reports for the SO_2 limit. Excess emissions means emissions that exceed the emissions limit specified in paragraph (d) of this section. The reports shall include the magnitude, date(s), and duration of each period of excess emissions, specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the unit, the nature and cause of any malfunction (if known), and the corrective action taken or preventative measures adopted. For the purpose of this paragraph (l)(10)(i), promptly shall mean within 30 days after the end of the month in which the excess emissions were discovered.

(ii) The owner/operator shall submit CEMS performance reports, to include dates and duration of each period during which the CEMS was inoperative (except for zero and span adjustments and calibration checks), reason(s) why the CEMS was inoperative and steps taken to prevent recurrence, and any CEMS repairs or adjustments. The owner/operator shall submit reports semiannually.

(iii) The owner/operator shall also submit results of any CEMS performance tests required by 40 CFR part 60, appendix F, Procedure 1 (Relative Accuracy Test Audits, Relative Accuracy Audits, and Cylinder Gas Audits).

(iv) When no excess emissions have occurred or the CEMS has not been inoperative, repaired, or adjusted during the reporting period, the owner/operator shall state such information in the semiannual report.

(v) When performance testing is required to determine compliance with an emission limit in paragraph (l)(4) of this section, the owner/operator shall submit test reports as specified in 40 CFR part 63, subpart A.

(11) *Notifications.* (i) The owner/operator shall notify EPA of commencement of construction of any equipment which is being constructed to comply with the capture or emission limits in paragraph (l)(3) or (4) of this section.

(ii) The owner/operator shall submit semiannual progress reports on construction of any such equipment.

(iii) The owner/operator shall submit notification of initial startup of any such equipment.

(12) *Equipment operations.* At all times, including periods of startup, shutdown, and malfunction, the owner or operator shall, to the extent practicable, maintain and operate the unit including associated air pollution control equipment in a manner consistent with good air pollution control practices for minimizing emissions. Pollution control equipment shall be designed and capable of operating properly to minimize emissions during all expected operating conditions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Regional Administrator which may include, but is not limited to, monitoring results, review of operating and maintenance procedures, and inspection of the unit.

(13) *Enforcement.* Notwithstanding any other provision in this implementation plan, any credible evidence or information relevant as to whether the unit would have been in compliance with applicable requirements if the appropriate performance or compliance test had been performed, can be used to establish whether or not the owner or operator has violated or is in violation of any standard or applicable emission limit in the plan.

(m) *Source-specific federal implementation plan for regional haze at Miami Copper Smelter*—(1) *Applicability.* This paragraph (m) applies to each owner/operator of batch copper converters 2, 3, 4 and 5 and the electric furnace at the copper smelting plant located in Miami, Gila County, Arizona.

(2) *Definitions.* Terms not defined in this paragraph (m)(2) shall have the meaning given them in the Clean Air Act or EPA's regulations implementing the Clean Air Act. For purposes of this paragraph (m):

Batch copper converter means a Hoboken converter in which copper matte is oxidized to form blister copper by a process that is performed in discrete batches using a sequence of charging, blowing, skimming, and pouring.

Calendar day means a 24 hour period that begins and ends at midnight, local standard time.

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.

Continuous emission monitoring system or CEMS means the equipment required by this section to sample, analyze, measure, and provide, by means of readings recorded at least once every 15 minutes (using an automated data acquisition and handling system (DAHS)), a permanent record of SO_2 emissions, other pollutant emissions, diluent, or stack gas volumetric flow rate.

Copper matte means a material predominately composed of copper and iron sulfides produced by smelting copper ore concentrates.

Electric furnace means a furnace in which copper matte and slag are heated by electrical resistance without the mechanical introduction of air or oxygen.

NO_X means nitrogen oxides.

Owner/operator means any person who owns or who operates, controls, or supervises the equipment identified in paragraph (m)(1) of this section.

Slag means the waste material consisting primarily of iron sulfides separated from copper matte during the smelting and refining of copper ore concentrates.

SO_2 means sulfur dioxide.

(3) *Emission capture.* (i) The owner/operator of the batch copper converters

identified in paragraph (m)(1) of this section must operate a capture system that has been designed to maximize collection of process off gases vented from each converter. The capture system must include a primary capture system as described in 40 CFR 63.1444(d)(3) and a secondary capture system designed to maximize the collection of emissions not collected by the primary capture system.

(ii) The operation of the batch copper converters, primary capture system, and secondary capture system shall be optimized to capture the maximum amount of process off gases vented from each converter at all times.

(iii) The owner/operator shall prepare a written operation and maintenance plan according to the requirements in paragraph (m)(3)(iv) of this section and submit this plan to the Regional Administrator 180 days prior to the compliance date in paragraph (m)(5) of this section. The Regional Administrator shall approve or disapprove the plan within 180 days of submittal. At all times when one or more converters are blowing, the owner/operator must operate the capture system consistent with this plan.

(iv) The written operations and maintenance plan must address the following requirements as applicable to the capture system or control device.

(A) *Preventative maintenance.* The owner/operator must perform preventative maintenance for each capture system and control device according to written procedures specified in owner/operator's operation and maintenance plan. The procedures must include a preventative maintenance schedule that is consistent with the manufacturer's or engineer's instructions for routine and long-term maintenance.

(B) *Capture system inspections.* The owner/operator must perform capture system inspections for each capture system in accordance with the requirements of 40 CFR 63.1447(b)(2).

(C) *Copper converter department capture system operating limits.* The owner/operator must establish, according to the requirements 40 CFR 63.1447(b)(3)(i) through (iii), operating limits for the capture system that are representative and reliable indicators of the performance of capture system when it is used to collect the process off-gas vented from batch copper converters during blowing.

