

STATE OF ARKANSAS

Revisions to the Arkansas State Implementation Plan

Phase III Regional Haze SIP Revision for 2008–
2018 Planning Period

**Prepared by the
Arkansas Department of Environmental Quality
Office of Air Quality
Policy and Planning Branch**

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I. Introduction

A. Arkansas State Implementation Plan Revision

Arkansas has included in this state implementation plan (SIP) revisions to address approved and disapproved SIP provisions pertaining to Domtar Ashdown Mill (Ashdown Mill) in the Arkansas Regional Haze State Implementation Plan (AR RH SIP), which was submitted to the United States Environmental Protection Agency (EPA) in 2008. In 2012, EPA partially approved and partially disapproved the 2008 AR RH SIP, including the following provisions pertaining to Ashdown Mill:¹

- PM best available retrofit technology (BART) determination for Ashdown Mill Power Boiler No. 1 was approved;
- SO₂ and NO_x BART determinations for Ashdown Mill Power Boiler No. 1 were disapproved; and
- SO₂, NO_x, and PM BART determinations for Ashdown Mill Power Boiler No. 2 were disapproved.
- Long-term strategy as it applies to the disapproved BART determinations for the Ashdown Mill

In this SIP, Arkansas is revising all of the prior determinations for Ashdown Mill Power Boiler No. 1 and Power Boiler No. 2 included in the 2008 AR RH SIP. ADEQ solicits comment as to what provisions should be included in the Administrative Order (AO) for Ashdown Mill included with this SIP revision in the event that EPA takes final action to grant a §303 exemption for Ashdown Mill.

B. Arkansas SIP Components Included in this Revision

The following AO is included in this SIP revision: LIS No. [To be assigned upon finalization] between Domtar and ADEQ. ADEQ requests that EPA (i) approve the requirements of this AO into the SIP, (ii) withdraw from the SIP the previously approved PM limit for Ashdown Mill Power Boiler No. 1, and (iii) withdraw the AR RH FIP requirements for Ashdown Mill.

Inclusion of permanently enforceable emissions limitations and compliance schedules in the included AO is consistent with and allowable under federal programs.

Sampling, monitoring, and reporting requirements that are generally applicable to stationary sources, including sources for which emissions limitations are established in this SIP, are contained in SIP-approved Arkansas Pollution Control and Ecology Commission (APC&EC) Regulation No. 19: Chapter 7. No revisions to requirements in Regulation No. 19: Chapter 7 are necessary for this SIP revision.

¹ *Approval and Promulgation of Implementation Plans; Regional Haze State Implementation Plan; Interstate Transport State Implementation Plan to Address Pollution Affecting Visibility and Regional Haze.* (77 FR 14604, March 12, 2012)

II. Background

In 1977, Congress added § 169 to the Clean Air Act (CAA), which set forth the following goal for restoring pristine conditions in national parks and wilderness areas:

Congress hereby declares as a national 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 man-made air pollution.

In 1980, EPA issued regulations to address visibility degradation that is “reasonably attributable” to a single source or small group of sources. These regulations primarily addressed “plume blight”—visual impairment of air quality that manifests itself as a coherent plume—rather than overall haze. In 1988, EPA, the states, and federal land managers (FLMs) began monitoring fine particulate matter concentrations and visibility in thirty Class I areas to better understand the species of particulates causing visibility impairment.

The 1999 RHR sought to address the combined visibility effects of various pollution sources over a wide geographic region with the goal of achieving natural visibility conditions at designated Class I areas by 2064. This required all states, including those that did not have Class I areas to participate in planning, analysis, and emission control programs under the RHR. States with Class I areas were required to conduct certain analyses to establish goals for each Class I area in the state to 1) improve visibility on the haziest days and 2) ensure no degradation occurs on the clearest days. These goals and long-term strategies to achieve these goals were to be included in SIPs covering each ten-year period leading up to 2064. States were also required to submit progress reports in the form of SIP revisions every five years. The 1999 RHR also expanded the existing Class I visibility monitoring network to 108 Class I areas.

For the purposes of assisting with coordination and cooperation among states to address visibility issues, EPA designated five regional planning organizations (RPOs) to assist with coordination and cooperation among states in addressing visibility issues the states have in common. Arkansas was located in the CENRAP RPO. Figure 1 is a map depicting the five RPO regions designated by EPA.

Figure 1 Regional Planning Organizations



In SIPs covering the first ten-year period, states were also specifically required to evaluate controls for certain sources that were not in operation prior to 1962, were in existence in 1977, and had the potential to emit 250 tons per year or more of any air pollutant. These sources were referred to as “BART-eligible sources.” States were required to make BART determinations for all BART-eligible sources or consider exempting some sources from BART requirements because they did not cause or contribute to visibility impairment in a Class I area. BART-eligible sources that were determined to cause or contribute to visibility impairment in a Class I area were subject to BART controls. In determining BART emissions limitations for each subject-to-BART source, States were required to take into account the existing control technology in place at the source, the cost of compliance, energy and nonair environmental impacts of compliance, remaining useful life of the source, and the degree of visibility improvement that was reasonably anticipated from use of each technology considered. States also had the flexibility to choose an alternative to BART, such as an emissions trading program, which would achieve greater reasonable progress in visibility protection than implementation of source-by-source BART controls. SIPs for the first ten-year planning period were due on December 17, 2007.

