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Re: U.S. Environmental Protection Agency's Proposed Rule "Partial Approval and Disapproval of Air Quality Implementation Plans; Arizona; Regional Haze State Implementation Plan for the Second Implementation Period and Prong 4 (Visibility) for the 2015 Ozone and 2012 Particulate Matter Standards," Docket ID Number: EPA-HQ-OAR-2024-0005

To Whom It May Concern:

The Arizona Department of Environmental Quality (ADEQ) appreciates the opportunity to comment on the U.S. Environmental Protection Agency's (EPA) proposed partial approval and partial disapproval of Arizona's 2022 Regional Haze State Implementation Plan (SIP) revision for the second implementation period, published in the Federal Register on May 31, 2024.¹

ADEQ was established under the Environmental Quality Act of 1986 by the Arizona State Legislature as the state's cabinet-level environmental agency. ADEQ carries out several core functions including: planning, permitting, compliance, management, monitoring, assessments, cleanups, and outreach. ADEQ's mission is to protect and enhance public health and the environment.

This comment letter will briefly discuss the background of Arizona's second round regional haze SIP submitted in 2022. The letter then addresses areas where ADEQ disagrees with EPA's interpretation of the regional haze rule and guidance with respect to forming the basis for disapproval of specific sections of the 2022 Arizona regional haze SIP.

¹ "Proposed Action," See 89 FR 47398. Accessed at: <https://www.federalregister.gov/documents/2024/05/31/2024-11807/partial-approval-and-disapproval-of-air-quality-implementation-plans-arizona-regional-haze-state>.

I. Background

In 1977, Congress amended the Clean Air Act (CAA) to add provisions to protect the scenic vistas of the nation's national parks and wilderness areas. In these amendments, Congress declared as a national visibility goal: "The prevention of any future, and the remedying of any existing impairment of visibility in mandatory Class I Federal areas which impairment results from manmade air pollution."² When the CAA was amended in 1990, Congress added § 169B, authorizing further research and regular assessments of the progress to improve visibility in Class I Federal areas.

EPA promulgated the 1999 Regional Haze Rule (RHR) on July 1, 1999.³ The federal rule's objective was to achieve the national visibility goal of restoring natural visibility conditions to Class I Federal areas by 2064. The rulemaking addressed the combined visibility effects of sources over a broad geographic region and established that all states must participate in haze reduction efforts, including those states without Class I Federal areas.

On January 10, 2017, EPA published the 2017 RHR amendments to update aspects of the reasonably available visibility impairment (RAVI) and regional haze programs including technical, planning, and administrative/procedural changes.⁴

Arizona began development of a SIP revision to address these second planning period regional haze requirements shortly after publication of the final regional haze rule amendments in 2017 and submitted a final plan on August 15, 2022.

However, lengthy delays between the final rule and initial guidance, as well as shifting guidance throughout the planning process, significantly increased uncertainty concerning the plan requirements and slowed plan development through rework and further discussion with emission sources and EPA.

II. EPA's changing guidance increased the burden of ADEQ's planning efforts by introducing uncertainty and rework

The development of a comprehensive regional haze SIP revision often takes five years of planning and is one of the most resource-intensive CAA planning requirements that states face. Staff time and other resources expended for regional haze SIP development often exceed those spent planning for criteria air pollutant plans.

During the planning process for the second regional haze implementation period, there were significant delays between final publication of the 2017 RHR and the associated guidance released in 2019, as well as later changes to EPA's interpretation of the RHR that came close to the plan submittal deadline.

² CAA § 169A.

³ 64 FR 35714 (July 1, 1999).

⁴ 82 FR 3078 (Jan. 10, 2017).

Many interpretations and flexibilities of the RHR changed between publication of the Final Implementation Rule (January 10, 2017), Final Guidance (August 20, 2019), and the Clarifications Memo (July 8, 2021), which crossed three different federal administrations. It should also be noted that the Clarifications Memo was released 23 days before the SIP submission deadline (July 31, 2021), which resulted in uncertainty and rework late in the process of SIP development.

For example, the 2021 Clarifications Memo presented a greatly expanded interpretation on the requirements for “Determining When Existing Measures are Necessary for Reasonable Progress” very late in ADEQ’s development of the comprehensive regional haze plan.⁵ EPA’s revised guidance requires an unreasonably broad-reaching review of all existing control measures that are not separately included in the regional haze plan to evaluate whether those same measures should be duplicated in the regional plan to support reasonable visibility progress.

ADEQ did not have the resources to undertake this comprehensive and duplicative review of existing controls by the SIP submittal date, and EPA’s May 31, 2024 partial approval/partial disapproval of Arizona’s 2022 regional haze plan specifically mentions the absence of this analysis as partial grounds for disapproval.⁶

As discussed above, ADEQ believes the shifting guidance and late-stage reinterpretation of guidance for the regional haze program in the 2021 Clarification Memo contributed to the partial disapproval of certain aspects of Arizona’s 2022 regional haze plan. ADEQ expended several years of staff planning efforts working on a second-round regional haze plan under one set of guidelines and requirements, only for many requirements to change or expand late in plan development.

It is unreasonable for EPA to disapprove reasonable and well-supported analyses and determinations made under guidance that was applicable when planning obligations began and throughout the majority of the planning period.

III. EPA should not issue binding decisions such as a partial SIP disapproval based on guidance alone where the bases for disapproval are not in the rule or statute

As settled in several cases concerning the application and enforceability of EPA guidance such as Appalachian Power Co. v. EPA, EPA cannot expand the requirements of final published rules without the appropriate notice and comment period, because “an agency may not escape the notice and comment requirements by labeling a major substantive legal addition to a rule a mere interpretation, . . . EPA cannot amend its regulations without complying with the rulemaking procedures required by 42 U.S.C.S. § 7607(d).”⁷ The DC Circuit Court also affirmed this principle in General Electric Co. v. EPA, where the Agency could not rely on guidance documents to impose requirements that “bind private parties or the agency itself with the force of law.”⁸

⁵ US EPA “Clarifications Regarding Regional Haze State Implementation Plans for the Second Implementation Period,” July 8, 2021. Section 4.1.

⁶Partial Approval and Disapproval of Air Quality Implementation Plans; Arizona; Regional Haze State Implementation Plan for the Second Implementation Period and Prong 4 (Visibility) for the 2015 Ozone and 2012 Particulate Matter Standard, 89 FR 47398, 47431 (May 31, 2024).

⁷Appalachian Power Co. v. EPA, 208 F.3d 1015 (D.C. Cir. 2002).

⁸ General Elec. Co. v. E.P.A., 290 F.3d 377 (D.C. Cir. 2002).

For instance, here the regional haze rule at 40 CFR § 51.308(f)(2) requires that the State's long-term strategy (LTS) for regional haze "include the enforceable emissions limitations, compliance schedules, and other measures that are necessary to make reasonable progress." ADEQ interpreted this requirement as requiring only the measures that the state determines are necessary to make reasonable progress at sources selected under a reasonable analysis using "the criteria it used to determine which sources or groups of sources it evaluated and how the four factors were taken into consideration in selecting the measures for inclusion in its long-term strategy."⁹

The 2019 regional haze guidance expands on this requirement with a similar interpretation, stating that "if a state determines that an in-place emission control at a source is a measure that is necessary to make reasonable progress and there is not already an enforceable emission limit corresponding to that control in the SIP, the state is required to adopt emission limits based on those controls as part of its LTS in the SIP via the regional haze second implementation period plan submission."¹⁰ However, the guidance also states elsewhere regarding sources that already have effective emissions control technology in place that "it may be reasonable for a state not to select an effectively controlled source. A source may already have effective controls in place as a result of a previous regional haze SIP or to meet another CAA requirement."¹¹

The 2021 "Clarifications Memo" greatly raised the bar of evidence required to support a determination that a source's existing measures were effective. It allows only that there "*may* be circumstances in which a source's existing measures are not necessary to make reasonable progress" and that "*if* a state can demonstrate that a source will continue to implement its existing measures and will not increase its emission rate, it *may* not be necessary to require those measures under the regional haze program in order to prevent future emission increases." (Emphasis added.)¹²

The 2021 guidance memo continues that such a determination "should be supported by a robust technical demonstration. This empirical, weight-of-evidence demonstration should be based on data and information on (1) the source's past implementation of its existing measures and its historical emission rate, (2) the source's projected emissions and emission rate, and (3) any enforceable emissions limits or other requirements related to the source's existing measures."¹³

It was unreasonable for EPA's clarification memo to issue these additional specific barriers to a determination that existing measures were effective at a given source late in the development of second round regional haze plans through guidance, and without additional notice and comment.

ADEQ requests that EPA reevaluate whether it is justified in relying on revised guidance, rather than the text of the regional haze rule itself, for its determination that ADEQ failed to address "whether any of the existing measures relied upon in its four-factor analyses or its "effective

⁹ 40 CFR § 51.308(f)(2)(i)

¹⁰ Guidance on Regional Haze State Implementation Plans for the Second Implementation Period, August 20, 2019, p. 43

¹¹ *Id.* at 22.

¹² Clarifications, p. 9.