(4) *Emission limitations and work practice standards.* (i) SO_2 emissions collected by the capture system required by paragraph (m)(3) of this section must be controlled by one or more control devices and reduced by at least 99.7 percent, based on a 365-day rolling average.

(ii) The owner/operator must not cause or allow to be discharged to the atmosphere from any primary capture system required by paragraph (m)(3) of this section off-gas that contains nonsulfuric acid particulate matter in excess of 6.2 mg/dscm as measured using the test methods specified in 40 CFR 63.1450(b).

(iii) Total NO_X emissions the electric furnace and the batch copper converters shall not exceed 40 tons per 12-continuous month period.

(iv) The owner/operator shall not actively aerate the electric furnace.

(5) *Compliance dates.* (i) The owner/operator of each batch copper converter identified in paragraph (m)(1) of this section shall comply with the emission capture requirement in paragraph (m)(3) of this section; the emission limitation in paragraph (m)(4)(i) of this section; the compliance determination requirements in paragraphs (m)(6)(i) and (ii) and (m)(7) of this section; the capture system monitoring requirements in paragraph (m)(8) of this section; the recordkeeping requirements in paragraphs (m)(9)(i) through (viii) of this section; and the reporting requirements in paragraphs (m)(10)(i) through (iv) of this section no later than January 1, 2018.

(ii) The owner/operator of each batch copper converter and the electric furnace identified in paragraph (m)(1) of this section shall comply with all requirements of this paragraph (m) except those listed in paragraph (m)(5)(i) of this section no later than September 2, 2016.

(6) *Compliance determination*—(i) *Continuous emission monitoring system.* At all times after the compliance date specified in paragraph (m)(5) of this section, the owner/operator of each batch copper converter identified in paragraph (m)(1) of this section shall maintain, calibrate, and operate a CEMS, in full compliance with the requirements found at 40 CFR 60.13 and 40 CFR part 60, appendices B and F, to accurately measure the mass emission rate in pounds per hour of SO_2 emissions entering each control device used to control emissions from the converters, and venting from the converters to the atmosphere after passing through a control device or an uncontrolled bypass stack. The CEMS shall be used by the owner/operator to determine compliance with the emission limitation in paragraph (m)(4)(i) of this section. The owner/operator must operate the monitoring system and collect data at all required intervals at all times that an affected unit is operating, except for periods of monitoring system malfunctions, repairs associated with monitoring system malfunctions, and required monitoring system quality assurance or quality control activities (including, as applicable, calibration checks and required zero and span adjustments).

(ii) *Compliance determination for SO_2.* The 365-day rolling SO_2 emission control efficiency for the converters shall be calculated for each calendar day in accordance with the following procedure: Step one, sum the hourly pounds of SO_2 vented to each uncontrolled bypass stack and to each control device used to control emissions from the converters for the current calendar day and the preceding three-hundred-sixty-four (364) calendar days, to calculate the total pounds of pre-control SO_2 emissions over the most recent three-hundred-sixty-five (365) calendar day period; Step two, sum the hourly pounds of SO_2 vented to each uncontrolled bypass stack and emitted from the release point of each control device used to control emissions from the converters for the current calendar day and the preceding three-hundred-sixty-four (364) calendar days, to calculate the total pounds of post-control SO_2 emissions over the most recent three-hundred-sixty-five (365) calendar day period; Step three, divide the total amount of post-control SO_2 emissions calculated from Step two by the total amount of pre-control SO_2 emissions calculated from Step one, subtract the resulting ratio from one, and multiply the difference by 100 percent to calculate the 365-day rolling SO_2 emission control efficiency as a percentage.

(iii) *Compliance determination for nonsulfuric acid particulate matter.* Compliance with the emission limit for nonsulfuric acid particulate matter in paragraph (m)(4)(ii) of this section shall be demonstrated by the procedures in 40 CFR 63.1451(b) and 63.1453(a)(2). The owner/operator shall conduct an initial compliance test within 180 days after the compliance date specified in paragraph (m)(5) of this section unless a test performed according to the procedures in 40 CFR 63.1450 in the past year shows compliance with the limit.

(iv) *Compliance determination for NO_X.* Compliance with the emission limit for NO_X in paragraph (m)(4)(iii) of this section shall be demonstrated by monitoring natural gas consumption in each of the units identified in paragraph (m)(1) of this section for each calendar day. At the end of each calendar month, the owner/operator shall calculate monthly and 12-consecutive month NO_X emissions by multiplying the daily

natural gas consumption rates for each unit by an approved emission factor and adding the sums for all units over the previous 12-consecutive month period.

(7) *Alternatives to requirements to install CEMS.* The requirement in paragraph (m)(6)(i) of this section to install CEMS to measure the mass of SO_2 entering a control device or venting to the atmosphere through uncontrolled bypass stacks will be waived if the owner/operator complies with one of the options in this paragraph (m)(7).

(i) *Acid plants.* The owner/operator may calculate the pounds of SO_2 entering an acid plant during a calendar day by adding the pounds of SO_2 emitted through the acid plant tail stack and 0.653 times the daily production of anhydrous sulfuric acid from the acid plant.

(ii) *Alkali scrubber.* The owner/operator may calculate the pounds of SO_2 entering an alkali scrubber during a calendar day by using the following equation:

$$M_{in,SO2} = M_{out,SO2} + SF*M_{alk}$$

Where:

$M_{in,SO2}$ is the calculated mass of SO_2 entering the scrubber during a calendar day;

$M_{out,SO2}$ is the mass of SO_2 emitted through the scrubber stack measured by the CEMS for the calendar day;

SF is a stoichiometric factor; and

M_{alk} is the mass of alkali added to the scrubber liquor during the calendar day.