In 2005, EPA issued a revised BART rule pursuant to a partial remand of the 1999 RHR by the U.S. Court of Appeals of the DC District Court in 2002.² The Court had remanded the BART provisions of the 1999 RHR to EPA and denied industry’s challenge to the RHR goals of natural visibility and no degradation. The revised BART rule included guidelines for states to use in determining which facilities must install controls and the type of controls the facilities must use.

² *American Corn Growers Assn. v. EPA*, 291 F.3d.1 (D.C. Cir. 2002)

In addition to revisions to BART, EPA has also issued rulemakings establishing the CAIR and its successor the CSAPR as approvable alternatives to source-by-source BART controls for electric generating units.³ In 2017, EPA has also finalized amendments to regulatory requirements for state regional haze plans for the second planning period and beyond.⁴ EPA has also announced it will be revising certain aspects of the 2017 amendments.

On September 9, 2008, Arkansas submitted a SIP for the 2008–2018 planning period to comply with regional haze regulations promulgated as of 2005 codified at 40 C.F.R. Part 51. In a 2012 action on the 2008 AR RH SIP, EPA partially approved and partially disapproved the SIP.⁵ This partial approval/partial disapproval of the 2008 AR RH SIP triggered a requirement for EPA to either approve a SIP revision by Arkansas or promulgate a federal implementation plan (FIP) within twenty-four months of the final rule partially approving and partially disapproving the 2008 AR RH SIP.

In the 2012 partial approval/partial disapproval of the 2008 AR RH SIP, EPA approved the following elements of the 2008 AR RH SIP:

- Identification of Class I areas affected by sources in Arkansas;
- Determination of baseline and natural visibility conditions;
- Determination of a uniform rate of progress (URP);
- BART-eligible sources and subject-to-BART sources other than Georgia Pacific Crossett Mill;
- Select BART determinations:
 - PM determination on SWEPCO Flint Creek Plant Boiler No. 1;
 - SO₂ and PM determinations for the natural gas firing scenario for Entergy Lake Catherine Plant Unit 4;
 - PM determinations for both bituminous and sub-bituminous coal firing scenarios for Entergy White Bluff Plant Units 1 and 2; and
 - PM determination for Ashdown Mill Power Boiler No. 1;
- Consultation with FLMs and other states regarding RPGs and long-term strategy;
- Coordination of regional haze and reasonably attributable visibility impairment (RAVI);
- Regional haze monitoring strategy and other SIP requirements under 40 C.F.R. 51.308(d)(4);
- A commitment to submit periodic regional haze SIP revisions; and

³ *Regional Haze Regulations; Revisions to Provisions Governing Alternative to Source-Specific Best Available Retrofit Technology (BART) Determinations* (71, FR 60612, October 13, 2006)

Regional Haze Regulations; Revisions to Provisions Governing Alternative to Source-Specific Best Available Retrofit Technology (BART) Determinations, Limited SIP Disapprovals, and Federal Implementation Plans (77 FR 33642, June 7, 2012).

⁴ *Protection of Visibility: Amendments to Requirements for State Plans* (82 FR 3078, January 10, 2017)

⁵ *Approval and Promulgation of Implementation Plans; Regional Haze State Implementation Plan; Interstate Transport State Implementation Plan to Address Pollution Affecting Visibility and Regional Haze*. (77 FR 14604, March 12, 2012)

- A commitment to submit periodic progress reports that include a description of progress toward RPG and a determination of adequacy of the existing SIP.

EPA disapproved the following elements of the 2008 AR RH SIP:

- BART compliance dates;
- Determination that Georgia Pacific Crossett Mill units were not subject-to-BART;
- Select BART determinations:
 - SO₂, NO_x, and PM BART determinations for AECC Bailey Plant Unit 1;
 - SO₂, NO_x, and PM BART determinations for AECC McClellan Plant Unit 1;
 - SO₂ and NO_x BART determinations for SWEPCO Flint Creek Plant Boiler No. 1;
 - SO₂, NO_x, and PM BART determinations for the fuel oil firing scenario and NO_x BART determination for the natural gas firing scenario at Entergy Lake Catherine Plant Unit 4;
 - SO₂ and NO_x BART determinations under both bituminous and sub-bituminous coal firing scenarios for Entergy White Bluff Units 1 and 2;
 - BART determination for Entergy White Bluff Plant Auxiliary Boiler;
 - SO₂ and NO_x BART determinations for Ashdown Mill Power Boiler No. 1; and
 - SO₂, NO_x, and PM BART determinations for Ashdown Mill Power Boiler No. 2;
- RPGs; and
- Long-term strategy.

On September 27, 2016, EPA finalized a regional haze FIP for Arkansas (AR RH FIP).⁶ This FIP established new BART requirements for those sources whose BART determinations in the 2008 AR RH SIP were disapproved. The FIP also required the installation of controls at Entergy Independence Units 1 and 2. Despite the previous disapproval of ADEQ's determination in the 2008 AR RH SIP that Georgia Pacific Crossett Mill Boiler 6A and 9A did not cause or contribute to visibility impairment in a Class I area, EPA reversed its decision and concurred with ADEQ that Georgia Pacific Crossett Mill Boiler 6A and 9A are not subject to BART.