¹³ *Id.*

controls” determinations are necessary to make reasonable progress and thus should be a part of the State's long-term strategy for the second planning period” in the proposed disapproval.¹⁴

IV. ADEQ disagrees with EPA’s proposed determination that Arizona failed to provide adequate justification for deferring certain emission units from consideration in the second round of regional haze planning

In EPA’s proposed action, EPA contends that “ADEQ did not provide an adequate justification for screening out certain sources and units from conducting a four-factor analysis on the basis that they are ‘effectively controlled’ as part of its source selection process.”¹⁵ EPA states that in some cases ADEQ “did not identify the controls for each pollutant at each unit or process, the associated limits, or where the controls/limits currently exist in the Arizona SIP.”¹⁶ In addition, EPA contends in other cases that ADEQ “listed the controls, but did not clearly explain why it is reasonable to assume, without conducting a four-factor analysis, that no additional controls would be reasonable.”¹⁷

ADEQ disagrees with EPA’s proposed determination that the State failed to provide adequate justification for deferring certain emission units from consideration in the second round of regional haze planning. 40 CFR 51.308(f)(2)(i) requires a state to include in its periodic comprehensive regional haze SIP revision a "description of the criteria it used to determine which sources or groups of sources it evaluated." As noted in the *Guidance on Regional Haze State Implementation Plans for the Second Implementation Period* (“Final RH Guidance”), ADEQ is “not required to evaluate all sources of emissions in each implementation period.”¹⁸ Neither the Clean Air Act nor the Regional Haze Rule¹⁹ contain a requirement for ADEQ to select a certain number of sources in any given implementation period. Rather, ADEQ has the flexibility to “reasonably select a set of sources for an analysis of control measures.”²⁰

In order to develop its source screening approach for the regional haze second implementation period, ADEQ developed a draft source screening methodology in March 2019 which for point source screening relied upon a Q/d screening threshold of 20 (e.g., summed emissions of NO_x, SO₂, PM₁₀ in tons per year divided by distance in kilometers to the nearest Federal Class 1 Area) and did not include provisions to address effectively controlled processes. Through discussions and feedback received from stakeholders, including discussions with EPA Region 9 staff and Federal Land Manager (FLM) staff, ADEQ revised its source screening methodology by lowering the point source Q/d screening threshold to 10 and by including provisions to consider effectively controlled processes. ADEQ implemented the consideration of effectively controlled processes by deferring from inclusion in the facility wide “Q” calculation (e.g., combined emissions of NO_x, SO₂, and PM₁₀) individual processes at facilities that had installed highly effective controls within the past

¹⁴ Partial Approval and Disapproval, *supra* note 6 at 47431

¹⁵ Partial Approval and Disapproval, *supra* note 6 at 47428

¹⁶ *Id.*

¹⁷ *Id.*

¹⁸ See Memorandum from Peter Tsirigotis, Director, to Regional Air Division Directors, Regions 1-10, *Guidance on Regional Haze State Implementation Plans for the Second Implementation Period*, at 9 (Aug. 20, 2019).

¹⁹ See Protection of Visibility: Amendments to Requirements for State Plans; Proposed Rule (81 FR 26942, May 4, 2016), pp. 87-88.

²⁰ *Id.*

five years. Importantly, ADEQ did not exclude entire facilities from consideration or exempt sources that had previously adopted best available retrofit (BART)/reasonable progress (RP) controls, but rather excluded just the emission processes or units that recently installed highly effective controls from the calculation of the Q/d value for that facility. Given the low likelihood of additional controls being reasonable for an emission process that recently underwent emission control upgrades, application of this methodology allowed the state “to distribute its own analytical work, and the compliance expenditures of source owners, over time by addressing some sources in the second implementation period and other sources in later periods.”²¹ Based on ADEQ’s review criteria of needing to be highly effective controls and needing to be installed in the last 5 years, ADEQ made the assumption that a full four factor analysis “would likely result in a conclusion that no further controls were necessary.”²² As stated, this is an assumption that is based on limited information as opposed to a determination that would have required a full control measure analysis in order to ascertain. Of note, ADEQ clearly stated in its 2022 regional haze SIP revision that the deferral of these emission processes was only for the purposes of the second implementation period not future implementation periods. Also of note, despite giving credit for emission processes that had implemented best available retrofit technology and reasonable progress controls, ADEQ did not summarily exempt these facilities and in fact selected two sources for control measure analysis that had implemented reasonable progress controls (i.e., CalPortland Cement Company Rillito, and Phoenix Cement Company Clarkdale) on the basis of their Q/d value still being greater than 10 after exclusion of effectively controlled processes.

Based on ADEQ’s updated source screening methodology, ADEQ sent letters to selected sources on July 16, 2019 notifying them that they had been selected for an analysis of control measures for the regional haze second implementation period. These notification letters also included a December 1, 2019 deadline for any facility wishing to submit a four-factor analysis for their facility to the Department for consideration. During this deadline period, EPA published the Final Regional Haze Guidance in August 2019.

To meet the requirements of 40 CFR 51.308(f)(2)(i), ADEQ included a description of its source screening methodology, or “criteria,” in Section 8 of its 2022 *State Implementation Plan Revision: Regional Haze Program (2018-2028)* submission to EPA. In addition, ADEQ provided supplemental information on the identification of effectively controlled processes in Appendix C, Exhibit CI of the 2022 ADEQ regional haze SIP submission. In order to address EPA’s concerns with ADEQ’s source selection criteria documentation, ADEQ is providing additional supporting documentation in Attachment A to this letter. As can be seen in the original and updated documentation, the listed emission processes were all identified through the uniform application of ADEQ’s highly effective control criteria.

ADEQ contends that the process it undertook to develop a source screening methodology for the second regional haze implementation period was reasonable and is consistent with the Clean Air Act, Regional Haze Rule, and Regional Haze Guidance. EPA should not substitute its judgment for Arizona’s determination on which sources to select for control measure analysis in the second implementation period.

²¹ Partial Approval and Disapproval, *supra* note 6 at 9.

²² Partial Approval and Disapproval, *supra* note 6 at 23.

V. ADEQ disagrees with EPA's determination that Arizona deviated from the Cost Control Manual without documentation as part of its four factor analyses

In the proposed action, EPA proposes to disapprove ADEQ's four factor analyses due to "flaws" that EPA contends impacted the cost effectiveness values used by ADEQ to select which measures were necessary to make reasonable progress. EPA identifies issues with controlled emission rates and deviations from the cost control manual. On the issue of controlled emission rates, EPA states that "the emission rates used in some of Arizona's four-factor analyses did not appropriately reflect the emissions rate achievable with the relevant controls."²³ However, despite indicating that flawed emission rates were used for "some" of ADEQ's analyses, EPA's proposed action identifies a singular example of differing achievable emission rates for selective catalytic reduction (SCR) and selective non-catalytic reduction (SNCR) controls for the Tucson Electric Power Springerville Generating Station (TEP SGS) Units 1 & 2 four factor analysis. In this example, EPA contends that ADEQ's analysis is flawed based on its usage of 0.060 lb/MMBtu and 0.15 lb/MMBtu as reasonable estimates of the achievable rates at TEP SGS Units 1 & 2 for SCR and SNCR, respectively.

As justification for its position on SCR, EPA claims that "SCR has been demonstrated to achieve 0.05 lb/MMBtu (or up to 90 percent reduction) [*sic*] a retrofit basis." However, the study that EPA cites for its justification was published in 2005 and found that the 20 SCR systems examined in 2003 "achieved NO_x emission rates between 0.04 and 0.07 lb/10⁶ Btu."²⁴ In addition, despite EPA contending that 0.05 lb/MMBtu would be a more reasonable estimate, EPA itself found 0.065 lb/MMBtu as a "reasonable estimate of average SCR performance" in its 2016 Final Regional Haze federal implementation plan (FIP) action for the Salt River Project Coronado Generating Station Unit 1.²⁵ Given the Department's reliance on an achievable emission rate well within the range provided in EPA's cited study and given EPA's concurrence and final action on a larger achievable emission rates for SCR in Arizona as recently as 2016, ADEQ disagrees with EPA's contention that the Arizona's analyses were flawed. Further explanation and justification for ADEQ's reliance on 0.06 lb/MMBtu including a review of CAMPD data can be found in Appendix K Section II(J) Comment 11 of ADEQ's 2022 Regional Haze SIP revision responsiveness summary.

For achievable emission rates for SNCR, EPA does not provide a technical citation for disagreeing with ADEQ's use of 0.15 lb/MMBtu for SNCR. Rather, EPA states that ADEQ did not demonstrate why source specific conditions "would cause SNCR on these units to achieve as little as a 15 percent reduction."²⁶ Using EPA's technical citation for SCR above, Srivastava et al. found that 36 coal fired electrical generating units that had installed SNCR reported NO_x reductions ranging from 15% to 66%. However, the authors note that while smaller boilers (e.g., 76-78 MW units) were able to achieve >60% NO_x reductions, larger boilers (e.g., 500 MW units) "may be capable of achieving reductions of only ~30%."²⁷ In the context of TEP SGS Units 1 & 2, these

²³ Partial Approval and Disapproval, *supra* note 6 at 47428.

²⁴ Srivastava, R.K., Hall, R.E., Khan, S., Culligan, K. and Lani, B.W., 2005. Nitrogen oxides emission control options for coal-fired electric utility boilers. *Journal of the Air & Waste Management Association*, 55(9), pp.1367-1388.