SF shall equal:

1.14 if the alkali species is calcium oxide (CaO);

1.59 if the alkali species is magnesium oxide (MgO);

0.801 if the alkali species is sodium hydroxide (NaOH); or

Another value if the owner/operator has received approval from the Regional Administrator in advance.

(iii) *Uncontrolled bypass stack.* The owner/operator may calculate the pounds of SO_2 venting to the atmosphere through an uncontrolled bypass stack based on test data provided the facility operates according to a startup, shutdown, and malfunction plan consistent with 40 CFR 63.6(e)(3) and EPA has approved a calculation methodology for planned and unplanned bypass events.

(8) *Capture system monitoring.* For each operating limit established under the capture system operation and maintenance plan required by paragraph (m)(3) of this section, the owner/operator must install, operate, and maintain an appropriate monitoring device according to the requirements in 40 CFR 63.1452(a)(1) though (6) to measure and record the operating limit value or setting at all times the required capture system is operating. Dampers that are manually set and remain in the same position at all times the capture system is operating are exempted from these monitoring requirements.

(9) *Recordkeeping.* The owner/operator shall maintain the following records for at least five years:

(i) All CEMS data, including the date, place, and time of sampling or measurement; parameters sampled or measured; and results.

(ii) Records of quality assurance and quality control activities for emissions measuring systems including, but not limited to, any records required by 40 CFR part 60, appendix F, Procedure 1.

(iii) Records of all major maintenance activities conducted on emission units, air pollution control equipment, and CEMS.

(iv) Any other records required by 40 CFR part 60, subpart F, or 40 CFR part 60, appendix F, Procedure 1.

(v) Records of all monitoring required by paragraph (m)(8) of this section.

(vi) Records of daily sulfuric acid production in tons per day of pure, anhydrous sulfuric acid if the owner/operator chooses to use the alternative compliance determination method in paragraph (m)(7)(i) of this section.

(vii) Records of daily alkali consumption in tons per day of pure, anhydrous alkali if the owner/operator chooses to use the alternative compliance determination method in paragraph (m)(7)(ii) of this section.

(viii) Records of planned and unplanned bypass events and calculations used to determine emissions from bypass events if the owner/operator chooses to use the alternative compliance determination method in paragraph (m)(7)(iii) of this section.

(ix) Records of daily natural gas consumption in each units identified in paragraph (m)(1) of this section and all calculations performed to demonstrate compliance with the limit in paragraph (m)(4)(iv) of this section.

(10) *Reporting.* All reports required under this section shall be submitted by the owner/operator to the Director, Enforcement Division (Mail Code ENF–2–1), U.S. Environmental Protection Agency, Region 9, 75 Hawthorne Street, San Francisco, California 94105–3901. All reports required under this section shall be submitted within 30 days after the applicable compliance date in paragraph (m)(5) of this section and at least semiannually thereafter, within 30 days after the end of a semiannual period. The owner/operator may submit reports more frequently than semiannually for the purposes of synchronizing reports required under this section with other reporting requirements, such as the title V monitoring report required by 40 CFR 70.6(a)(3)(iii)(A), but at no point shall the duration of a semiannual period exceed six months.

(i) The owner/operator shall promptly submit excess emissions reports for the SO_2 limit. Excess emissions means emissions that exceed the emissions limit specified in paragraph (d) of this section. The reports shall include the magnitude, date(s), and duration of each period of excess emissions, specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the unit, the nature and cause of any malfunction (if known), and the corrective action taken or preventative measures adopted. For the purpose of this paragraph (m)(10)(i), promptly shall mean within 30 days after the end of the month in which the excess emissions were discovered.

(ii) The owner/operator shall submit CEMS performance reports, to include dates and duration of each period during which the CEMS was inoperative (except for zero and span adjustments and calibration checks), reason(s) why the CEMS was inoperative and steps taken to prevent recurrence, and any CEMS repairs or adjustments. The owner/operator shall submit reports semiannually.

(iii) The owner/operator shall also submit results of any CEMS performance tests required by 40 CFR part 60, appendix F, Procedure 1 (Relative Accuracy Test Audits, Relative Accuracy Audits, and Cylinder Gas Audits).

(iv) When no excess emissions have occurred or the CEMS has not been inoperative, repaired, or adjusted during the reporting period, the owner/operator shall state such information in the semiannual report.

(v) When performance testing is required to determine compliance with an emission limit in paragraph (m)(4) of this section, the owner/operator shall submit test reports as specified in 40 CFR part 63, subpart A.

(11) *Notifications.*

(i) The owner/operator shall notify EPA of commencement of construction of any equipment which is being constructed to comply with the capture or emission limits in paragraph (m)(3) or (4) of this section.

(ii) The owner/operator shall submit semiannual progress reports on construction of any such equipment.

(iii) The owner/operator shall submit notification of initial startup of any such equipment.

(12) *Equipment operations.* At all times, including periods of startup,

shutdown, and malfunction, the owner or operator shall, to the extent practicable, maintain and operate the unit including associated air pollution control equipment in a manner consistent with good air pollution control practices for minimizing emissions. Pollution control equipment shall be designed and capable of operating properly to minimize emissions during all expected operating conditions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Regional Administrator which may include, but is not limited to, monitoring results, review of operating and maintenance procedures, and inspection of the unit.