On November 22, 2016, the State of Arkansas filed a Petition for Reconsideration and Administrative Stay of the AR RH FIP. In the petition, the State of Arkansas requested that EPA reconsider the AR RH FIP based on new information not raised during the comment period that was of central relevance to the outcome of the FIP. Arkansas asserted that EPA should reconsider controls on Entergy Independence in light of recent data from the IMPROVE monitoring network that shows that Arkansas has already achieved the amount of progress required for the 2008–2018 planning period without having implemented the controls required in the FIP. Arkansas requested that EPA reconsider NO_x emissions limitations placed on BART-eligible facilities in light of the recent rulemaking that increased the stringency of the CSAPR.

⁶ *Promulgation of Air Quality Implementation Plans; State of Arkansas; Regional Haze and Interstate Visibility Transport Federal Implementation Plan; Final Rule* (81 FR 66332, September 27, 2016)

Arkansas also requested reconsideration of the use of low sulfur coal as BART for SO₂ at Entergy White Bluff during the 2008–2018 planning period. Lastly, Arkansas requested an immediate administrative stay pending completion of EPA’s reconsideration of the AR RH FIP.

On November 22, 2016, Domtar filed a Petition for Reconsideration of the AR RH FIP provisions relevant to Ashdown Mill. The petition was based on an analysis performed by Domtar demonstrating that the FIP controls were not reasonably anticipated to achieve improvements in visibility.

Domtar also filed a Petition for Review with the United States Court of Appeals for the Eighth Circuit. Similar to the Arkansas petition described below, the Domtar petition is being held in abeyance by the Court pending the current efforts to develop a SIP replacement to the FIP.

On February 3, 2017, the State of Arkansas filed a Petition for Review of the AR RH FIP with the United States Court of Appeals for the Eighth Circuit. On March 8, 2017, the Court held the case in abeyance for ninety days. On April 14, 2017, EPA issued a letter notifying Arkansas that the Agency was convening the reconsideration process for the following:

- Compliance dates for NO_x emissions limitations for Flint Creek Unit 1, White Bluff Units 1 and 2, and Independence Units 1 and 2;
- Low-load NO_x limitations applicable to White Bluff Units 1 and 2 and Independence Units 1 and 2 during periods of operation at less than fifty percent of the unit’s maximum heat input rating;
- SO₂ emissions limitations for White Bluff Units 1 and 2; and
- Compliance dates for SO₂ emissions limitations for Independence Units 1 and 2.

On April 25, 2017, EPA published in the Federal Register a partial stay of the effectiveness of the AR RH FIP (82 FR 18994). Specifically, EPA stayed from April 25, 2017 until July 24, 2017 (ninety days) the compliance dates for the NO_x emissions limitations at AECC Flint Creek Unit 1, White Bluff Units 1 and 2, and Independence Units 1 and 2, as well as the compliance dates for the SO₂ emissions limitations for White Bluff units 1 and 2 and Independence Units 1 and 2. This action did not alter or extend the ultimate compliance dates for these units nor did it stay requirements for other units subject to the FIP.

On July 8, 2017, ADEQ proposed revisions to the State’s Regional Haze SIP specifically to address NO_x from electric generating units (NO_x Regional Haze SIP). The NO_x Regional Haze SIP revision sought to replace source-specific NO_x BART determinations included in the 2008 AR RH SIP, as well as the NO_x limitations promulgated under the AR RH FIP, with reliance on the CSAPR trading program. The NO_x Regional Haze SIP revision proposal demonstrates that Arkansas meets all of the current requirements under 40 C.F.R. § 51.308(e)(4) for an alternative to NO_x BART. ADEQ submitted the proposed NO_x Regional Haze SIP to EPA Region 6 on July 12, 2017 and requested parallel processing. EPA proposed approval of the NO_x Regional

Haze SIP on September 11, 2017.⁷ ADEQ finalized the NOx Regional Haze SIP on October 31, 2017. EPA finalized approval of the NOx Regional Haze SIP on February 12, 2018.⁸

On July 31, 2017, the Eighth Circuit Court of Appeals granted a motion by the parties to hold the case in which the EPA's FIP is at issue in abeyance until September 26, 2017. On October 2, 2017, the court subsequently issued an order that continued the abeyance until October 31, 2017, as requested by the parties' joint status report. Subsequent abeyance Orders were issued by the Court. The most recent was issued on June 6, 2018 for 90 days.

On October 31, 2017, ADEQ proposed a second SIP revision (Phase II Regional Haze SIP) to address the remaining disapproved SIP elements, with the exception of requirements for Ashdown Mill. ADEQ submitted the final Phase II SIP to EPA on August 9, 2018.

This SIP revision is intended to only address requirements for Ashdown Mill and to replace requirements for Ashdown Mill in the AR RH FIP and the 2008 AR RH SIP with the requirements included in this SIP revision. ADEQ is not proposing to revise to either the NOx Regional Haze SIP or Phase II Regional Haze SIP in this SIP revision.

III. Domtar Industries, Inc. Ashdown Mill Analyses and Requirements

Two power boilers at Ashdown Mill were determined to be subject to BART in the 2008 AR RH SIP: Power Boiler No. 1 and Power Boiler No. 2. Power Boiler No. 1 was installed in 1967–68 and has a design heat input rate of 580 MMBtu/hr. Power Boiler No. 1 was previously capable of burning a variety of fuels including bark, wood waste, tire-derived fuel, municipal yard waste, pelletized paper fuel, fuel oil, reprocessed fuel oil and natural gas; however, Power Boiler No. 1 is currently restricted by permit to burning natural gas. Power Boiler No. 2 was installed in 1975 and has a design heat input rate of 820 MMBtu/hr. Power Boiler No. 2 is capable of burning a variety of fuels including clean cellulosic biomass, coal, tire-derived fuel, natural gas, wood chips used to absorb oil for energy recovery and petroleum coke.