²⁵ 81 Fed. Reg. 21735, 21737 (May 13, 2016).

²⁶ Partial Approval and Disapproval, *supra* note 6 at 47428.

²⁷ *Id.*

units have nameplate ratings of 425 MW and would be expected to achieve less reductions than smaller units. Another consideration for achievable emission rates with post combustion emission controls is the inlet concentration. According to Srivastava et al., for their analysis of achievable rates with SCR, “in the absence of reliable SCR inlet NO_x data, the SCR efficiencies are estimated using an inlet NO_x level of 0.5 lb/10⁶ Btu.”²⁸ However, in the case of TEP SGS Units 1 & 2, the NO_x concentration in the exhaust from these units is less than 100 ppmv with an assumed rate of 0.174 lb/MMBtu and 0.178 lb/MMBtu being used in ADEQ’s four factor analysis cost calculations for Unit 1 and Unit 2, respectively. Given the already low NO_x inlet concentration, an achievable emission rate of 0.15 lb/MMBtu was determined to be reasonable. Additional information related to achievable emission rates for SNCR for TEP SGS Unit 1 and Unit 2 can be found in Appendix K Section II(J) Comment 10 of ADEQ’s 2022 Regional Haze SIP revision responsiveness summary.

It would be arbitrary and capricious for EPA to disapprove ADEQ's well-considered, source-specific analysis of air pollution control effectiveness on the basis of the thin evidence it presented in the NPRM.

On the issue of deviations from the cost control manual without sufficient justification, EPA identifies two examples in its proposed action. Those issues are on the documentation related to remaining useful life assumptions for the control measure analyses for the El Paso Natural Gas (EPNG) Williams facility and an issue related to ADEQ’s use of source specific interest rates without providing adequate documentation in the control measure analyses for the EPNG Williams and Willcox facilities. In regards to documentation of remaining useful life calculations, ADEQ disagrees that the Department deviated from guidance. According to the 2019 EPA Cost Control Manual (CCM) Section 4 Chapter 2, “... a representative value of the equipment life for SCR at power plants can be considered as 30 years... [f]or other sources, the equipment life can be between 20 and 30 years.” While ADEQ erroneously omitted this citation from the EPNG Williams Turbine analysis, the CCM citation and justification for use of 25-years (which is the midpoint between the 20-30 year range for non-EGU SCR systems from the CCM) was included in the EPNG Willcox SCR analysis for Turbines 1 & 2.²⁹ In addition, as noted in ADEQ’s 2022 Regional Haze SIP revision FLM response to comment documentation, on 1/4/2022 the Department received from the US Forest Service (USFS) cost calculation spreadsheets utilizing a 25-year useful life for SCR for the EPNG Williams Turbine-1.³⁰

In another example, EPA contends that ADEQ’s assumption to amortize SCR and other control options over 20 years for compressor engines at EPNG Williams was “not supported with any additional information in either ADEQ's TSD or in the original source document from EPNG.”³¹ In its analysis of remaining useful life for compressor engines at EPNG Williams facility, ADEQ documented the assumptions and basis for using 20-years to amortize NO_x controls in Appendix C, Section C3.7.6.5 which includes citations to the CCM and EPA’s 2016 technical support document (TSD) for the Cross State Air Pollution Rule for the 2008 Ozone NAAQS.³²

²⁸ *Id.*

²⁹ See 2022 ADEQ Regional Haze SIP revision, Appendix C, Section C3.8.5.2, Page 146.

³⁰ See 2022 ADEQ Regional Haze SIP revision, Appendix L, Section 4.2.4, Comment 14.

³¹ Partial Approval and Disapproval, *supra* note 6 at 47429.

³² See 2022 Regional Haze SIP, Appendix C, Section C3.7.6.5, page 135.

ADEQ will address EPA’s comments related to deviations from the cost control manual for source specific interest rates claimed to be confidential business information (CBI) by the facilities below.

Therefore, based on this information ADEQ disagrees with EPA’s contention that it deviated from the CCM without documentation as part of its four factor analyses for the second implementation period.

VI. ADEQ disagrees with EPA’s determination that ADEQ did not reasonably weigh the statutory factors in reaching its control determinations

In the proposed action, EPA proposes to find that “ADEQ did not reasonably weigh the statutory factors in reaching its control determinations for certain sources.”³³ For its proposal, EPA identifies issues with ADEQ’s application of cost thresholds, use of visibility as a factor to avoid controls, and the use of mass-based emissions caps at TEP SGS.

A. Application of Cost Thresholds

For the application of cost effectiveness thresholds, EPA proposes to find that ADEQ “did not provide an adequate justification for how this threshold resulted in a reasonable set of control measures.”³⁴ EPA references ADEQ’s rejection of controls based on incremental cost effectiveness as well as the rejection of controls that were marginally above ADEQ’s cost effectiveness thresholds as the basis of the proposed action. On the subject of incremental cost effectiveness, ADEQ disagrees that the Department’s consideration of incremental cost effectiveness in its four factor analyses were done in an unreasonable manner. As referenced by EPA in the proposed action, consideration of incremental cost effectiveness is identified in the 2019 Final RH Guidance as a permissible consideration in four factor analyses for the cost of compliance.³⁵ While EPA contends that ADEQ only used incremental cost effectiveness as a reason to reject controls, the Department points EPA to the following example from the 2022 Regional Haze SIP revision four factor analysis for compressor engines at the EPNG Williams facility:

ADEQ found that Air-Fuel ratio adjustment was cost-effective for RECIP-1 based on average cost effectiveness. However, ADEQ also found that LEC2 was reasonable and provides additional emission reductions (>95 tpy) as compared to control by Air-Fuel ratio adjustment. Additionally, the incremental cost of requiring LEC 2 as opposed to Air-Fuel ratio adjustments is \$5,034 /ton, which ADEQ considers reasonable. As such, while Air-Fuel ratio adjustment is a reasonably costed control, ADEQ finds that LEC 2 is a more appropriate control for RECIP-1.³⁶

³³ *supra* note 31.

³⁴ *Id.*

³⁵ *supra* note 10 at 40.

³⁶ See 2022 Arizona Regional Haze SIP, Appendix C, Section C3.7.6.2, page 129.

In addition, for cost thresholds, EPA made the following assertion related to ADEQ’s consideration of incremental cost effectiveness:

In addition, while ADEQ conducted an analysis of numerous first planning period control determinations to set its threshold of \$6,500/ton, it considered only a single BART determination to determine that incremental costs of \$11,120/ton (for LEC-3 on Williams Units RECIP-1), and \$9,400-13,500/ton (for wet WGD on SGS 1 and 2) were excessive.³⁷

As noted in ADEQ’s 2022 Regional Haze SIP revision response to comment documentation, the department did provide the incremental cost effectiveness value for the Nelson Lime Plant action, but it also analyzed other determinations from the regional haze first implementation period:

Similarly, while multiple commenters have asked for ADEQ to identify a numerical “bright line” threshold for its consideration of incremental cost effectiveness when evaluating emission control measures, ADEQ reiterates that the Department did not establish such a threshold. While it is permissible for the Department to establish a “bright line” threshold as it did for average cost effectiveness, the Department is not required to do so. For its consideration of incremental cost effectiveness in this SIP revision, the Department examined determinations from the first implementation planning to inform its decision making. In all instances where the department relied on incremental cost effectiveness to determine the reasonableness of a control, the department determined incremental costs to exceed \$8,576 /ton (equivalent to \$9,233 /ton in 2019\$), which was determined as cost-excessive by EPA for the Nelson Lime Plant when comparing control of Dry Sorbent Injection (DSI) as to a lower sulfur fuel blend.³⁸

Some of the other regional haze first round actions analyzed by the state included:

Table 1: Regional Haze First Implementation Period Incremental Cost Effectiveness Decisions.

Name	Incremental Cost Effectiveness	Action	Citation
AZ AEPCO Apache GS	\$2,837/ton	Cost-Effective	77 FR 72511 (Dec 5, 2012)
AZ APS Cholla GS	\$3,757 to \$4,016/ton	Cost Effective	77 FR 72511 (Dec 5, 2012)
AZ TEP Irvington GS	\$6,174/ton	Rejected	79 FR 52419 (Sept 3, 2014)

³⁷ Partial Approval and Disapproval, *supra* note 6 at 47429.

³⁸ See 2022 Arizona Regional Haze SIP, Appendix K, Section II(B) Comment 2, page 7.

Name	Incremental Cost Effectiveness	Action	Citation
AZ Nelson Lime Plant	\$8,576 to \$8803/ton	Rejected	79 FR 52419 (Sept 3, 2014)
Wy Wyodak GS	\$6,233/ton	Cost Effective	79 FR 5031 (Jan 30, 2014)
Wy Laramie GS	\$5,449 to \$5,871/ton	Cost-Effective	79 FR 5031 (Jan 30, 2014)
Wy Jim Bridger GS	\$7,477 and \$8,986/ton	Cost Effective	79 FR 5031 (Jan 30, 2014)
Wy Dave Johnston GS	\$13,312/ton	Rejected	79 FR 5031 (Jan 30, 2014)
Wy Dave Johnston GS	\$11,781/ton	Rejected	79 FR 5031 (Jan 30, 2014)

As can be seen in these actions, the AZ Nelson Lime Plant example represents an Arizona specific action that was reasonably relied upon for the rejection of controls in consideration of incremental cost effectiveness. ADEQ will note that in the case of AZ TEP Irvington GS an even lower incremental cost effectiveness value was used in part to reject controls.

