No. ______

In The
Supreme Court of the United States

STATE OF NORTH DAKOTA,

Petitioner,

v.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, et al.,

Respondents.

On Petition For A Writ Of Certiorari To The United States Court Of Appeals For The Eighth Circuit

PETITION FOR A WRIT OF CERTIORARI

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QUESTION PRESENTED FOR REVIEW

Whether the Eighth Circuit applied the incorrect standard of review and erred in upholding EPA's assertion of authority to overrule the reasonable policy and technical decisions made by the State of North Dakota in its Visibility Program state implementation plan, contrary to the authority delegated to the State under the Clean Air Act, 42 U.S.C. §§ 7401 *et seq.*, and in conflict with decisions of this Court and other federal courts of appeals establishing the division of federal-state jurisdiction under the Act.

PARTIES TO THE PROCEEDINGS

The State of North Dakota was the petitioner below (No. 12-1844). The United States Environmental Protection Agency and Lisa Jackson, in her official capacity as Administrator of the EPA, were originally named as respondents below. Ms. Jackson has since been succeeded by Gina McCarthy. Basin Electric Power Cooperative was an intervenor in support of the court of appeals petitioner State of North Dakota.

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PETITION FOR A WRIT OF CERTIORARI

Petitioner State of North Dakota respectfully petitions this Court for a writ of certiorari to review the judgment of the United States Court of Appeals for the Eighth Circuit in this case.

OPINIONS BELOW

The opinion of the Eighth Circuit Court of Appeals (App. 1-46) dated September 23, 2013, is reported at *N. Dakota v. U.S. E.P.A.*, 730 F.3d 750 (8th Cir. 2013). The action of the United States Environmental Protection Agency ("EPA" or the "Agency") (App. 47-303) is reported at 77 Fed. Reg. 20,894 (April 6, 2012).

JURISDICTION

The judgment of the Eighth Circuit Court of Appeals was entered on September 23, 2013. App., *infra*, 1-46. The jurisdiction of this Court is invoked under 28 U.S.C. § 1254(1). On December 6, 2013, the Hon. Justice Alito granted Petitioner's Application for Extension of Time within which to file its Petition for Writ of Certiorari to February 5, 2014.

STATUTORY PROVISIONS INVOLVED

Pertinent statutory provisions are set forth in the appendix to this petition. App. 304-336.

STATEMENT OF THE CASE

This case raises important and recurring issues concerning the ability of States to exercise their statutory authority under the Clean Air Act ("CAA"), one of the most significant and far-reaching federal environmental statutes. Before the Eighth Circuit was the question of whether the EPA intruded upon North Dakota's CAA authority by vetoing the State's reasoned technical and policy determinations contained within its regional haze State Implementation Plan ("SIP"), and replacing those determinations with EPA's preferences. Instead of deferring to North Dakota's primary authority under the CAA and the reasoned exercise of its discretion, the Eighth Circuit erroneously approved EPA's overreach, concluding that EPA's determinations – not North Dakota's – were due judicial deference. App. 29-30. The Eighth Circuit's decision is in direct conflict with this Court's decision in *Alaska Dep't of Envtl. Conservation v. E.P.A.*, 540 U.S. 461, 490-91 (2004) ("*Alaska*"), the D.C. Circuit's decision in *Am. Corn Growers Ass'n v. E.P.A.*, 291 F.3d 1, 7-8 (D.C. Cir. 2002) ("*Corn Growers*") and the Fifth Circuit's decision in *Luminant Generation Co., LLC v. United States E.P.A.*, 675 F.3d 917, 921 (5th Cir. 2012).