Ashdown Mill Power Boiler No. 1 and Power Boiler No. 2 were determined to be subject to BART in the 2008 AR RH SIP based on modeling performed using a 2001–2003 emissions baseline. Therefore, the five BART statutory factors were evaluated for each boiler. A summary of the BART analyses performed and emission limit determinations, both the EPA-approved emission limit from the 2008 AR RH SIP and those emission limits established in the AR RH FIP, are included in Section III.A. On March 20, 2018, Domtar provided information to ADEQ regarding an alternative to BART that would achieve greater visibility improvements than the

⁷ *Approval and Promulgation of Implementation Plans; Arkansas; Approval of Regional Haze State Implementation Plan Revision and Withdrawal of Federal Implementation Plan* (82 FR 42627, September 11, 2017)

⁸ *Air Quality State Implementation Plans; Approvals and Promulgations: Arkansas; Approval of Regional Haze State Implementation Plan Revision for Nitrogen Oxide for Electric Generating Units in Arkansas* (83 FR 5927, February 12, 2018)

BART controls included in the AR RH FIP. On September, 5, 2018, Domtar provided to ADEQ a revised proposed BART Alternative for consideration by ADEQ to accommodate potential further changes in operation at the Ashdown Mill. Section III.B of this SIP summarizes the revised BART Alternative submission.

A. Summary of BART Determinations for Ashdown Mill

Based on BART analyses (dated October 2006 and March 2007), ADEQ determined in the 2008 AR RH SIP emission limits for Ashdown Mill Power Boiler No. 1 and Power Boiler No. 2. The PM BART limit for Ashdown Mill Power Boiler No. 1 was approved by EPA; however, EPA disapproved the other emission limits for Ashdown Mill included in the 2008 AR RH SIP.⁹ In the AR RH FIP, EPA promulgated SO₂ and NO_x emission limits for Power Boiler No. 1 and SO₂, NO_x, and PM emission limits for Power Boiler No. 2 based on the 2006 and 2007 analyses, as well as a revised BART analysis (dated May 2014).¹⁰ The BART limits for Ashdown Mill included in the AR RH FIP and the approved PM BART limit for Power Boiler No. 1 included in the 2008 AR RH SIP are listed in the table below.

Table 1 EPA-Approved SIP and FIP BART Emission Limits for Ashdown Mill

Unit	SO ₂ Emission Limit	NO _x Emission Limit	Final PM emission limit
Ashdown Mill Power Boiler No. 1	504 lb/day	207.4 lb/hr	0.07 lb/MMBtu
Ashdown Mill Power Boiler No. 2	91.5 lb/hr	345 lb/hr	Satisfied by reliance on applicable PM standard under 40 CFR part 63, subpart DDDDD

Table 2 provides the cumulative visibility improvement predicted for each Class I area impacted by Arkansas sources—Caney Creek Wilderness Area (CACR), Upper Buffalo Wilderness Area (UPBU), Mingo Wildlife Refuge (MING), and Hercules Glades (HEGL)—based on CALPUFF modeling of the control scenario contained in Table 1 following method 2 as described below.

⁹ *Approval and Promulgation of Implementation Plans; Regional Haze State Implementation Plan; Interstate Transport State Implementation Plan to Address Pollution Affecting Visibility and Regional Haze.* (77 FR 14604, March 12, 2012). See Docket No. EPA-R06-OAR-2008-0727 for the approved PM BART analysis for Power Boiler No.1.

¹⁰ *Promulgation of Air Quality Implementation Plans; State of Arkansas; Regional Haze and Interstate Visibility Transport Federal Implementation Plan; Final Rule* (81 FR 66332, September 27, 2016). See “AR020.0002-00 TSD for EPA's Proposed Action on the AR RH FIP” in Docket No. EPA-R06-OAR-2015-0189 for the FIP BART analysis for SO₂ and NO_x BART for Power Boiler No. 1 and SO₂, NO_x, and PM BART for Power Boiler No. 2.

Table 2 Method 2 Cumulative Visibility Improvement Due to BART SIP and FIP Controls for Ashdown Mill

Description	BART 98th Percentile Visibility Impacts – Max of Three Modeled Years (Δdv)			
	CACR	UPBU	HEGL	MING
Baseline	1.137	0.163	0.118	0.072
Control Scenario	0.776	0.103	0.057	0.038
Calculated Improvement	0.361	0.060	0.061	0.034
Cumulative Improvement	0.516			

ADEQ has determined that visibility benefits contained in Table 2 associated with 2008 AR RH SIP and AR RH FIP BART control scenario for Ashdown Mill contained in Table 1 form an appropriate BART benchmark for the purposes of the evaluation of Domtar's BART alternative proposal.

B. Ashdown Mill BART Alternative

On March 20, 2018, Domtar provided to ADEQ a proposed BART alternative based on boiler operational changes, fuel switching and repurposing of Ashdown Mill to produce fluff paper. On September 5, 2018, Domtar proposed to ADEQ a revised BART alternative responsive with new emission limits and modeling that would accommodate potential further changes in operation at the Ashdown Mill. Domtar's revised BART Alternative Analysis is included with this SIP revision. Table 3 contains the modeled emission rates for the alternative to BART. Domtar's revised BART Alternative Analysis for Domtar is included with this SIP revision. The BART alternative emissions reductions are based on operational changes for Domtar and are surplus to reductions required to meet other Clean Air Act requirements as of the 2000–2004 baseline of 2008 AR RH SIP, as revised by Arkansas.