Due to the fact that the consideration of incremental cost effectiveness is a permissible criterion, the fact that ADEQ did not use incremental cost effectiveness only to reject controls, and that ADEQ reviewed multiple determinations in its analysis, ADEQ contends EPA's proposed disapproval on this factor is arbitrary and capricious.

In addition to incremental cost effectiveness thresholds, EPA contends that due to "flaws" in ADEQ's four factor analyses related to the cost of controls (e.g., achievable control efficiencies and remaining useful life), that ADEQ should revisit control determinations where controls were rejected for being above ADEQ's cost effectiveness thresholds. As discussed above, ADEQ disagrees that the Department relied upon flawed achievable emission rates or remaining useful life calculations for the four factor analyses in the 2022 Regional Haze SIP revision.

While EPA identifies multiple examples of point source and nonpoint controls being rejected for being above ADEQ's selected cost effectiveness thresholds, EPA failed to identify in this NPRM specific issues related to those particular four factor analyses. EPA should not dismiss ADEQ's four factor analyses as a whole by broadly asserting "flaws" across all analyses without justification. To do so circumvents the Department's ability to adequately respond to the basis of EPA's proposed action.

B. Consideration of Visibility as a Factor in Control Determinations

For the consideration of visibility benefits, EPA contends that ADEQ “appears to have considered visibility modeling submitted by TEP for SGS.”³⁹ While ADEQ did receive visibility benefit modeling from certain sources, as noted in the Department’s response to comments, the Department did not rely upon visibility benefits for its control determinations:

As discussed in ADEQ’s FLM responsiveness summary, the Department relied on the four statutory factors and additional five factors required under the RHR when making reasonable progress determinations. Visibility impacts were reported for some sources to give reference to the reader as to the relative impact of these sources or controls considered on visibility. However, this information was not considered in the Department’s emission control measure determinations.⁴⁰

The Department notes that nothing in the CAA, Regional Haze Rule, or in EPA Final Regional Haze guidance prevents the department from considering visibility benefits as part of its analysis. For this implementation period, ADEQ did not establish a bright line threshold for consideration of visibility benefits and the ADEQ’s labeling of the visibility benefits associated with specific control scenarios as “small” comports with similar language used by EPA in their regional haze actions (e.g., “relatively small visibility benefits” in 79 FR 52419, 52439 (Sept 3, 2014)).

As the purpose of the regional haze program is to improve visibility in the nation’s Federal class 1 areas, ADEQ defends its discussion of visibility benefits in the 2022 Regional Haze SIP revision even if it was not relied upon as a factor in the control analysis.

C. Mass based emission caps at TEP SGS and TEP IGS

In the proposed action, EPA identifies three issues with ADEQ’s four factor analysis for TEP SGS Units 1 & 2 for SO₂. Those issues are:

1. ADEQ’s rejection of wet flue gas desulfurization (FGD) based on incremental cost effectiveness where installation of spray dry absorber (SDA) upgrades is not required;
2. EPA’s contention that SDA upgrades still appear to be cost effective even with the imposition of the mass-based emission caps; and
3. EPA’s assertion that the mass-based emission caps would not meaningfully constrain the emissions from one unit during periods when the other unit is not operating.⁴¹

In regards to the rejection of wet FGD for SGS Units 1 & 2, ADEQ believes that EPA’s rationale is arbitrary and capricious. As part of ADEQ’s four factor analysis for TEP SGS Units 1 & 2, the Department analyzed different control technologies which included consideration of incremental cost effectiveness between different control scenarios. In combination with other factors, ADEQ

³⁹ Partial Approval and Disapproval, *supra* note 6 at 47430.

⁴⁰ See 2022 Arizona Regional Haze SIP revision, Appendix K, Section II(C), page 9.

⁴¹ Partial Approval and Disapproval, *supra* note 6 at 47429.

rejected wet FGD and selected “emission reductions equivalent to SDA upgrades” as being necessary to make reasonable progress. This terminology was an acknowledgement of TEP’s stated interest in complying with the reasonable progress determination through emission limits as opposed to capital investment in control upgrades for Units 1 & 2 which TEP has scheduled to close in 2027 and 2032, respectively. However, the use of the term “emission reductions equivalent to SDA upgrades” does not override the fact that SDA upgrades were the control technology selected in the four-factor analysis and that TEP SGS can comply with the mass-based emission caps through installation of the SDA upgrades. Use of emission limits in lieu of codifying specific control technologies is a flexibility that EPA itself used in its reasonable progress determination for Phoenix Cement Clarkdale (PCC):

The RHR does not preclude the establishment of an annual emission limit 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. 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.⁴²

In the above example, EPA established an emission limit which did not require the installation of a particular control technology but rather compliance through other means of meeting the limit. Nowhere in EPA’s reasonable progress determination for PCC did EPA subsequently revisit its four-factor analysis for the facility to reconsider or update its control analysis based on the established emission limits. To hold ADEQ or TEP to that standard would be arbitrary and capricious and has no basis in federal statute, regulation, or guidance. As mentioned above, the emission limits established for TEP do not preclude the installation of SDA upgrades and TEP may elect to make these upgrades. That flexibility should not be removed and substituted with a control technology that was determined to have an unreasonable incremental cost effectiveness.

Similarly, for EPA’s contention that SDA upgrades may still be cost effective after the establishment of the mass-based emission caps, this manner of analysis is not contemplated in the four-factor analysis as outlined in the regional haze rule or the 2019 final regional haze guidance. To ADEQ’s knowledge, EPA has never applied this standard whereby after the establishment of an emission limit based on the reductions achievable from a considered control technology that a State must revisit and update the baseline emissions of its four-factor analysis to reflect the new emission limit. Under the regional haze rule, states have wide discretion to reasonably select measures for evaluation with the selection of a range of technically feasible options being identified by EPA as one method to justify reasonableness.⁴³ As EPA notes in its 2019 final

⁴² 79 FR 52420, 52460 (September 3, 2014).

⁴³ *supra* note 10 at 29.

regional haze guidance, “there is no statutory or regulatory requirement to consider all technically feasible measures or any particular measures.”⁴⁴ For its analysis of TEP SGS, ADEQ did not select a control scenario in its four factor analysis that included the imposition of both emission limits and the installation of SDA upgrades. EPA should not substitute its judgment for ADEQ’s reasonable selection of SDA upgrades as the evaluated control measure for TEP SGS Units 1 & 2 or reject ADEQ’s determination based on an arbitrary and circular four factor analysis standard.

In the proposed action, EPA also raises concerns that the SO₂ mass-based emission caps established for TEP SGS Units 1 & 2 “may not meaningfully constrain the emissions from one unit during periods when the other unit is not operating.”⁴⁵ EPA references TEP’s 2023 Integrated Resources Plan (IRP) and highlights TEP’s plans to retire Unit 1 in 2027. However, as the operating scenarios outlined in the IRP are not federally enforceable conditions, ADEQ has no basis for the consideration of these future scenarios as part of its control measure analysis and the establishment of the mass-based emission limits. According to TEP’s 2023 IRP, TEP continues to analyze different resource portfolios with one example listed as having both SGS Units 1 & 2 retire in 2034.⁴⁶

Just as states are precluded from considering unenforceable facility shutdowns in their four factor analyses, EPA should not rely upon unenforceable and hypothetical operating scenarios to reject ADEQ’s reasonable progress determinations. In the establishment of the mass-based emission limits, ADEQ derived the limits based on an emission rate of 0.15 lb/MMBtu, which is consistent with upgraded SDA as a control technology, and an average annual heat input of 49,721,058 MMBtu for TEP SGS Units 1 & 2 over the baseline years (2016, 2018 and 2019). In addition, as the emission caps are set on an annual basis, ADEQ also established an emission limit of 16.1 tons/day on a 30-CD rolling average using the same 0.15 lb/MMBtu emission rate achievable with SDA upgrades at TEP SGS Units 1 & 2. The annual SO₂ emission cap of 3,739 will provide significant SO₂ reductions compared to the combined 2028 projected emissions for TEP SGS Units 1 & 2 of 5,851 tons of SO₂. ADEQ contends that this approach is reasonable and that EPA’s disapproval on this basis is arbitrary and capricious.

Lastly, in the proposed action and included in EPA’s discussion of mass-based emission caps, EPA rejects in abbreviated fashion consideration of ADEQ’s mass-based emission limits for the TEP Irvington generating station (IGS). EPA’s rationale for this is that “because these limits are not yet enforceable, we find that they are not an appropriate basis for modifying the baseline control scenario for a four-factor analysis.”⁴⁷ EPA’s rationale for this determination is arbitrary and capricious. In EPA’s BART determination for Arizona Public Service (APS) Cholla generating station, EPA accepted a source specific permit revision for APS Cholla Unit 2 that included a trigger that was conditional on EPA’s approval of the SIP that altered the remaining useful life of the unit in ADEQ’s four factor analysis:

The Cholla Permit Revision requires Unit 2 to be permanently retired by no later than April 1, 2016. This date coincides with the compliance deadlines for SO₂ and

⁴⁴ *Id.*

⁴⁵ Partial Approval and Disapproval, *supra* note 6 at 47430.