Under the CAA's "Visibility Protection for Federal Class I areas" set forth in CAA § 169A, States have the primary authority to establish reasonable progress measures towards the "national goal[1] of remedying existing impairment of visibility" and preventing future impairment of visibility in national parks and wilderness areas ("Class I areas") ("Visibility Program"). H.R. CONF. REP. 95-564, 153, 1977 U.S.C.C.A.N. 1502, 1534; *see also* 42 U.S.C. § 7491(a)(1). To serve this statutory goal, States consider among other things[2] whether emission control technologies should be installed on large industrial sources. In determining reasonable progress measures, States must consider four statutory factors: the cost of compliance, the time needed for compliance, any energy and nonair quality environmental impacts of compliance, and how much longer the source will operate. ("Reasonable Progress Analysis"). 42 U.S.C. § 7491(g)(1), *see also* 40 C.F.R. § 51.308(d)(1)(i). By its unambiguous terms, the CAA § 169A(b)(2) gives the States the primary authority to determine reasonable progress measures, and the States have broad discretion in making such determinations. The CAA limits EPA to

[1] Unlike the national ambient air quality standards, which implement health-based standards, the visibility goal Congress established in CAA § 169A is not a health-based standard but an aesthetic goal.

[2] North Dakota also took into consideration emissions from agricultural tillage operations, oil and gas operations and smoke management for agricultural, forest management and prescribed burning. App. 407-414.

reviewing whether a State's determination is consistent with the CAA. *See* CAA § 110(k)(3); *see also* 40 C.F.R. § 51.308(d)(1)(iii).

In 2010, as required by the Visibility Program, North Dakota submitted its regional haze SIP to EPA, which included a reasonable progress determination for the Antelope Valley Station Units 1 and 2 ("AVS").[3] North Dakota's SIP contained the State's analysis and determination that no additional emission controls were necessary at AVS since additional controls 1) would not result in any humanly perceptible improvement in visibility and 2) would result in a combined cost per unit of improvement of visibility in excess of $2 billion. App. 26. North Dakota came to this determination after it conducted its Reasonable Progress Analysis and own visibility modeling to evaluate what effect potential emissions control technologies at AVS may have on visibility in Class I areas. In conducting its visibility modeling, North Dakota reasonably determined it was necessary to develop a refined visibility modeling program that took into account real world visibility conditions in the State and its Class I areas, rather than general computer modeling considerations EPA recommended in a non-binding guidance document.

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[3] Located northwest of Beulah, North Dakota, AVS is the newest coal-based power plant in the State, with Unit 2 coming on-line in 1986. AVS Units 1 and 2 each produce up to 450 megawatts of energy for Basin Electric and its rural electric cooperative membership and customers.

Under the guise of enforcing its review authority, EPA vetoed the reasonable progress determination for AVS set forth in North Dakota's SIP and instead imposed a federal implementation plan ("FIP") that imposed a stricter emission limit and required the installation of additional emission controls at AVS. Even though EPA and the Eighth Circuit both recognized that North Dakota could consider and utilize its own visibility modeling data when it conducted its Reasonable Progress Analysis for AVS, EPA rejected North Dakota's use of a refined modeling program claiming it was not "appropriate." App. 27, 30. And the Eighth Circuit incorrectly deferred to EPA's "expert" determination rather than North Dakota's determination. App. 29.

However, where, as here, Congress "places primary responsibilities and authority with the States," EPA must give "appropriate deference" to the State's CAA decision. *Alaska*, 540 U.S. at 490-91. The Eighth Circuit misapplied the holdings of *Alaska* and *Corn Growers*, concluding that the court must defer to EPA's expert authority in deciding whether the State's reasonable progress "determination is one that is reasonably moored to the CAA's provisions," rather than defer to North Dakota's reasoned determinations and its expertise when making reasonable progress determinations for the State. App. 29. In reaching its flawed decision, the Eighth Circuit relied on the Tenth Circuit's recent holding in *Oklahoma v. U.S. E.P.A.*, 723 F.3d 1201 (10th Cir. 2013), which also misapplied this Court's holding in *Alaska* when it approved EPA's Visibility FIP for Oklahoma.[4]