(13) *Enforcement.* Notwithstanding any other provision in this implementation plan, any credible evidence or information relevant as to whether the unit would have been in compliance with applicable requirements if the appropriate performance or compliance test had been performed, can be used to establish whether or not the owner or operator has violated or is in violation of any standard or applicable emission limit in the plan.

Appendix A to § 52.145—Cement Kiln Control Technology Demonstration Requirements

I. Scope

1. The owner/operator shall comply with the requirements contained in this appendix for implementing combustion and process optimization measures and in proposing and establishing rolling 30-kiln operating day limits for nitrogen oxide (NO_X).

2. The owner/operator shall take the following steps to establish rolling 30-kiln operating day limits for NO_X.

a. Design Report: At least 6 months prior to commencing construction of an ammonia injection system, the owner/operator shall prepare and submit to EPA for review a Design Report for the ammonia injection system.

b. Baseline Data Collection: Prior to initiating operation of an ammonia injection system, the owner/operator shall either: (i) Collect new baseline emissions and operational data for a 180-day period; or (ii) submit for EPA review baseline emissions and operational data from a period prior to the date of any baseline data collection period. Such baseline emissions and operational data shall be representative of the full range of normal kiln operations, including regular operating changes in raw mix chemistry due to different clinker manufacture, changes in production levels, and operation of the oxygen plants.

c. Optimization Protocol: Prior to commencement of the Optimization Period, the owner/operator shall submit for EPA review an Optimization Protocol which shall include the procedures to be used for the purpose of adjusting operating parameters and minimizing emissions.

d. Optimization Period: Following completion of installation of an ammonia injection system, the owner/operator shall undertake a startup and optimization period for the ammonia injection system.

e. Optimization Report: Within 60 calendar days following the conclusion of the Optimization Program, the owner/operator shall submit to EPA an Optimization Report demonstrating conformance with the Optimization Protocol, and establishing optimized operating parameters for the ammonia injection system as well as other facility processes.

f. Demonstration Period: Upon completion of the optimization period specified above, the owner/operator shall operate the ammonia injection system in a manner consistent with the optimization period for a period of 270 kiln operating days (subject to being shortened or lengthened as provided for in Items 17 and 18 of this appendix) for the purpose of establishing a rolling 30-kiln operating day limit.

g. Demonstration Report: The owner/operator shall prepare and submit to EPA for review, a report following completion of the demonstration period for the ammonia injection system.

II. Design Report

3. Prior to commencing construction of the ammonia injection system, the owner/operator shall submit to EPA for review a Design Report for the ammonia injection system. The owner/operator shall design the ammonia injection system to deliver the proposed reagent to the exhaust gases at the rate of at least 1.2 mols of reagent to 1.0 mols of NO_X (1.2:1 molar ratio). The system shall be designed to inject Ammonia into the kiln exhaust gas stream. The owner/operator shall specify in the Design Report the reagent(s) selected, the locations selected for reagent injection, and other design parameters based on maximum emission reduction effectiveness, good engineering judgment, vendor standards, available data, kiln operability, and regulatory restrictions on reagent storage and use.

4. Any permit application which may be required under state or federal law for the ammonia injection system shall be consistent with the Design Report.

III. Baseline Data Collection

5. Prior to commencement of continuous operation of the ammonia injection system, the owner/operator shall either: (a) Collect new baseline emissions and operational data for a 180-day period; or (b) submit for EPA review existing baseline emissions and operational data collected from a period of time prior to the initiation of a baseline collection period. Such baseline emissions and operational data shall include the data required by Item 8 below for periods of time representing the full range of normal kiln operations including changes in raw mix chemistry due to differing clinker manufacture, changes in production levels and operation of the oxygen plants. Within 45 Days following the completion of the baseline data collection period, the owner/operator shall submit to EPA the baseline data collected during the Baseline Data Collection Period.

IV. Optimization Period

6. The owner/operator shall install, operate, and collect NO_X emissions data from a CEMS in accordance with § 52.145(k)(7)(i), reagent injection data in accordance with § 52.145(k)(7)(ii)(D), and other operational data prior to commencement of the Optimization Period.

7. During the Baseline Data Collection Period (if the owner/operator elects to collect new data) and the Optimization Period, the owner/operator shall operate the Kiln in a manner necessary to produce a quality cement clinker product. The owner/operator shall not be expected to operate the Kiln within normal operating parameters during periods of Kiln Malfunction, Startup and Shutdown. The owner/operator shall not intentionally adjust kiln operating parameters to increase the rate of emission (expressed as lb/ton of clinker produced) for NO_X. Increases or variability in the Kiln feed sulfur content, fuel and other raw materials composition including imported raw materials, resulting from the inherent variability within the onsite quarries and imported materials shall not constitute an intentional increase in emission rate.

8. The data to be collected during the Baseline Data Collection Period (if the owner/operator elects to collect baseline data) and the Optimization Period will include the following information either derived from available direct monitoring or as estimated from monitored or measured data:

a. Kiln flue gas temperature at the inlet to the fabric filter or at the Kiln stack (daily average);

b. Kiln production rate in tons of clinker (daily total) by type;

c. Raw material feed rate in tons (daily total) by type;

d. Type and percentage of each raw material used and the total feed rate (daily);

e. NO_X and CO concentrations (dry basis) and mass rates for the Kiln (daily average for concentrations and daily totals for mass rates) as measured at the Kiln stack gas analyzer location;

f. Flue gas volumetric flow rate (daily average in dry acfm);

g. Sulfate in feed (calculated to a daily average percentage);

h. Feed burnability (C3S) (at least daily). In the event that more than one type of clinker is produced, the feed burnability for each clinker type will be included;

i. Temperatures in or near the burning zone (by infrared or optical pyrometer);

j. Kiln system fuel feed rate and type of fuel by weight or heat input rate (calculated to a daily average);

k. Fuel distribution, an estimate of how much is injected at each location (daily average);

l. Kiln amps (daily average);

m. Kiln system draft fan settings and primary air blower flow rates;

n. Documentation of any Startup, Shutdown, or Malfunction events;

o. An explanation of any gaps in the data or missing data; and

p. Amount of oxygen generated and introduced into the Kiln (lb/day).