⁴⁶ Tucson Electric Power, *2023 Integrated Resources Plan*, page 52.

⁴⁷ Partial Approval and Disapproval, *supra* note 6 at 47431.

PM₁₀ in the Arizona Regional Haze FIP and precedes the deadline for NO_x by over a year. In fact, the unit was shut down on October 1, 2015. If Unit 2 were not retired, APS would have been required to install additional controls to meet the SO₂ and PM₁₀ limits in the SIP, as well as the NO_x limit in the FIP, which is achievable with SCR. The requirement for permanent retirement will become effective and federally enforceable when the Cholla SIP Revision is approved into the SIP and the FIP provisions applicable to Cholla are withdrawn. Accordingly, we agree with ADEQ that no further analysis is required for Cholla Unit 2, and we propose to approve the requirement for permanent retirement as satisfying the requirements of the CAA and RHR for Cholla Unit 2.⁴⁸

As EPA has approved similar contingent language in past regional haze actions, EPA should not reject ADEQ's control analysis and emission limits in an offhand manner and should approve ADEQ's reasonable progress determination for TEP IGS Unit 3.

VII. EPA should approve ADEQ's Reasonable Progress Goal for the Sycamore Canyon Wilderness Area

As discussed in the 2022 Arizona regional haze SIP revision and EPA's proposed limited approval/limited disapproval of that revision, 40 CFR § 51.308(f)(3)(ii)(A) requires that if a state adopts a reasonable progress goal (RPG) for the most impaired days that results in a slower rate of visibility improvement than the uniform rate of progress (URP), meaning the RPG for a given Class I area is above the URP glidepath, the state must:

Demonstrate, based on the [Long Term Strategy (LTS)] analysis, . . . that there are no additional emission reduction measures for anthropogenic sources or groups of sources in the State that may reasonably be anticipated to contribute to visibility impairment in the Class I area *that would be reasonable* to include in the long-term strategy.⁴⁹ [emphasis added]

For the 2018-2028 planning period covered by the Arizona 2022 regional haze plan, all but one Arizona IMPROVE monitor are projected to have RPGs for the most impaired days that provide for a greater rate of visibility improvement than the adjusted URP. The only site with a lower rate of visibility progress than the adjusted URP is the SYCA_RHTS monitor, which serves as the IMPROVE visibility monitor for the Sycamore Canyon Wilderness Class I area.

With its analysis in section 10.1 of the 2022 plan, ADEQ has provided the "robust demonstration" required under the regional haze rule that no additional emission reduction measures would be reasonable to include in the LTS due to the "slower-than-URP" rate of visibility improvement at the Sycamore Canyon monitor.⁵⁰

ADEQ conducted a detailed analysis of visibility data at the Sycamore site to demonstrate that its slower rate of progress results from significant increases in light extinction from coarse mass and

⁴⁸ 81 FR 46852, 46860 (July 19, 2016).

⁴⁹ 40 CFR § 51.308(f)(3)(ii)(A).

⁵⁰ ADEQ, State Implementation Plan Revision: Regional Haze Program (2018-2028), page 101-106.

soil emissions, which did not occur at any other Arizona Class I area monitoring site over the analysis period. ADEQ then discusses local factors that demonstrate why recent trends at the site are unrepresentative of long-term emission and visibility trends in the area and why it is therefore unreasonable to require additional controls in order to control emissions impacting this site.

There was a substantial increase in coarse mass and soil impairment at this site following the relocation of the Sycamore monitor in 2015, with the new monitor located outside of the boundaries of the Sycamore Canyon Class I area and closer to residential development and rural unpaved roads.

Between 2016 and 2019, coarse mass extinction trended downward at the Sycamore site, while soil total extinction trended upwards over the same period. These mixed trends in particulate matter impairment, as well as significant decreases in impairment from all other pollutants analyzed for the Sycamore site, suggest that the spike in particulate impairment seen at the site after monitor relocation is not representative of longer-term emission and visibility trends in the area.

As discussed in the plan, “Arizona wishes to further investigate the large coarse mass impact at this Class I Federal area following its relocation,” and notes that the soil and coarse mass impact at Sycamore is far out of line with the trends for these pollutants at other areas, further suggesting that the irregular data is not yet cause for further control investigation. ADEQ will continue to monitor and investigate the source of coarse mass impacts at the new Sycamore Canyon monitor site during subsequent progress reports and periodic comprehensive Regional Haze SIP revisions.

Finally, this portion of the regional haze rule requires that states provide “an assessment of the number of years it would take to attain natural visibility conditions if visibility improvement were to continue at the rate of progress selected by the state as reasonable for the implementation period.” ADEQ fully complied with this requirement with Table 10-5 in the 2022 Arizona regional haze plan, which provides the years to natural visibility under the state’s 2028 LTS for all Arizona Class I areas.⁵¹

For the above reasons, EPA should reevaluate its proposed disapproval of the RPG for the Sycamore Canyon Class I area site and instead approve ADEQ’s determination that no additional controls on emissions impacting this site would be reasonable based on uncertainty in the data following relocation of the monitor and trends for certain pollutants at the site that are not consistent with the demonstrated statewide progress.

VIII. ADEQ intends to coordinate with EPA EPNG to provide supporting documentation for the interest rate

EPA notes in its proposed partial disapproval of Arizona’s 2022 regional haze plan that:

In its cost calculations for EPNG Willcox and Williams, ADEQ used an interest rate of 8.53 percent (for most control options such as SCR) and 9 percent for water/steam injection. These values were well above the bank prime interest rates at the time these analyses were developed, and above the source-specific interest

⁵¹ *Id.* at 106.

rates used in other facilities' analyses. While the TSD notes that 8.53 percent is based upon site specific information provided by EPNG, that information is not in the TSD or the original source document from EPNG. Additional documentation is needed to support the use of the 8.53 percent and 9 percent interest rates in cost calculations.

However, as noted in ADEQ's response to comments on the proposed 2022 regional haze SIP:

In keeping with EPA's Cost Control Manual, ADEQ relied on firm-specific interest rates first when developing interest rates for the emission control measure analyses. ADEQ received source specific interest rate information from EPNG which was classified as confidential business information (CBI). ADEQ is able to share the supporting documentation with EPA under Arizona Revised Statutes (A.R.S.) § 49-432(F).⁵²

As of the drafting of this letter, ADEQ is reviewing the appropriate procedure to share this interest rate documentation provided by EPNG while maintaining the appropriate level of confidentiality. ADEQ intends to provide it to EPA for review prior to publication of the final rule for this action and requests that EPA approve the cost calculation for EPNG Willcox and Williams based on the site-specific interest rate and supporting documentation.

IX. ADEQ has procedural concerns with the lack of specificity in EPA's proposed disapproval of Arizona's 2022 regional haze plan

A key purpose of the notice and comment procedure required by the Administrative Procedure Act and CAA for all EPA rules and decisions published in the Federal Register is to provide interested parties with notice of federal actions and opportunity to provide detailed feedback.

Specifically, CAA § 307(d)(3) requires a detailed notice of rulemaking, including a summary of:

- (A) the factual data on which the proposed rule is based;
- (B) the methodology used in obtaining the data and in analyzing the data; and
- (C) the major legal interpretations and policy considerations underlying the proposed rule.⁵³

Further, while a final rule may reasonably differ from the proposed version, especially in response to comment received during the notice period, the notice provided in the proposal may be "too general to be adequate. Agency notice must describe the range of alternatives being considered with reasonable specificity. Otherwise, interested parties will not know what to comment on, and notice will not lead to better-informed agency decision-making."⁵⁴

EPA's proposed partial disapproval of Arizona's 2022 regional haze plan does not provide "detailed notice" of certain specific issues that form the basis for disapproval of entire sections of

⁵² Partial Approval and Disapproval, *supra* note 6 at 47429.

⁵³ Small Ref. Lead Phase-Down Task Force v. EPA, 705 F.2d 506, 518-19 (D.C. Cir. 1983).

⁵⁴ *Id.*

the plan, denying ADEQ the opportunity to specifically address those bases for disapproval during the comment period.

For example, EPA states that “ADEQ did not provide an adequate justification for screening out certain sources and units from conducting a four-factor analysis on the basis that they are “effectively controlled” as part of its source selection process. Specifically, in some cases, ADEQ did not identify the controls for each pollutant at each unit or process, the associated limits, or where the controls/limits currently exist in the Arizona SIP.”⁵⁵

EPA does not list the specific cases where it identified this deficiency. For other deficiencies, EPA provides a single example of a determination that it proposes to disapprove, stating only “for example, ADEQ cites better-than-BART determinations from the first planning period for Apache Generating Station Units 2 and 3 and IGS Unit 4 as a rationale that it is not necessary to conduct a four-factor analysis.”

ADEQ contends that EPA should have more clearly described the specific bases for disapproval in the proposal, similar to the partial disapproval of Arizona’s regional haze plan for the first planning period published in 2012. If EPA does not reevaluate certain disapprovals for its failure to clearly state the bases for those disapprovals, it should at least more clearly state the specific issues that form the basis for disapproval in the final rule. The specific reasons for each disapproval of the regional haze plan will be crucial to allow ADEQ to develop a plan revision to correct the deficiencies that EPA identifies.