The Eighth Circuit's application of the wrong standard of review gives EPA broad license to veto and replace future State reasonable progress decisions for the 50 years remaining in the Visibility Program. *See* 40 C.F.R. § 51.308(d)(1)(i)(B), and (f). The Eighth Circuit's decision directly thwarts the future activity of North Dakota and other States in being able to exercise the statutory role Congress expressly gave them. The consequences of the Eighth Circuit's decision also place each States' economic development in the hands of federal regulators who are far removed from the unique circumstances and needs of the States. Further, the Eighth Circuit's grave threat to the clear division of State and EPA authority under the CAA will have an immediate harmful effect upon the judicial review of EPA's vetoes of regional haze SIPs and imposition of FIPs currently before the Fifth, Eighth, Ninth and Tenth Circuit Courts of Appeals. As in the case of North Dakota, these Courts of Appeals must consider the scope of EPA's authority when rejecting a regional haze SIP and imposing a FIP. Given the dramatic increase by EPA for vetoing and replacing State decision making under the CAA,[5] the question presented is a

[4] The State of Oklahoma is petitioning this Court for Certiorari to review the Tenth Circuit's decision.

[5] *See* 75 Fed. Reg. 82,246 (Dec. 30, 2010), 75 Fed. Reg. 82,429 (Dec. 30, 2010), 76 Fed. Reg. 2581 (Jan. 14, 2011), 76 Fed.

(Continued on following page)

recurring one of national importance, arising not just under the Visibility Program, but for all CAA programs and other federal statutes in which the States have a primary role. This Court should grant certiorari to resolve the immediate and far reaching conflict created by the Eighth Circuit's decision and to preserve the delicate balance of power between the States and EPA that Congress established in the CAA.

I. The Clean Air Act Visibility Program.

A. Statutory and Regulatory Background.

The CAA establishes "a comprehensive national program that makes the States and the Federal Government partners in the struggle against air pollution." *General Motors Corp. v. United States*, 496 U.S. 530, 532 (1990). In this "experiment in cooperative federalism," *Michigan v. E.P.A.*, 268 F.3d 1075, 1083 (D.C. Cir. 2001), the CAA establishes that improvement of the nation's air quality will be pursued "through state and federal regulation," *BCCA Appeal Group v. E.P.A.*, 355 F.3d 817, 821-22 (5th Cir. 2003); *see also* 42 U.S.C. § 7401(a)(3) ("air pollution prevention . . . and air pollution control at its source **is the primary responsibility of States and local**

Reg. 48,006 (Aug. 8, 2011), 76 Fed. Reg. 52,387 (Aug. 22, 2011), 76 Fed. Reg. 81,727 (Dec. 28, 2011), 77 Fed. Reg. 40,149 (July 6, 2012), 77 Fed. Reg. 50,936 (Aug. 23, 2012), 77 Fed. Reg. 51,915 (Aug. 28, 2012), 77 Fed. Reg. 61,477 (Oct. 9, 2012), 77 Fed. Reg. 71,533 (Dec. 3, 2012), 77 Fed. Reg. 72,511 (Dec. 5, 2012), and 78 Fed. Reg. 8705 (Feb. 6, 2013).

governments" (emphasis added); and 42 U.S.C. § 7407(a) ("Each State shall have the primary responsibility for assuring air quality within the entire geographic area comprising such State. . . .").

The CAA's Visibility Program is built around an aesthetic goal, set forth in Section 169A(a)(1) of the CAA, for the "prevent[ing] 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." There are 156 mandatory Class I areas in the United States.[6] *See* 70 Fed. Reg. 39,104, 39,105/1 (July 6, 2005). Congress made abundantly clear that it is the States that are to implement the Visibility Program. *See* 42 U.S.C. § 7491(b)(2) (EPA is to "provide guidelines to the States," . . . "on appropriate techniques and methods for implementing this section."); *accord Corn Growers*, 291 F.3d at 8. CAA Section 7491(b)(2) requires EPA to issue regulations that direct States to submit SIPs containing "such emission limits, schedules of compliance and other measures as may be necessary to make reasonable progress toward meeting" the national visibility goal. 42 U.S.C. § 7491(b)(2). In *Corn Growers*, the D.C. Circuit emphasized that the "states . . . play the lead role in designing and implementing regional haze programs." *Id.* at 2, 8 (citing CAA §§ 169A(b)(2)(A); 169A(g)(2)).