9. The owner/operator shall submit the data to EPA in an electronic format and shall explain the reasons for any data not collected for each of the parameters. The owner/operator shall report all data in a format consistent with and able to be manipulated by Microsoft Excel.

10. Prior to commencement of the Optimization Period, the owner/operator shall submit to EPA for review a protocol (''Optimization Protocol'') for optimizing the ammonia injection system, including optimization of the operational parameters resulting in the minimization of emissions of NO_X to the greatest extent practicable without violating any limits. The Protocol shall describe procedures to be used during the Optimization Period to optimize the facility processes to minimize emissions from the kiln and adjust ammonia injection system operating parameters, and shall include the following:

a. The following measures to optimize the facility's processes to reduce NOx emissions in conjunction with the ammonia injection system:

i. Adjustment of the balance between fuel supplied to the existing riser duct burner and the existing calciner burners to improve overall combustion within the calciner while maintaining product quality;

ii. Adjustments to the calciner combustion to ensure complete fuel burning, which will help to both reduce CO and improve NOx levels by, at a minimum:

1. Adjusting fuel fineness to improve the degree of combustion completed in the calciner; and

2. Adjusting the proportions of primary, secondary and tertiary air supplied to the kiln system while maintaining product quality; and

iii. Adjustments to the raw mix chemical and physical properties using onsite raw materials to improve kiln stability and maintain product quality, including but not limited to, fineness of the raw mix. As part of this optimization measure, the owner/operator shall take additional measurements using existing monitoring equipment at relevant process locations to evaluate the impact of raw mix refinements.

b. The range of reagent injection rates (as a molar ratio of the average pollutant concentration);

c. Sampling and testing programs that will be undertaken during the initial reagent injection rate period;

d. A plan to increase the reagent injection rate to identify the injection rates with the maximum emission reduction effectiveness and associated sampling and testing programs for each increase in the reagent rate. The owner/operator shall test, at a minimum, for the ammonia injection system at molar ratios of 0.75, 1.0, and 1.20. If data collected at the highest molar ratio indicates decreasing lb/ton emissions, the owner/operator shall continue to test the ammonia injection system by increasing the molar ratio by increments of 0.10 until either the lb/ton emission data indicates no significant decrease from the previous increment, or adverse effects are observed (e.g., ammonia slip emissions above 10 ppm, presence of a secondary particulate plume, impaired product, impaired kiln operations).

e. The factors that will determine the optimum reagent injection rates and pollutant emission reductions (including maintenance of Kiln, productivity, and product quality); and

f. Evaluation of any observed synergistic effects on Kiln emissions, Kiln operation, reagent slippage, or product quality from the ammonia injection system.

11. As part of the Optimization Protocol, the owner/operator shall submit to EPA a schedule for optimizing each the ammonia injection system parameters identified in Item 10 of this appendix. The schedule shall indicate the total duration of the Optimization period, and must optimize each identified parameter for the following minimum amounts of time:

Parameter	Minimum optimization period (operating days)
Fuel usage between riser duct burner and calciner burners	15
Calciner combustion	45
Raw mix chemical and physical properties stabilization	45
Setup of SNCR, initial operation of reagent injection, and calibration	60

12. Within 60 days following the termination of the Optimization Period(s), the owner/operator shall submit to EPA for review an Optimization Report demonstrating conformance with the Optimization Protocol for the ammonia injection system and establishing the optimized operating parameters for the facility processes and the ammonia injection system determined under the Optimization Protocol, including optimized injection rates for all reagents. The owner/operator may take into account energy, environmental, and economic impacts and other costs in proposing the optimized state of the ammonia injection system, including the injection rates of reagents, and the operating parameters for the facility processes. The owner/operator may also include in the Optimization Report a discussion of any problems encountered during the Optimization Period, and how that problem may impact the potential emission reductions (e.g. the quantity of reagent slip at varying injection rates and/or the possible observance of a detached plume above the Stack).

13. Optimization Targets: Except as otherwise provided in this Item and in Item 14 of this appendix, the ammonia injection system shall be deemed to be optimized if the Optimization Report demonstrates that the ammonia injection system during periods of normal operation has achieved emission reductions consistent with its maximum design stoichiometric rate identified in the Design Report.

14. Notwithstanding the provisions of Item 13 of this appendix, the ammonia injection system may be deemed to be optimized at a lower rate of emission reductions than that identified in Item 13 of this appendix if the Optimization Report demonstrates that, during periods of normal operation, a lower rate of emission reductions cannot be sustained after all parameters and injection rates are optimized during the Optimization Period without creating a meaningful risk of impairing product quality, impairing Kiln system reliability, impairing compliance with a maximum ammonia slip emissions limit of 10 ppm or other permitted levels, or forming a detached plume.