X. ADEQ acknowledges that further FLM consultation is required for a plan revision that will correct the deficiencies identified in EPA’s partial disapproval

In the proposed action, EPA notes that since it “is proposing to disapprove certain elements of Arizona's SIP revision, [it] is also proposing to disapprove the Plan with respect to the FLM consultation requirements under 51.308(i), because Arizona's consultation was based on a SIP revision that did not meet the required statutory and regulatory requirements of the CAA and the RHR, respectively.”⁵⁶

ADEQ acknowledges that its plan revisions to correct any disapproved sections of the SIP will again be required to satisfy the FLM consultation requirements and commits to robust and timely engagement with its land manager partners for any supplemental plan revision.

EPA also notes that “ADEQ did not indicate whether the 2023 Arizona Regional Haze Rules Supplement went through the FLM 60-day review period.”⁵⁷ ADEQ contends that the inclusion of the nonpoint source selection analysis and selected controls for nonpoint sources in the FLM review draft of the plan provided FLMs adequate notice and review of Arizona’s nonpoint source rules that were codified after plan submission and submitted in the 2023 Rules Supplement.

⁵⁵ Partial Approval and Disapproval, *supra* note 6 at 47428.

⁵⁶ Partial Approval and Disapproval, *supra* note 6 at 47435.

⁵⁷ Partial Approval and Disapproval, *supra* note 6 at 47436.

However, if EPA's final rule disapproves FLM consultation for the nonpoint rules included in the 2023 Rules Supplement, ADEQ commits to engaging with FLMs on whether these nonpoint rules should be included in the State's LTS as required under 40 CFR 51.308(i)(2).

XI. Conclusion

ADEQ appreciates the opportunity to provide these comments on EPA's proposed action on Arizona's 2022 regional haze plan. ADEQ supports the regional haze rule's goal of reducing visibility impairment at federal Class I areas, while requesting that EPA reevaluate certain bases for its proposed disapproval where they are based on interpretation and guidance rather than the regional haze rule and Clean Air Act.

If you have any questions, please contact Air Quality Improvement Planning Section Manager Kelly MacKenzie at (602)-784-1603 or at mackenzie.kelly@azdeq.gov.

Thank you for your consideration of ADEQ's comments.

Sincerely,

DocuSigned by:

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Daniel Czecholinski
Air Quality Division Director

Attachment A

Asarco LLC – Hayden Smelter

Additional Justification: The emission processes identified in Table 2 had an effective control adopted within 5 years of ADEQ's source selection process for the regional haze second implementation period. Therefore, these emission processes were deferred from consideration for the second implementation period.

The following emission limits applicable to the Hayden smelter were taken into consideration:

- Main Stack: SO₂ emissions from the Main Stack shall not exceed 1069.1 pounds per hour on a 14-operating day average unless 1,518 pounds or less is emitted during each hour of the 14-operating day period.⁵⁸

2018 emission control upgrades at the Hayden smelter were estimated to provide the following SO₂ emission reductions: 97% capture of converter blowings emissions, 90% capture efficiency of charging and skimming operations emissions, 95% capture of primary and secondary hooding emissions, and a minimum 50% control of secondary hood emissions.⁵⁹ Control technology improvements include replacement of existing converters with newer converters, improved primary hooding systems, improved secondary hooding systems, new tertiary hooding systems, replacement of the R&R ESP with a baghouse, a high surface area lime injection system for the R&R ESP replacement baghouse and secondary baghouse, and improvements to the wet gas cleaning system.

2018 emission control upgrades at the Hayden smelter applicable to particulate matter emissions include: compliance with a fugitive dust plan, wind fences to encircle materials storage piles, water sprays to wet materials piles, chemical dust suppressants for unpaved roads, cleaning of paved roads, concrete pads for select materials storage areas, 20 percent opacity limit, preventative maintenance procedures for control measures, specific inspections for each source, speed limit of 15 mph for vehicles, ambient air and meteorological monitoring.⁶⁰

For ADEQ's 2022 Regional Haze SIP revision, it was determined that for purposes of efficiency and prioritization that a full four factor analysis of these emission process would likely result in a conclusion that no further controls were necessary. Per EPA guidance it is "reasonable and permissible for a state to distribute its own analytical work, and the compliance expenditures of source owners, over time by addressing some sources in the

⁵⁸ A.A.C. R18-2-B1302(C)(1).

⁵⁹ Arizona State Implementation Plan Revision: Hayden Sulfur Dioxide Nonattainment Area for the 2010 SO₂ NAAQS. Submitted to EPA on March 8, 2017. Page 53.

⁶⁰ SIP Revision: Hayden Lead Nonattainment Area. Submitted to EPA on March 2, 2017. Page 50.

second implementation period and other sources in later periods.”⁶¹ Effectively controlled processes will be reevaluated in future rounds of regional haze planning.

Enforceability Citations: 83 FR 7614 (February 22, 2018) and 85 FR 70483 (November 5, 2020).

Table 2: List of deferred emission processes for Asarco LLC – Hayden Smelter

Facility	Unit ID	Unit Description	Process ID	Process Description
ASARCO LLC - HAYDEN SMELTER	2	PROCESS VENTILATION	3	FLASH FURNACE, CONVERTER
ASARCO LLC - HAYDEN SMELTER	19	VEHICLE TRAFFIC	25	Paved Road Traffic
ASARCO LLC - HAYDEN SMELTER	2	PROCESS VENTILATION	4	PRODUCT DRYER BAGHOUSES
ASARCO LLC - HAYDEN SMELTER	20	STORAGE AND HANDLING	22	STORAGE & HANDLING
ASARCO LLC - HAYDEN SMELTER	19	VEHICLE TRAFFIC	21	Unpaved Road Traffic
ASARCO LLC - HAYDEN SMELTER	Flash/Conv Primary	Flash Furnace/Convert er Primary Ventilation	Acid Plant	Acid Plant Outlet
ASARCO LLC - HAYDEN SMELTER	Converters	Pierce Smith Converters	Converter Fugitives	Converter Aisle Fugitives
ASARCO LLC - HAYDEN SMELTER	28	Fines Crushing Circuit	28	Fines Crushing Circuit
ASARCO LLC - HAYDEN SMELTER	Flash Furnace	Flash Furnace	FF BLDG Fugitives	Flash Furnace Fugitives
ASARCO LLC - HAYDEN SMELTER	Flash Furnace	Flash Furnace	FV Baghouse Outlet	FV Baghouse Outlet
ASARCO LLC - HAYDEN SMELTER	1	PRIMARY COPPER SMELTING	2	PEIRCE SMITH

⁶¹ Guidance on Regional Haze State Implementation Plans for the Second Implementation Period, August 2019, page 9.

Facility	Unit ID	Unit Description	Process ID	Process Description
				CONVERTER S
ASARCO LLC - HAYDEN SMELTER	1	PRIMARY COPPER SMELTING	2	PEIRCE SMITH CONVERTER S
ASARCO LLC - HAYDEN SMELTER	27	Coarse Revert Crushing Circuit	27	Revert Crushing Circuit
ASARCO LLC - HAYDEN SMELTER	Converters	Pierce Smith Converters	SH Baghouse Outlet	Secondary Hood Baghouse
ASARCO LLC - HAYDEN SMELTER	Converters	Pierce Smith Converters	Tertiary Hood	Tertiary Hood Ventilation Outlet

AEPCO – Apache Generating Station

Additional Justification: The emission processes identified in Table 3 had an effective control adopted within 5 years of ADEQ's source selection process for the regional haze second implementation period. Therefore, these emission processes were deferred from consideration for the second implementation period.

The following emission limits applicable to Apache generating station were taken into consideration:

- ST1/GT1: NO_x limit of 0.056 lb/MMBtu standalone and 0.1 lb/MMBtu combined ST1/GT1 and a 30-calendar day average of 1,205 lb/day, PM₁₀ limit of 0.0075 lb/MMBtu, and SO₂ limit of 0.00064 lb/MMBtu
- ST2: Conversion from coal to NG w/ NO_x limit of 0.085 lb/MMBTU 30-day average, SO₂ limit of 0.00064 lb/MMBTU 30-day average, PM₁₀ limit of 0.008 lb/MMBtu 30-day average
- ST3: SNCR installation w/ a NO_x 30-day average limit of 0.23 lb/MMBtu

For ADEQ’s 2022 Regional Haze SIP revision, it was determined that for purposes of efficiency and prioritization that a full four factor analysis of these emission process would likely result in a conclusion that no further controls were necessary. Per EPA guidance it is “reasonable and permissible for a state to distribute its own analytical work, and the compliance expenditures of source owners, over time by addressing some sources in the second implementation period and other sources in later periods.”⁶² Effectively controlled processes will be reevaluated in future rounds of regional haze planning.

Enforceability Citations: 80 FR 19220 (April 10, 2015).