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[6] North Dakota has two Class I areas: Lostwood Wilderness area and the Theodore Roosevelt National Park.

1. Reasonable Progress Determinations.

Making reasonable progress towards the national visibility goal is the foundation of the Visibility Program. To this end, the CAA directs that the States, not EPA, set goals that "provide for reasonable progress towards achieving natural visibility conditions" by the year 2064 – also referred to as the "Uniform Rate of Progress." 40 C.F.R. § 51.308(d)(1)(i)(B). EPA defines natural conditions as "naturally occurring phenomena that reduce visibility as measured in terms of light extinction, visual range, contrast, or coloration." 40 C.F.R. § 51.301(q). EPA's regulations define "visibility impairment" to "mean[ ] any humanly perceptible change in visibility (light extinction, visual range, contrast, coloration) from that which would have existed under natural conditions." 40 C.F.R. § 51.301. Natural visibility conditions "represent the long-term degree of visibility that is estimated to exist in a given mandatory Federal Class I area in the absence of human-caused impairment." *Guidance for Estimating Natural Visibility Conditions Under the Regional Haze Program*, EPA-454/B-03-005, September 2003, Section 1.2. In its guidance on how to estimate natural visibility conditions, EPA recognizes "that natural visibility conditions are not constant, but rather they vary with changing natural processes (e.g., windblown dust, fire, volcanic activity, biogenic emissions)." *Id.*

The reasonable progress goals set by the States are expressed in deciviews.[7] The reasonable progress goals seek to improve visibility on the haziest days in Class I areas and to prevent degradation of visibility on clear days in that area. *Id.* § 7491(b)(2); *see also* 40 C.F.R. § 51.308(d)(1). Reasonable progress goals are interim goals that will be revisited in the regional haze SIPs that States must submit to EPA every ten years between now and 2064. The amount of progress that is "reasonable" to meet the national visibility goal is not defined according to objective criteria, but instead involves a discretionary balancing by the State of public interest factors – cost, time, energy and nonair quality environmental impacts of compliance, and how much longer the source will be in operation. 42 U.S.C. § 7491(g)(1), *see also* 40 C.F.R. § 51.308(d)(1)(i). When conducting this Reasonable Progress Analysis, States are not required to consider the degree of improvement in visibility which may result from the establishment of a goal, but it is left to the States' discretion to do so. If a State is unable to demonstrate attainment with the national visibility goal by the year 2064, a State may employ a lesser rate of progress that it believes to be reasonable. *See* 40 C.F.R. § 51.308(d)(1)(ii).

[7] A deciview is "a measurement of visibility impairment. A deciview is a haze index derived from calculated light extinction, such that uniform changes in haziness correspond to uniform incremental changes in perception across the entire range of conditions, from pristine to highly impaired." 40 C.F.R. § 51.301.

2. BART Determinations.

The CAA identifies best available retrofit technology ("BART") as one specific reasonable progress measure that States must consider for installation on certain large industrial sources.[8] 42 U.S.C. § 7491(b)(2)(A). "BART emissions limits . . . are one set of measures that must be included in the SIP to ensure that an area makes reasonable progress toward the national goal, and the visibility improvement resulting from BART (or a BART alternative) is included in the development of the RPG." *Guidance for Setting Reasonable Progress Goals Under the Regional Haze Program*, June 1, 2007, Sec. 1.3. Regional haze SIPs must contain "emission limitations representing" BART.[9] 40 C.F.R. § 51.308(e). Like "reasonable progress," BART is a State determination that involves the weighing of public interest factors, specifically "the costs of compliance, the energy and nonair quality environmental impacts of compliance, any existing pollution control technology in use at the source, the remaining useful life of the source, and

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[8] North Dakota determined that AVS Units 1 and 2 were not BART eligible sources, which EPA affirmed. However, North Dakota elected to apply the same visibility modeling to AVS Units 1 and 2 that it employed when making BART determinations for BART-eligible sources in the State.