Table 3 BART Alternative Emission Rates

Unit	Modeled Emission Rates		
	SO ₂ (lb/hr)	NO _x (lb/hr)	PM (lb/hr)
Power Boiler No. 1 on natural gas only	0.5	191.10	5.2
Power Boiler No. 2 at adjusted emission rates for SO ₂ and NO _x	435	293	81.6

Domtar provided two methods for evaluation of the revised BART Alternative. Method 1 assesses visibility impairment on a per source per pollutant basis and does not account for the full chemical interactions of emissions from the two units. Method 1 was performed to create a direct comparison with the approach EPA used in the AR RH FIP. In Method 2, all sources and pollutants are combined into a single modeling run per year. In Method 2, the baseline and

control scenarios for BART from the AR RH FIP were remodeled. Comparisons of the cumulative and average visibility improvement across affected Class I areas anticipated from the revised proposed BART Alternative to the cumulative visibility improvement anticipated from the FIP BART limits are included in Table 4 for Method 1 and Table 5 for Method 2.

Table 4 Method 1 Comparison of Cumulative Visibility Improvement

Description	Unit	Pollutant	BART 98th Percentile Visibility Impacts – Max of Three Modeled Years (Δdv)				BART Alternative 98th Percentile Visibility Impacts – Max of Three Modeled Years (Δdv)			
			CACR	UPBU	HEGL	MING	CACR	UPBU	HEGL	MING
Baseline	1	Both	0.335	0.038	0.020	0.014	0.335	0.038	0.020	0.014
	2	Both	0.844	0.146	0.105	0.065	0.844	0.146	0.105	0.065
	Both	Both	1.179	0.184	0.125	0.079	1.179	0.184	0.125	0.079
Control Scenario	2	SO ₂	0.524	0.082	0.046	0.035	0.286	0.033	0.017	0.011
	2	NO _x					0.493	0.082	0.059	0.037
	2	Both	0.524	0.082	0.046	0.035	0.779	0.115	0.076	0.048
Calculated Improvement	2	SO ₂	0.139	0.050	0.048	0.025	0.049	0.005	0.003	0.003
	2	NO _x	0.181	0.014	0.011	0.005	0.351	0.064	0.046	0.028
	2	Both	0.320	0.064	0.059	0.030	0.400	0.069	0.049	0.031
Cumulative Improvement	Both	Both	0.473				0.549			
Average Improvement	Both	Both	0.118				0.137			

Table 5 Method 2 Comparison of Cumulative Visibility Improvement

Description	BART 98th Percentile Visibility Impacts – Max of Three Modeled Years (Δ dv)				BART Alternative 98th Percentile Visibility Impacts – Max of Three Modeled Years (Δ dv)			
	CACR	UPBU	HEGL	MING	CACR	UPBU	HEGL	MING
Baseline	1.137	0.163	0.118	0.072	1.137	0.163	0.118	0.072
Control Scenario	0.776	0.103	0.057	0.038	0.753	0.104	0.069	0.044
Calculated Improvement	0.361	0.060	0.061	0.034	0.384	0.059	0.049	0.028
Cumulative Improvement	0.516				0.520			
Average Improvement	0.129				0.130			

C. ADEQ’s Evaluation of the Ashdown Mill BART Alternative

Under 40 C.F.R. § 51.308(e)(2), a state “may opt to implement or require participation in an emissions trading program *or other alternative measure* rather than to require sources subject to BART to install, operate, and maintain BART.”

The RHR requires the following three elements for any alternative to BART:

- (1) A demonstration that the emissions trading program or other alternative measure will achieve greater reasonable progress than would have resulted from the installation and operation of BART at all sources subject to BART in the State and covered by the alternative program.¹¹
- (2) A requirement that all necessary emissions reductions take place during the period of the first long-term strategy for regional haze.¹²
- (3) A demonstration that the emissions reductions resulting from the alternative measure will be surplus to those reductions resulting from measures adopted to meet requirements of the CAA as of the baseline date of the SIP.¹³

ADEQ has evaluated the Ashdown Mill BART Alternative with respect to each of the three alternative to BART elements listed in 40 CFR 51.308(e)(2) and has determined that the proposed BART Alternative described in Section III.B. is an acceptable alternative to the BART limitations described in Section III.A. An explanation of how each of the elements is satisfied by the Ashdown Mill BART Alternative is provided below.

¹¹ 40 CFR 51.308(e)(2)(i)

¹² 40 CFR 51.308(e)(2)(iii)

¹³ 40 CFR 51.308(e)(2)(iv)

1. Demonstration that the Alternative Measure will Achieve Greater Reasonable Progress

Pursuant to 40 CFR 51.308(e)(2)(i), an alternative to BART must achieve greater progress than would have resulted from installation and operation of BART at all sources subject to BART in the State and covered by the alternative program. This demonstration must be based on five criteria, which are addressed below.

a. A list of all BART-eligible sources within the State

A list of all BART-eligible sources within the State was submitted to EPA in the 2008 AR RH SIP. This list was corrected in the SIP narrative of the 2018 Phase II Regional Haze SIP revision. No changes to the list of BART-eligible sources within Arkansas are necessary for this SIP revision.

b. A list of all BART-eligible sources and all BART source categories covered by the alternative program

Ashdown Mill is the sole source covered by the BART alternative proposed by Domtar. All other BART-eligible sources and units in the State have been addressed in separate submissions.¹⁴

c. Analysis of BART and associated emission reductions

The 2008 AR RH SIP, the PM BART emission limit for Power Boiler No. 1 and the AR RH FIP BART emission limits for Power Boiler No. 1 and Power Boiler No. 2 were based on BART five-factor analyses that are summarized in Section III.A. of this SIP and included with this SIP revision.¹⁵ Table 6 compares annual emissions based on maximum baseline emissions rates to the emission limits for BART included in Table 1.