15. During the Optimization Period, the owner/operator, to the extent practicable and applicable, shall operate the ammonia injection system in a manner consistent with good air pollution control practice consistent with 40 CFR 60.11(d). The owner/operator will adjust its optimization of the ammonia injection system as may be necessary to avoid, mitigate or abate an identifiable non-compliance with an emission limitation or standard for pollutants other than NOx. In the event the owner/operator determines, prior to the expiration of the Optimization Period, that its ability to optimize the ammonia injection system will be affected by potential impairments to product quality, kiln system reliability or increased emissions of other pollutants, then the owner/operator shall promptly advise EPA of this determination, and include these considerations as part of its recommendation in its Optimization Report.

V. Demonstration Period

16. The Demonstration Period shall commence within 7 days after the owner/operator's receipt of final comments from EPA on the Optimization Report. During the Demonstration Period, the owner/operator shall operate the ammonia injection system for a period of 270 Operating Days consistent with the optimized operations of the Facility and the ammonia injection system as contained in the Optimization Report. This 270 Operating Day Demonstration Period may be shortened or lengthened as provided for in Items 17 and 18 of this appendix.

17. If Kiln Operation is disrupted by excessive unplanned outages, or excessive Startups and Shutdowns during the Demonstration Period, or if the Kiln temporarily ceases operation for business or technical reasons, the owner/operator may advise EPA that it is necessary to temporarily extend the Demonstration Period. Data gathered during periods of disruption may not be used to determine an emission limitation.

18. If evidence arises during the Demonstration Period that product quality, kiln system reliability, or emission compliance with an emission limitation or standard is impaired by reason of longer term operation of the ammonia injection system in a manner consistent with the parameters identified in the Optimization Report, then the owner/operator may, upon notice to EPA, temporarily modify the manner of operation of the facility process or the ammonia injection system to mitigate the effects and, if necessary, notify EPA that the owner/operator will suspend or extend the

Demonstration Period for further technical evaluation of the effects of a process optimization or permanently modify the manner of operation of the ammonia injection system to mitigate the effects.

19. During the Demonstration Period, the owner/operator shall collect the same data as required in Item 8 of this appendix. The Demonstration Report shall include the data collected as required in this Item.

20. Within 60 Days following completion of the Demonstration Period for the ammonia injection system, the owner/operator shall submit a Demonstration Report to EPA, based upon and including all of the data collected during the Demonstration Period including data from Startup, Shutdown and Malfunction events, that identifies a proposed 30-kiln operating day emission limit for NO_X. The 30-kiln operating day emission limit for NO_X shall be based upon an analysis of CEMS data and clinker production data collected during the Demonstration Period, while the process and ammonia injection system parameters were optimized in determining the proposed final Emission Limit(s) achievable for the Facility. Total pounds of an affected pollutant emitted during an individual Operating Day will be calculated from collected CEMS data for that Day. Hours or Days when there is no Kiln Operation may be excluded from the analyses. However, the owner/operator shall provide an explanation in the Demonstration Report(s) for any data excluded from the analyses. In any event, the owner/operator shall include all data required to be collected during the Demonstration Period in the Final Demonstration Report(s).

21. The owner/operator shall propose a 30-kiln operating day emission limit for NOx in the Demonstration Report(s) as provided in Item 20 of this appendix. This 30-kiln operating day emission limit shall be calculated in accordance with the following formula:

$X = \mu + 1.65\sigma$

Where:

X = 30-Day Rolling Average Emission Limit (lb/Ton of clinker);

μ = arithmetic mean of all of the 30-Day rolling averages;

σ = standard deviation of all of the 30-Day rolling averages, as calculated in the following manner:

$$\sigma = \sqrt{\frac{1}{N}\sum_{i=1}^{N}(x_i - \bar{x})^2}$$

Where:

N = The total number of rolling 30-kiln operating day emission rates;

x_i = Each rolling 30-kiln operating day emission rate;

$\bar{x}$ = The mean value of all of the rolling 30-kiln operating day emission rates.

22. Supporting data required to be submitted under this appendix may contain information relative to kiln operation and production that the owner/operator may consider to be proprietary. In such a situation, the owner/operator may submit the information to EPA as CBI, subject to the provisions of 40 CFR part 2.

Appendix B to § 52.145—Lime Kiln Control Technology Demonstration Requirements

I. Scope

1. The owner/operator shall comply with the requirements contained in this appendix for implementing combustion and process optimization measures and in proposing and establishing rolling 12-month limits for nitrogen oxide (NO_X).

2. The owner/operator shall take the following steps to establish rolling 12-month limits for NOx.

a. Design Report: At least 6 months prior to commencing construction of an ammonia injection system, the owner/operator shall prepare and submit to EPA for review a Design Report for the ammonia injection system;

b. Baseline Data Collection: Prior to initiating operation of an ammonia injection system, the owner/operator shall either: (i) Collect new baseline emissions and operational data for a 180-day period; or (ii) submit for EPA review baseline emissions and operational data from a period prior to the date of any baseline data collection period. Such baseline emissions and operational data shall be representative of the full range of normal kiln operations.

c. Optimization Protocol: Prior to commencement of the Optimization Period, the owner/operator shall submit for EPA review an Optimization Protocol which shall include the procedures to be used for the purpose of adjusting operating parameters and minimizing emissions.

d. Optimization Period: Following completion of installation of an ammonia injection system, the owner/operator shall undertake a startup and optimization period for the ammonia injection system;

e. Optimization Report: Within 60 calendar days following the conclusion of the Optimization Program, the owner/operator shall submit to EPA an Optimization Report demonstrating conformance with the Optimization Protocol, and establishing optimized operating parameters for the ammonia injection system as well as other facility processes.

f. Demonstration Period: Upon completion of the optimization period specified above, the owner/operator shall operate the ammonia injection system in a manner consistent with the optimization period for a period of 360 kiln operating days (subject to being shortened or lengthened as provided for in Items 17 and 18 of this appendix) for the purpose of establishing a rolling 30-kiln operating day limit; and

g. Demonstration Report: The owner/operator shall prepare and submit to EPA for review, a report following completion of the demonstration period for the ammonia injection system.