[9] BART is only available as a reasonable progress measure in the first regional haze SIP period. In all successive regional haze SIP revisions, "the State must evaluate and reassess all of the elements required in paragraph (d) [reasonable progress measures] of this section." 40 C.F.R. § 51.308(f).

the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology." 40 C.F.R. § 51.308(e)(1)(ii)(A).

In 1999, EPA adopted regional haze rules implementing Sections 169A and 169B of the CAA. These rules were based upon a "group" approach with regard to the determination of BART rather than attribution from the emissions source(s) to the affected Class I area. The group BART provisions were successfully challenged in the U.S. Court of Appeals for the D.C. Circuit by States and industry. The D.C. Circuit cases, *Corn Growers*, *Center for Energy and Economic Development v. E.P.A.*, 398 F.3d 653 (D.C. Cir. 2005), and *Utility Air Regulatory Group v. E.P.A.*, 471 F.3d 1333, 1338 (D.C. Cir. 2006), make clear that States have "broad authority" and discretion for developing their Visibility Program SIPs, which includes establishing reasonable progress goals for the State. *Corn Growers*, 291 F.3d at 19. In response to these Court of Appeals decisions, EPA revised its Visibility Program rules in 2005 and 2006.).

Contained within EPA's "Regional Haze Regulations and Guidelines for Best Available Retrofit Technology (BART) Determinations; Final Rule." ("BART Guidelines"). 70 Fed. Reg. 39,104 (codified at 40 C.F.R. pt. 51), are recommendations[10] to the States on

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[10] States are only required to use the BART Guidelines when making BART determinations for powerplants that are 750MW or greater. *See* 70 Fed. Reg. at 39,108/3.

the type of visibility modeling to use when making a BART determination. *See* 70 Fed. Reg. at 39,124. EPA's BART Guidelines recommend to the States that they utilize a single-source visibility model considered against a "natural background." *See id.* However, EPA's BART Guidelines plainly acknowledge that the States have flexibility in what type of modeling protocol they utilize. "We do, however, understand and agree that States have flexibility developing a modeling protocol." *See id.* 39,126/1.

II. North Dakota's Regional Haze SIP.

North Dakota has long been committed to protecting the State's air quality and the health of its citizens. North Dakota has successfully designed, implemented and enforced air quality programs that have resulted in North Dakota being one of only 12 states that comply with all federal ambient air quality standards – standards set by EPA solely based on science and for the purpose of protecting human health and the environment. Over the course of nine years, North Dakota expended thousands of hours conducting extensive technical work to develop its regional haze SIP. During that time, public comment was received, including that from EPA, Federal Land Managers (App. 373-74), industry, and environmental groups. North Dakota's SIP was finalized and submitted to EPA on March 3, 2010. The North Dakota SIP includes twelve sections addressing the requirements of both North Dakota's air quality regulations and 40 C.F.R. § 51.308. App. 364-65.

The North Dakota SIP describes North Dakota's Class I areas and the State's measures for making reasonable progress towards the Visibility Program's national goal. App. 368-372. The SIP details how when determining the degree of reasonable progress, North Dakota considered emissions from stationary sources, agricultural tillage operations, oil and gas operations and smoke management for agricultural, forest management and prescribed burning. App. 407-414. The North Dakota SIP describes the visibility modeling the State used in developing its SIP, and the process for determining the reasonable progress goals for North Dakota's Class I areas (Lostwood Wilderness and Theodore Roosevelt National Park). App. 414-425. And as discussed below, North Dakota's SIP set forth its reasoned determination that additional controls or measures implemented upon AVS would "not significantly affect current visibility conditions or the amount of time necessary to achieve natural conditions," and therefore were not required. App. 424-425.