¹⁴ 2008 AR RH SIP, 2017 NOx Regional Haze SIP, 2018 Phase II Regional Haze SIP

¹⁵ ADEQ considers BART as specified in Table 1 of page 8 and 9 to be appropriate for the purposes of the alternative to BART evaluation specific in 40 CFR §51.308(e)(2)(i)(C)-(D). The BART analyses underlying these limits are included with this SIP revision.

Table 6 Comparison of Baseline¹⁶ and BART¹⁷ Emission Reductions Based on Baseline Maximum Actual 24-Hour Emissions (Power Boiler No. 1 and Power Boiler No. 2 Total)

	NOx (tpy)	PM (tpy)	SO ₂ (tpy)
Baseline	3216	491	3544
BART	2420	537 ¹⁸	493
Emission Reduction	796	-46	3052

d. Analysis of projected emission reductions achievable through the BART Alternative

ADEQ has calculated emissions reductions achievable through the BART Alternative by comparing estimated annual emissions under the BART Alternative scenario with baseline emissions based on maximum baseline emission rates.¹⁹ Table 7 compares the annual emissions based on maximum baseline emissions rates to the estimated annual emissions under the BART Alternative.

Table 7 Comparison of Baseline¹⁹ and BART Alternative Emission Reductions (Power Boiler No. 1 and Power Boiler No. 2 Total for BART Alternative Operating Scenario)

	NOx (tpy)	PM (tpy)	SO ₂ (tpy)
Baseline	3216	491	3544
BART Alternative	2120	380	1907
Emission Reduction	1096	111	1637

e. Determination that the alternative achieves greater reasonable progress than would be achieved through the installation and operation of BART

Pursuant to 40 CFR 51.308(e)(2)(i)(E), ADEQ must determine whether an alternative to BART achieves greater reasonable progress based on the requirements set forth in 40 C.F.R. § 51.308(e)(3) or otherwise based on a clear weight of evidence that the alternative measure achieves greater reasonable progress than would be achieved through installation and operation

¹⁶ 2009-2011 for Power Boiler No. 1 and 2001-2003 for Power Boiler No. 2, per TSD for EPA's Proposed Action on the Arkansas Regional Haze Federal Implementation Plan (February 2015)

¹⁷ Annual emissions estimates for BART are based on the sum of hourly emission rates for Power Boiler No. 1 and Power Boiler No. 2 multiplied by 8760 hours. These rates are based on the PM BART limit for Power Boiler No. 1 from the 2008 AR RH SIP and the BART limits from the 2016 AR RH FIP (See Spreadsheet Domtar_Comparison TPY Emission Calculations included with this SIP revision)

¹⁸ This value is based on a permit limit of 0.1 lb/MMBtu for Power Boiler No. 2, which is more stringent than the EPA FIP limit of 0.44 lb/MMBtu.

¹⁹ Annual emissions estimates under the BART Alternative Scenarios are based on the sum of hourly emission rates for Power Boiler No. 1 and Power Boiler No. 2 multiplied by 8760 hours.

of BART at the covered sources. 40 C.F.R. § 51.308(e)(3) provides two tests for determining whether an alternative achieves greater visibility progress than BART:

- (1) If the distribution of emissions is not substantially different than under BART, and the alternative measure results in greater emission reductions, then the alternative measure may be deemed to achieve greater reasonable progress.
- (2) If the distribution of emissions is significantly different, the State must conduct dispersion modeling to determine differences in visibility between BART and the trading program or alternative measure for each impacted Class I area, for the worst and best twenty percent of days. The modeling would demonstrate “greater reasonable progress” if both of the following two criteria are met: visibility does not decline in any Class I area, and there is an overall improvement in visibility, determined by comparing the average differences between BART and the alternative over all affected Class I areas.

Based on the data provided by Domtar in their Ashdown Mill BART Alternative Analysis, ADEQ has performed a weight-of-evidence (WOE) analysis to determine whether the Ashdown Mill satisfies the requirements of 51.308(e)(2)(i)(E). This WOE analysis is based on a comparison of emissions under the BART control scenario and the BART Alternative scenario as well as a modified modeling analysis based on 98th percentile impacts of the BART benchmark versus the BART alternative on affected Class I areas.

The distribution of emissions is substantially different in the BART Alternative scenario than under BART scenario for Ashdown Mill. As indicated in Tables 6 and 7, The NO_x reduction under the BART Alternative is greater than would be achieved under the BART scenario. The SO₂ emission reduction for the BART Alternative would be less than would be achieved under the BART scenario. The PM emission reduction for the BART Alternative would be greater than would be achieved by the BART scenario.