Table 3: List of deferred emission processes for AEPCO – Apache Generating Station

Facility	Unit ID	Unit Description	Process ID	Process Description
AEPCO - APACHE GENERATING STATION	301	ELECTRIC PWR GEN STEAM	11	STEAM UNIT 1 GAS
AEPCO - APACHE GENERATING STATION	301	ELECTRIC PWR GEN STEAM	21	STEAM UNIT 2 GAS
AEPCO - APACHE GENERATING STATION	301	ELECTRIC PWR GEN STEAM	22	STEAM UNIT 2 COAL

⁶² *supra* note 61.

Facility	Unit ID	Unit Description	Process ID	Process Description
AEPCO - APACHE GENERATING STATION	301	ELECTRIC PWR GEN STEAM	32	STEAM UNIT 3 COAL
AEPCO - APACHE GENERATING STATION	301	ELECTRIC PWR GEN STEAM	31	STEAM UNIT 3 GAS
AEPCO - APACHE GENERATING STATION	302	ELECTRIC PWR GEN TURBINE	1	GAS COMBUST TURBINE #1

APS – Cholla Power Plant

Additional Justification: The emission processes identified in Table 4 had an effective control adopted within 5 years of ADEQ's source selection process for the regional haze second implementation period. Therefore, these emission processes were deferred from consideration for the second implementation period.

The following emission limits applicable to the Cholla power plant were taken into consideration:

- Units 1 and 3: Units 1 and 3 shall permanently stop burning coal or fuel oil or used oil by April 30, 2025 or by July 31, 2025, the Permittee may convert Units 1 and/or 3 to natural gas operation.
- Unit 2: Unit shutdown April 1, 2016 (Unit is not permitted to operate).
- Unit 4: Permanently cease coal burning by April 30, 2025. Natural gas option w/ <20% avg annual capacity factor.⁶³

For ADEQ's 2022 Regional Haze SIP revision, it was determined that for purposes of efficiency and prioritization that a full four factor analysis of these emission process would likely result in a conclusion that no further controls were necessary. Per EPA guidance it is "reasonable and permissible for a state to distribute its own analytical work, and the compliance expenditures of source owners, over time by addressing some sources in the second implementation period and other sources in later periods."⁶⁴ Effectively controlled processes will be reevaluated in future rounds of regional haze planning.

Enforceability Citations: 82 FR 15139 (March 27, 2017).

Table 4: List of deferred emission processes for APS – Cholla Power Plant

Facility	Unit ID	Unit Description	Process ID	Process Description
APS - CHOLLA POWER PLANT	TFSU-001	Steam Unit #1	TFSU-001-664	Coal combustion in Steam Unit #1
APS - CHOLLA POWER PLANT	TFSU-002	Steam Unit #2	TFSU-002-664	Coal combustion in Steam Unit #2
APS - CHOLLA POWER PLANT	TFSU-003	Steam Unit #3	TFSU-003-664	Coal combustion in Steam Unit #3

⁶³ Emission limits referenced above reflect the emission limits in place at the time of ADEQ's source screening analysis for the regional haze second implementation period. However, Unit 4 was shut down on December 23, 2020 and is not currently permitted to operate.

⁶⁴ *supra* note 61.

Facility	Unit ID	Unit Description	Process ID	Process Description
APS - CHOLLA POWER PLANT	TFSU-004	Steam Unit #4	TFSU-004-664	Coal combustion in Steam Unit #4

CalPortland – Rillito Cement Plant (CPC)

Additional Justification: The emission processes identified in Table 5 had an effective control adopted within 5 years of ADEQ's source selection process for the regional haze second implementation period. Therefore, these emission processes were deferred from consideration for the second implementation period.

The following emission limits applicable to the Rillito cement plant were taken into consideration:

- The Permittee 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.
 - Emission limit corresponds to a 35% NO_x control efficiency and is consistent with selective non-catalytic reduction (SNCR) as a control technology. Based on EPA's review of SNCR control efficiency data "more stringent SNCR control efficiencies were not achievable at PCC and CPC."⁶⁵

For ADEQ's 2022 Regional Haze SIP revision, it was determined that for purposes of efficiency and prioritization that a full four factor analysis of these emission process would likely result in a conclusion that no further controls were necessary. Per EPA guidance it is "reasonable and permissible for a state to distribute its own analytical work, and the compliance expenditures of source owners, over time by addressing some sources in the second implementation period and other sources in later periods."⁶⁶ Effectively controlled processes will be reevaluated in future rounds of regional haze planning.

In accordance with ADEQ's source screening methodology for the regional haze second implementation period, the emissions associated with the processes listed in Table 5 were removed from the calculation of the Q/d value. After re-calculating the Q/d value, the facility had a Q/d greater than the Departments threshold of 10. Therefore, the Rillito cement plant was selected for control analysis in the second implementation period.

Enforceability Citations: 40 CFR 52.145(k).

Table 5: List of deferred emission processes for CalPortland – Rillito Cement Plant.

Facility	Unit ID	Unit Description	Process ID	Process Description
CALPORTLAND-RILLITO CEMENT PLANT (APCC)	13	PREHEATER & KILN 4	4	H5-GB (Roller Mill ON)

⁶⁵ 81 FR 83144 (November 21, 2016).

⁶⁶ *supra* note 61.

Facility	Unit ID	Unit Description	Process ID	Process Description
CALPORTLAND-RILLITO CEMENT PLANT (APCC)	13	PREHEATER & KILN 4	6	H5-GB (Roller Mill OFF)
CALPORTLAND-RILLITO CEMENT PLANT (APCC)	13	PREHEATER & KILN 4	5	H5-K4-DC1
CALPORTLAND-RILLITO CEMENT PLANT (APCC)	13	PREHEATER & KILN 4	2	H3-K4-DC1 & 2
CALPORTLAND-RILLITO CEMENT PLANT (APCC)	13	PREHEATER & KILN 4	3	H4-DC1
CALPORTLAND-RILLITO CEMENT PLANT (APCC)	13	PREHEATER & KILN 4	1	H2-DC1
CALPORTLAND-RILLITO CEMENT PLANT (APCC)	13	PREHEATER & KILN 4	4	H5-GB (Roller Mill ON)
CALPORTLAND-RILLITO CEMENT PLANT (APCC)	13	PREHEATER & KILN 4	6	H5-GB (Roller Mill OFF)
CALPORTLAND-RILLITO CEMENT PLANT (APCC)	13	PREHEATER & KILN 4	5	H5-K4-DC1

Chemical Lime Nelson Plant

Additional Justification: The emission processes identified in Table 6 had an effective control adopted within 5 years of ADEQ's source selection process for the regional haze second implementation period. Therefore, these emission processes were deferred from consideration for the second implementation period.

The following emission limits applicable to the Chemical Lime Nelson Plant were taken into consideration:

- Lime Kiln 1: 3.80 lbs. of NO_x per ton of lime product limit and 9.32 lbs. of SO₂ per ton of lime product limit on a 12-month rolling basis (consistent with low-NOx burners, SNCR, and use of lower sulfur fuel blend).
- Lime Kiln 2: 2.61 lbs. of NO_x per ton of lime product limit and 9.73 lbs. of SO₂ per ton of lime product limit on a 12-month rolling basis (consistent with low-NOx burners, SNCR, and use of lower sulfur fuel blend).
- Combined Kiln Limit: 3.27 tons of NO_x per day and 10.10 tons of SO₂ per day, combined from both kilns, based on a rolling 30-kiln-operating-day basis.

For ADEQ's 2022 Regional Haze SIP revision, it was determined that for purposes of efficiency and prioritization that a full four factor analysis of these emission process would likely result in a conclusion that no further controls were necessary. Per EPA guidance it is "reasonable and permissible for a state to distribute its own analytical work, and the compliance expenditures of source owners, over time by addressing some sources in the second implementation period and other sources in later periods."⁶⁷ Effectively controlled processes will be reevaluated in future rounds of regional haze planning.

Enforceability Citations: 40 CFR 52.145(i).

Table 6: List of deferred emission processes for Chemical Lime Nelson

Facility	Unit ID	Unit Description	Process ID	Process Description
CHEMICAL LIME NELSON PLANT	409	LIME KILN 1	1	BAGHOUSE
CHEMICAL LIME NELSON PLANT	410	LIME KILN 2	1	BAGHOUSE

⁶⁷ *supra* note 61.

SRP – Coronado Generating Station

Additional Justification: The emission processes identified in Table 7 had an effective control adopted within 5 years of ADEQ's source selection process for the regional haze second implementation period. Therefore, these emission processes were deferred from consideration for the second implementation period.

The following emission limits applicable to the SRP Coronado Generating Station were taken into consideration:

- Unit 1: Shutdown no later than December 31, 2025 or 0.065 lb/MMBtu NO_x emission limit and 0.060 lb./MMBtu SO₂ emission limit on a rolling 30-BOD basis (consistent with selective catalyst reduction (SCR)).⁶⁸
- Unit 2 0.080 lb./MMBtu NO_x emission limit and 0.060 lb./MMBtu SO₂ emission limit on a rolling 30-BOD basis.
- Annual SO₂ emissions cap of 1,970 tpy from Units 1 and 2 (1,080 tpy if Unit 1 shuts down).