II. Design Report

3. Prior to commencing construction of the ammonia injection system, the owner/operator shall submit to EPA for review a Design Report for the ammonia injection system. The owner/operator shall design the ammonia injection system to deliver the proposed reagent to the exhaust gases at the rate of at least 1.2 mols of reagent to 1.0 mols of NOx (1.2:1 molar ratio). The system shall be designed to inject Ammonia into the kiln exhaust gas stream. The owner/operator shall specify in the Design Report the reagent(s) selected, the locations selected for reagent injection, and other design parameters based on maximum emission reduction effectiveness, good engineering judgment, vendor standards, available data, kiln operability, and regulatory restrictions on reagent storage and use.

4. Any permit application which may be required under state or federal law for the ammonia injection system shall be consistent with the Design Report.

III. Baseline Data Collection

5. Prior to commencement of continuous operation of the ammonia injection system, the owner/operator shall either: (a) Collect new baseline emissions and operational data for a 180-day period; or (b) submit for EPA review existing baseline emissions and operational data collected from a period of time prior to the initiation of a baseline collection period. Such baseline emissions and operational data shall include the data required by Item 8 of this appendix for periods of time representing the full range of normal kiln operations. Within 45 Days following the completion of the baseline data collection period, the owner/operator shall submit to EPA the baseline data collected during the Baseline Data Collection Period.

IV. Optimization Period

6. The owner/operator shall install, operate, and collect NO_X emissions data from a CEMS in accordance with § 52.145(k)(7)(i), reagent injection data in accordance with § 52.145(k)(7)(ii)(D), and other operational data prior to commencement of the Optimization Period.

7. During the Baseline Data Collection Period (if the owner/operator elects to collect new data) and the Optimization Period, the owner/operator shall operate the Kiln in a manner necessary to produce a quality lime product. The owner/operator shall not be expected to operate the Kiln within normal operating parameters during periods of Kiln Malfunction, Startup and Shutdown. The owner/operator shall not intentionally adjust kiln operating parameters to increase the rate of emission (expressed as lb/ton of lime product produced) for NO_X.

8. The data to be collected during the Baseline Data Collection Period (if the owner/operator elects to collect baseline data) and the Optimization Period will include the following information either derived from available direct monitoring or as estimated from monitored or measured data:

a. Kiln flue gas temperature at the inlet to the fabric filter or at the Kiln stack (daily average);

b. Kiln production rate in tons of lime product (daily total) by type;

c. NO_X and CO concentrations (dry basis) and mass rates for the Kiln (daily average for concentrations and daily totals for mass rates) as measured at the Kiln stack gas analyzer location;

d. Flue gas volumetric flow rate (daily average in dry acfm);

e. Sulfate in feed (calculated to a daily average percentage);

f. Feed burnability (C3S) (at least daily). In the event that more than one type of lime product is produced, the feed burnability for each type of lime product will be included;

g. Temperatures in or near the burning zone (by infrared or optical pyrometer);

h. Kiln system fuel feed rate and type of fuel by weight or heat input rate (calculated to a daily average);

i. Fuel distribution, an estimate of how much is injected at each location (daily average);

j. Kiln amps (daily average);

k. Kiln system draft fan settings and primary air blower flow rates;

l. Documentation of any Startup, Shutdown, or Malfunction events;

m. An explanation of any gaps in the data or missing data; and

n. Amount of oxygen generated and introduced into the Kiln (lb/day).

9. The owner/operator shall submit the data to EPA in an electronic format and shall explain the reasons for any data not collected for each of the parameters. The owner/operator shall report all data in a format consistent with and able to be manipulated by Microsoft Excel.

10. Prior to commencement of the Optimization Period, the owner/operator shall submit to EPA for review a protocol (''Optimization Protocol'') for optimizing the ammonia injection system, including optimization of the operational parameters resulting in the minimization of emissions of NO_X to the greatest extent practicable without violating any limits. The Protocol shall describe procedures to be used during the Optimization Period to optimize the facility processes to minimize emissions from the kiln and adjust ammonia injection system operating parameters, and shall include the following:

a. The range of reagent injection rates (as a molar ratio of the average pollutant concentration);

b. Sampling and testing programs that will be undertaken during the initial reagent injection rate period;

c. A plan to increase the reagent injection rate to identify the injection rates with the maximum emission reduction effectiveness and associated sampling and testing programs for each increase in the reagent rate. The owner/operator shall test, at a minimum, for the ammonia injection system at three molar ratios of 0.75, 1.0, and 1.20;

d. The factors that will determine the optimum reagent injection rates and pollutant emission reductions (including maintenance of Kiln, productivity, and product quality); and

e. Evaluation of any observed synergistic effects on Kiln emissions, Kiln operation, reagent slippage, or product quality from the ammonia injection system.

f. Any additional facility processes that the owner/operator determines may reduce NO_X emissions in conjunction with the ammonia injection system.