In the revised BART Alternative Technical Support Document, Domtar provided CALPUFF dispersion modeling based on the 98th percentile visibility impacts. This modeling approach differs from the modeling contemplated under 40 CFR 51.308(e)(3); however, the approach is consistent the BART Guidelines recommendations for comparing control alternatives at a single source and is appropriate for the comparison of the proposed BART alternative to BART for Ashdown Mill. Domtar provided two methods for the modeling evaluation of the revised BART Alternative. Method 1 assesses visibility impairment on a per source per pollutant basis and does not account for the full chemical interactions of emissions from the two units. Method 1 was performed to create a direct comparison with the approach EPA used in the AR RH FIP. In Method 2, all sources and pollutants are combined into a single modeling run per year. In Method 2, the baseline and control scenarios for BART from the AR RH FIP were remodeled.

The modeling results for both methods demonstrate that the Ashdown Mill BART Alternative would result in greater cumulative visibility improvement for the 98th percentile visibility

impacts at Class I areas impacted by Arkansas sources than the AR RH FIP BART emission limits. Table 4 and Table 5 in Section III.B. compare the cumulative visibility improvement anticipated from the BART Alternative to the cumulative visibility improvement anticipated from AR RH FIP BART controls. ADEQ notes that the Class I area where Ashdown Mill has historically had the greatest impact on visibility, CACR, would also experience greater visibility improvement under the BART Alternative scenario than under the BART scenario. Ashdown Mill's baseline, BART scenario, and BART Alternative scenario 98th percentile visibility impacts on the other three affected Class I areas—UPBU, MING, and HEGL—are all smaller than ADEQ's screening threshold of 0.5 dv used for determining whether a source is subject to BART.

The modeling results for both methods also demonstrate that visibility would not decline from the baseline at any of the affected Class I areas as a result of the Ashdown Mill BART Alternative and that the cumulative visibility improvement under the BART Alternative is greater than would be achieved under the BART scenario for Ashdown Mill. The average visibility improvement across affected areas would also be greater under the BART Alternative than under the FIP emission limits for Ashdown Mill based on both methods. Because Method 2 provides a more accurate account of the chemical interaction of emissions from Ashdown Mill Power Boiler No. 1 and 2; ADEQ places more weight on the Method 2 results. Nevertheless, ADEQ finds that Method 1 results, which also shows greater cumulative and average visibility improvements across affected Class I areas is also a valid method for comparison of the visibility impacts between the BART Alternative and BART limits for Ashdown Mill consistent with the methodology used in the AR RH FIP. Therefore, ADEQ concludes based on the weight of evidence that the BART Alternative would achieve greater reasonable progress than would be achieved through the installation and operation of BART.

In addition, the BART analysis performed for Ashdown Mill is based, in part, on an assessment of the same factors that must be assessed under reasonable progress requirements set forth at 40 CFR 51.308(f)(2)(i). EPA's 2007 Reasonable Progress Guidance instructs state that "it is reasonable to conclude that any control requirements imposed in the BART determination also satisfy [reasonable progress goals]-related requirements for source review in the first [reasonable progress goals] planning period." Because the requirements under the Ashdown Mill BART Alternative result in greater visibility progress than the BART emission limits determined by EPA and the EPA-approved BART PM limit for Ashdown Mill, ADEQ concludes that no further analysis of controls for reasonable progress beyond the Ashdown Mill BART Alternative is necessary.

2. Requirement that Emission Reductions Take Place during the Period of the First Long-Term Strategy

Pursuant to 40 CFR 51.308(e)(2)(iii), all necessary emission reductions for a BART alternative must take place during the period of the first long-term strategy for the Regional Haze Program. ADEQ has included with this SIP submission AO LIS NO. [To be assigned upon finalization],

which contains enforceable limitations and compliance dates for the Ashdown Mill BART alternative. Compliance with the emission limits contained in the AO is required as of the effective date of the final AO. The effective date of the final AO is upon signature of the AO by the Director of ADEQ. Therefore, 40 CFR 51.308(e)(2)(iii) is satisfied if the AO is effective prior to the end of the period of the first long-term strategy.

3. Demonstration that Emissions Reductions from the BART Alternative will be Surplus Pursuant to 40 CFR 51.308(e)(2)(iv), the emissions reductions resulting from the BART alternative must be surplus to those reductions resulting from measures adopted to meet requirements of the Clean Air Act as of the baseline date of the SIP. The BART alternative emissions reductions are based on changes in operational scenarios for Domtar and are surplus to reductions required to meet other Clean Air Act requirements as of the 2000–2004 baseline of 2008 AR RH SIP, as revised by Arkansas.

IV. Long-Term Strategy

ADEQ is not proposing changes to elements of the long-term strategy in this SIP revision with the exception of the inclusion of enforceable limitations and compliance schedules for Domtar Ashdown Mill. ADEQ finds that the BART Alternative for Domtar has a negligible impact on the reasonable progress goals previously established in the 2018 Regional Haze Phase II SIP; therefore, ADEQ is not proposing changes to these goals in this SIP revision.²⁰

A. Enforceable Limitations and Compliance Schedules for Ashdown Mill

AO LIS No. [To be assigned upon finalization] included with this SIP revision requires compliance by Domtar with the emission limits contained in Table 7.