For ADEQ’s 2022 Regional Haze SIP revision, it was determined that for purposes of efficiency and prioritization that a full four factor analysis of these emission process would likely result in a conclusion that no further controls were necessary. Per EPA guidance it is “reasonable and permissible for a state to distribute its own analytical work, and the compliance expenditures of source owners, over time by addressing some sources in the second implementation period and other sources in later periods.”⁶⁹ Effectively controlled processes will be reevaluated in future rounds of regional haze planning.

Enforceability Citations: 82 FR 46903 (October 10, 2017).

Table 7: List of deferred emission processes for SRP- Coronado Generating Station

Facility	Unit ID	Unit Description	Process ID	Process Description
CORONADO GENERATING PLANT	111	UNIT 1 COMBUSTION	1	COAL COMBUSTION UNIT 1
CORONADO GENERATING PLANT	111	UNIT 1 COMBUSTION	2	FUEL OIL COMBUSTION UNIT 1
CORONADO GENERATING PLANT	222	UNIT 2 COMBUSTION	1	COAL COMBUSTION UNIT 2

⁶⁸ Emission limits referenced above reflect the emission limits in place at the time of ADEQ’s source screening analysis for the regional haze second implementation period. However, SRP has since opted to install SCR on Unit 1 by splitting and modifying the existing SCR unit controlling Unit 2.

⁶⁹ *supra* note 61.

Facility	Unit ID	Unit Description	Process ID	Process Description
CORONADO GENERATING PLANT	222	UNIT 2 COMBUSTION	2	FUEL OIL COMBUSTION UNIT 2

Freeport McMoRan Miami Smelter

Additional Justification: The emission processes identified in Table 8 had an effective control adopted within 5 years of ADEQ's source selection process for the regional haze second implementation period. Therefore, these emission processes were deferred from consideration for the second implementation period.

The following emission limits applicable to the Freeport McMoRan Miami Smelter were taken into consideration:

- Combined SO₂ emission limit from the tail gas stack, vent fume stack, aisle scrubber stack, bypass stack, and smelter roofline fugitives of 142.45 pounds per hour on a 30-day rolling average basis.
- SO₂ emissions captured by converter aisle capture systems must achieve 99.7% reduction of SO₂ on a rolling 365-day average basis.
- NO_x emission limit from the electric furnace and the batch copper converters of 40 tons per 12-continuous month period.

For ADEQ's 2022 Regional Haze SIP revision, it was determined that for purposes of efficiency and prioritization that a full four factor analysis of these emission process would likely result in a conclusion that no further controls were necessary. Per EPA guidance it is "reasonable and permissible for a state to distribute its own analytical work, and the compliance expenditures of source owners, over time by addressing some sources in the second implementation period and other sources in later periods."⁷⁰ Effectively controlled processes will be reevaluated in future rounds of regional haze planning.

Enforceability Citations: 83 FR 56736 and 40 CFR 52.145(m)

Table 8: List of deferred emission processes for Freeport McMoRan Miami Smelter.

Facility	Unit ID	Unit Description	Process ID	Process Description
FREEPORT MCMORAN MIAMI SMELTER	1	SMELTING	1	SMELTING: ISA & ELF
FREEPORT MCMORAN MIAMI SMELTER	1	SMELTING	2	Captured Converter Fugitives and Anode Process Emissions
FREEPORT MCMORAN MIAMI	1	SMELTING	4	COLLECTED FUGITIVES

⁷⁰ *supra* note 61.

Facility	Unit ID	Unit Description	Process ID	Process Description
SMELTER				
FREEPORT MCMORAN MIAMI SMELTER	1	SMELTING	5	BYPASS STACK
FREEPORT MCMORAN MIAMI SMELTER	1	SMELTING	6	SMELTING FUGITIVES
FREEPORT MCMORAN MIAMI SMELTER	1	SMELTING	8	NATURAL GAS COMBUSTION
FREEPORT MCMORAN MIAMI SMELTER	2	ANODE REFINING	1	ANODE REFINING

Phoenix Cement – Clarkdale Cement Plant (PCC)

Additional Justification: The emission processes identified in Table 9 had an effective control adopted within 5 years of ADEQ's source selection process for the regional haze second implementation period. Therefore, these emission processes were deferred from consideration for the second implementation period.

The following emission limits applicable to the Clarkdale Cement Plant were taken into consideration:

- Kiln 4 emission limit of 2.12 pounds of NO_x per ton of clinker produced, based on a rolling 30-kiln operating day basis.
 - Emission limit corresponds to a 50% NO_x control efficiency and is consistent with selective non-catalytic reduction (SNCR) as a control technology. Based on EPA's review of SNCR control efficiency data "more stringent SNCR control efficiencies were not achievable at PCC and CPC."⁷¹

For ADEQ's 2022 Regional Haze SIP revision, it was determined that for purposes of efficiency and prioritization that a full four factor analysis of these emission process would likely result in a conclusion that no further controls were necessary. Per EPA guidance it is "reasonable and permissible for a state to distribute its own analytical work, and the compliance expenditures of source owners, over time by addressing some sources in the second implementation period and other sources in later periods."⁷² Effectively controlled processes will be reevaluated in future rounds of regional haze planning.

In accordance with ADEQ's source screening methodology for the regional haze second implementation period, the emissions associated with the processes listed in Table 9 were removed from the calculation of the Q/d value. After re-calculating the Q/d value, the facility had a Q/d greater than the Departments threshold of 10. Therefore, the Clarkdale cement plant was selected for control analysis in the second implementation period.

Enforceability Citations: 40 CFR 52.145(k).

Table 9: List of deferred emission processes for Phoenix Cement – Clarkdale Cement Plant

Facility	Unit ID	Unit Description	Process ID	Process Description
PHOENIX CEMENT - CLARKDALE	14	COAL MILLING	2	DC453
PHOENIX CEMENT - CLARKDALE	14	COAL MILLING	1	DC451

⁷¹ 81 FR 83144 (November 21, 2016).

⁷² *supra* note 61.

Facility	Unit ID	Unit Description	Process ID	Process Description
PHOENIX CEMENT - CLARKDALE	7	RAW MILL/KILN	1	DC411
PHOENIX CEMENT - CLARKDALE	7	RAW MILL/KILN	2	DC431
PHOENIX CEMENT - CLARKDALE	14	COAL MILLING	3	DC454
PHOENIX CEMENT - CLARKDALE	14	COAL MILLING	4	DC455

Tucson Electric Power (TEP) – Irvington Generating Station

Additional Justification: The emission processes identified in Table 10 had an effective control adopted within 5 years of ADEQ's source selection process for the regional haze second implementation period. Therefore, these emission processes were deferred from consideration for the second implementation period.

The following emission limits applicable to the Irvington generating station were taken into consideration:

- Unit I1, Unit I2, IGT1 – Turbine, IGT2 – Turbine: Shutdowns of Unit I1 and Unit I2 and replacement with ten reciprocating internal combustion engines (RICE). RICE engines equipped with SCR system with a combined NO_x emission limit of 170 tpy. Controls constitute best available control technology (BACT) as determined by the Pima Department of Environmental Quality (PDEQ). RICE engines subject to applicable provisions of the New Source Performance Standard (NSPS) for Stationary Spark Ignition RICE (40 CFR 60, Subpart JJJJ) and National Emissions Standards for Hazardous Air Pollutants (NESHAP) for Stationary RICE (40 CFR 63 subpart ZZZZ).
- Unit I4:
 - NO_x emission limit of 0.25 lb./MMBtu based on a rolling 30 BOD basis.
 - SO₂ emission limit of 0.057 lb. MMBtu based on fuel sulfur documentation demonstrating the use of either natural gas or natural gas combined with landfill gas.
 - PM₁₀ emission limit of 0.010 lb./MMBtu determined from performance stack tests.

For ADEQ's 2022 Regional Haze SIP revision, it was determined that for purposes of efficiency and prioritization that a full four factor analysis of these emission process would likely result in a conclusion that no further controls were necessary. Per EPA guidance it is "reasonable and permissible for a state to distribute its own analytical work, and the compliance expenditures of source owners, over time by addressing some sources in the second implementation period and other sources in later periods."⁷³ Effectively controlled processes will be reevaluated in future rounds of regional haze planning.

In accordance with ADEQ's source screening methodology for the regional haze second implementation period, the emissions associated with the processes listed in Table 10 were removed from the calculation of the Q/d value. After re-calculating the Q/d value, the facility had a Q/d greater than the Departments threshold of 10. Therefore, the Irvington generating station was selected for control analysis in the second implementation period.

Enforceability Citations: 40 CFR 52.145(j) and Pima Department of Environmental Quality PSD Air Quality Permit 1052 (Issued on August 8, 2018).

⁷³ *supra* note 61.

Table 10: List of deferred emission processes for TEP – Irvington Generating Station.

Facility	Unit ID	Unit Description	Process ID	Process Description
Tucson Electric Power - Irvington	1	I1-Boiler	1.1	U1 Boiler - Natural Gas
Tucson Electric Power - Irvington	2	I2-Boiler	2.1	U2 Boiler - Natural Gas
Tucson Electric Power - Irvington	4	I4-Boiler	4.1	U4 Boiler - Natural Gas
Tucson Electric Power - Irvington	9	IGT1-Turbine	9.1	IGT1-Turbine-Natural Gas
Tucson Electric Power - Irvington	10	IGT2-Turbine	10.1	IGT2-Turbine-Natural Gas