11. As part of the Optimization Protocol, the owner/operator shall submit to EPA a schedule for optimizing each of the ammonia injection system parameters identified in Item 10 of this appendix. The schedule shall indicate the total duration of the Optimization period, and must optimize each identified parameter for the following minimum amounts of time:

Parameter	Minimum optimization period (operating days)
Setup of SNCR, initial operation of reagent injection, and calibration	60

12. Within 60 Days following the termination of the Optimization Period(s), the owner/operator shall submit to EPA for review an Optimization Report demonstrating conformance with the Optimization Protocol for the ammonia injection system and establishing the optimized operating parameters for the facility processes and the ammonia injection system determined under the Optimization Protocol, including optimized injection rates for all reagents. The owner/operator may take into account energy, environmental, and economic impacts and other costs in proposing the optimized state of the ammonia injection system, including the injection rates of reagents, and the operating parameters for the facility processes. The owner/operator may also include in the Optimization Report a discussion of any problems encountered during the Optimization Period, and how that problem may impact the potential emission reductions (e.g. the quantity of reagent slip at varying injection rates and/or the possible observance of a detached plume above the Stack).

13. Optimization Targets: Except as otherwise provided in this Item and in Item 14 of this appendix, the ammonia injection system shall be deemed to be optimized if the Optimization Report demonstrates that the ammonia injection system during periods of normal operation has achieved emission reductions consistent with its maximum design stoichiometric rate identified in the Design Report approved pursuant to Item 3 of this appendix.

14. Notwithstanding the provisions of Item 13 of this appendix, the ammonia injection system may be deemed to be optimized at a lower rate of emission reductions than that identified in Item 13 of this appendix if the Optimization Report demonstrates that, during periods of normal operation, a lower rate of emission reductions cannot be sustained after all parameters and injection rates are optimized during the Optimization Period without creating a meaningful risk of impairing product quality, impairing Kiln system reliability, impairing compliance with a maximum ammonia slip emissions limit of 10 ppm or other permitted levels, or forming a detached plume.

15. During the Optimization Period, the owner/operator, to the extent practicable and applicable, shall operate the ammonia injection system in a manner consistent with good air pollution control practice consistent with 40 CFR 60.11(d). The owner/operator will adjust its optimization of the ammonia injection system as may be necessary to avoid, mitigate or abate an identifiable non-compliance with an emission limitation or standard for pollutants other than NO_X. In the event the owner/operator determines, prior to the expiration of the Optimization Period, that its ability to optimize the ammonia injection system will be affected by potential impairments to product quality, kiln system reliability or increased emissions of other pollutants, then the owner/operator shall promptly advise EPA of this determination, and include these considerations as part of its recommendation in its Optimization Report.

V. Demonstration Period

16. The Demonstration Period shall commence within 7 days after the owner/operator's receipt of the final comments from EPA on the Optimization Report. During the Demonstration Period, the owner/operator shall operate the ammonia injection system for a period of 360 Operating Days consistent with the optimized operations of the Facility and the ammonia injection system as contained in the Optimization Report. This 360 Operating Day Demonstration Period may be shortened or lengthened as provided for in Items 17 and 18 of this appendix.

17. If Kiln Operation is disrupted by excessive unplanned outages, or excessive Startups and Shutdowns during the Demonstration Period, or if the Kiln temporarily ceases operation for business or technical reasons, the owner/operator may advise EPA that it is necessary to temporarily extend the Demonstration Period. Data gathered during periods of disruption may not be used to determine an emission limitation.

18. If evidence arises during the Demonstration Period that product quality, kiln system reliability, or emission compliance with an emission limitation or standard is impaired by reason of longer term operation of the ammonia injection system in a manner consistent with the parameters identified in the Optimization Report, then the owner/operator may, upon notice to EPA, temporarily modify the manner of operation of the facility process or the ammonia injection system to mitigate the effects and, if necessary, notify EPA that the owner/operator will suspend or extend the Demonstration Period for further technical evaluation of the effects of a process optimization or permanently modify the manner of operation of the ammonia injection system to mitigate the effects.

19. During the Demonstration Period, the owner/operator shall collect the same data as required in Item 8 of this appendix. The Demonstration Report shall include the data collected as required in this Item.

20. Within 60 Days following completion of the Demonstration Period for the ammonia injection system, the owner/operator shall submit a Demonstration Report to EPA, based upon and including all of the data collected during the Demonstration Period including data from Startup, Shutdown and Malfunction events, that identifies a proposed rolling 12-month emission limit for NO_X. The rolling 12-month emission limit for NO_X shall be based upon an analysis of

CEMS data and lime production data collected during the Demonstration Period, while the process and ammonia injection system parameters were optimized in determining the proposed Emission Limit(s) achievable for the Facility. However, the owner/operator shall provide an explanation in the Demonstration Report(s) for any data excluded from the analyses. In any event, the owner/operator shall include all data required to be collected during the Demonstration Period in the Final Demonstration Report(s).

21. The owner/operator shall propose a rolling 12-month emission limit for NO_X in the Demonstration Report(s) as provided in Item 20 of this appendix. This rolling 12-month limit shall be calculated in accordance with the following formula:

$X = \mu + 1.65\sigma$

Where:

X = Rolling 12-month Average Emission Limit (lb/Ton of lime product);

μ = arithmetic mean of all of the Rolling 12-month averages;

σ = standard deviation of all of the rolling 12-month averages, as calculated in the following manner:

$$\sigma = \sqrt{\frac{1}{N}\sum_{i=1}^{N}(x_i - \bar{x})^2}$$

Where:

N = The total number of rolling 12-month emission rates;

x_i = Each rolling 12-month emission rate;

$\bar{x}$ = The mean value of all of the rolling 12-month emission rates.

22. Supporting data required to be submitted under this Appendix may contain information relative to kiln operation and production that the owner/operator may consider to be proprietary. In such a situation, the owner/operator may submit the information to EPA as CBI, subject to the provisions of 40 CFR part 2.

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