Table 8 Emission Limitations for Ashdown Mill

Unit	SO ₂ (lb/hr)	NO _x (lb/hr)	PM (lb/hr)
Power Boiler No. 1	0.5	191.10	5.2
Power Boiler No. 2	435	293	81.6

Compliance with SO₂ and NO_x emissions limits for Power Boiler No. 1 is based on 30 boiler-operating-day rolling average for NO_x and SO₂. These averages are to be calculated by no later than fifteen days after the end of the month based on fuel usage records and the following AP-42

²⁰ See Phase III SIP Rev RPG Spreadsheet included with this SIP revision.

emission factors: 280 lb-NO_x/MMscf and 0.6 lb-SO₂/MMscf.²¹ Compliance with the PM emissions limit for Power Boiler No. 1 is satisfied by burning only pipeline quality natural gas.²²

Compliance with NO_x and SO₂ emission limits for Power Boiler No. 2 are based on 30 boiler-operating-day rolling averages for NO_x and SO₂ determined by using data from a continuous emission monitoring system, unless the permit for Ashdown Mill is revised such that Power Boiler No. 2 is permitted to only burn natural gas. Compliance with the PM emission limit for Power Boiler No. 2 is to be demonstrated using records of PM compliance testing under Boiler MACT for Power Boiler No. 2, unless such testing requirements are no longer required under federal law. If testing requirements under Boiler MACT are no longer required under federal law, compliance is to be demonstrated via records of compliance testing with EPA Reference Method 5 every five years except as provided for in the paragraph below.

If the permit for Ashdown Mill is revised such that Power Boiler No. 2 is permitted to only burn natural gas, compliance with SO₂ and NO_x emission limits for Power Boiler No. 2 may be calculated using the same procedures as specified above for Power Boiler No. 1 and compliance with the PM emission limit for Power Boiler No. 2 will be satisfied by burning only pipeline quality natural gas.

B. Domtar's Application to EPA for an Exemption from BART Requirements

Domtar is pursuing an exemption by EPA for Ashdown Mill from BART requirements pursuant to 40 C.F.R. § 51.303 ("§ 303 exemption"). ADEQ solicits comment on whether and how to consider Domtar's application to EPA for a §303 exemption in this SIP revision and/or the accompanying AO.

C. Federal Land Manager Consultation

In accordance with the provisions of 40 C.F.R. § 51.308(i)(2), ADEQ will continue to consult with the designated FLM staff personnel. This consultation will give FLMs the opportunity to discuss their assessment of the impact of the proposed SIP revisions on Arkansas Class I areas—Upper Buffalo Wilderness Area and Caney Creek Wilderness Area—and other Class I areas.

On August 9, 2018 ADEQ submitted letters to notify the federal land manager staff of this proposed SIP revision and to provide them with electronic access to the revision and related documents. Any comments received from the FLMs will be considered and posted to ADEQ's Regional Haze webpage: <https://www.adeq.state.ar.us/air/planning/sip/regional-haze.aspx>. Comments from FLMs and responses will be included in the final SIP package.

²¹ AP-42 factors applicable to Power Boiler No. 11 can be found in AP-42 Chapter 1 at Tables 1.4-1 and 1.4-2. <https://www3.epa.gov/ttn/chief/ap42/ch01/final/c01s04.pdf>

²² The PM emission limit for Power Boiler No. 1 is based on application of the applicable AP-42 emission factor for total PM in Table 1.4-2 (7.6 lb/MMscf), the maximum heat input rate (580 MMBtu/hr) for the unit, and a twenty percent safety factor. Therefore, combustion of only natural gas by Power Boiler No. 1 at or below its maximum heat input rate is sufficient to demonstrate compliance with the a 5.2 lb/hr Alternative to BART emission limit for Power Boiler No. 1.

D. Consultation with States

For the 2008 AR RH SIP, ADEQ engaged in extensive interstate consultation with states participating in the CENRAP RPO. Because Missouri has two Class I areas impacted by Arkansas sources, ADEQ submitted a letter on August 9, 2018 to Missouri Department of Natural Resources (DNR) air pollution control program staff to notify them of this proposed SIP revision and to provide them with electronic access to the revision and related documents. Any comments received from Missouri DNR will be considered and posted to ADEQ's Regional Haze webpage. Comments from Missouri DNR and responses will be included in the final SIP package.

E. Public Review

ADEQ will provide notice of a public hearing to receive public comments on this proposed SIP revision. The notice of the proposal and public hearing will be published in the Arkansas Democrat Gazette, which is a newspaper in circulation statewide, at least thirty days prior to the public hearing and will be posted on ADEQ's website concurrently with newspaper publication of the public notice. The notice will provide logistical information regarding the public hearing and the length of the public comment period. The public comment period for this SIP revision will be at least thirty days in accordance with notice requirements under 40 C.F.R. §51.102.

The notice contains information on the availability of the proposed SIP revision for public inspection at ADEQ information depositories, ADEQ headquarters, and ADEQ's Regional Haze webpage.

Both oral and written comments received by ADEQ during the public comment period will be posted on the ADEQ Regional Haze web page. Copies of written comments, a summary of ADEQ's response to comments, and records from the public hearing will be included in the final SIP package.

F. EPA Review

The State of Arkansas plans to submit this SIP revision to EPA for review following the public comment period and finalization of this SIP revision. ADEQ requests that EPA review and approve this SIP revision as expeditiously as possible and withdraw emission limitations for Domtar Ashdown Mill Power Boiler Nos. 1 and 2 from the AR RH FIP. In addition, ADEQ requests that EPA replace the previously-approved BART emission limits for Domtar Power Boiler No. 1 included in the 2008 AR RH SIP with the emission limitations included in this SIP revision.