A. North Dakota's Refined Visibility Modeling Protocol.

By its terms, the Visibility Program vests the States with the authority to establish reasonable progress goals and grants the States broad discretion in setting those goals. 42 U.S.C. § 7491(g)(1). In making its reasonable progress determinations for AVS Units 1 and 2, North Dakota elected to develop and take a more refined approach for assessing the impact on visibility in Class I areas that its reasonable progress measures would have. Specifically, North Dakota developed a visibility model that included a 'realistic' background, which took into account existing emissions and sources that impair visibility in North Dakota's Class I areas. North Dakota determined that such a refined model was necessary after it evaluated the types of industrial sources and the unique meteorological circumstances of the State.

In the course of North Dakota's regional haze SIP development, North Dakota determined that a refined model was scientifically preferable to EPA's suggested single-source modeling approach. North Dakota reached this conclusion based upon its evaluation and determination that EPA's single-source modeling overstated the amount of visibility improvement that may be achieved from the installation of an emission control because the model uses a "clean background." The use of a clean background assumes that there are no other anthropogenic emissions of any kind present in the air, and does not account for other anthropogenic sources that impact visibility impairment such as international sources. App. 414-419.

North Dakota's air quality is adversely impacted by emissions originating from sources outside North Dakota, i.e., certain sources located in Canada, something EPA's recommended clean background modeling does not model. Because of the significant deficiencies of EPA's recommended modeling approach, North Dakota instead concluded that it was necessary to develop and utilize a refined visibility modeling protocol for its BART and reasonable progress determinations. North Dakota's refined visibility modeling takes into account existing emissions and sources, including Canadian sources of visibility impairing emissions, and provides real-world results. App. 414-415.

B. North Dakota's Reasonable Progress Determination For AVS.

North Dakota's regional haze SIP submitted to EPA included an administrative record demonstrating that the State conducted a complete and proper Reasonable Progress Analysis for AVS Units 1 and 2, as required by CAA § 169A(g)(1), and in accordance with 40 C.F.R. § 51.308(d)(1)(i). North Dakota's regional haze SIP also demonstrated that the State considered EPA's "Guidance for Setting Reasonable Progress Goals Under the Regional Haze Program"; evaluated the cost of installing additional controls at AVS on a dollar per deciview basis; and conducted visibility modeling for AVS. North Dakota applied this comprehensive analysis in considering several emission control technologies for AVS, including installation of low-NOx burners ("LNB") and selective non-catalytic reduction ("SNCR") technology. App. 398.

In analyzing the degree of visibility improvement estimated to result from LNB + SNCR at AVS, North Dakota's modeling found that the degree of improvement in visibility would only be 0.005 dv at Theodore

Roosevelt National Park and 0.01 dv at Lostwood Wilderness Area. App. 404. These deciview changes in visibility at Theodore Roosevelt National Park and Lostwood Wilderness Area would not be humanly perceptible, since as EPA explained, "States should consider a **1.0 deciview change or more** from an individual source to 'cause' visibility impairment, and a change of 0.5 deciviews to 'contribute' to impairment." (emphasis added). 70 Fed. Reg. 39,120/3 (July 6, 2005). Further, North Dakota determined that the cost per deciview of improvement at the State's Class I areas would be greater than $2 billion. App. 26, 404. Additionally, even if controls were installed at AVS North Dakota still would not meet the national goal of achieving natural visibility conditions by the year 2064. App. 404. Moreover, North Dakota determined that even if all emission sources in the State that contribute to visibility degradation at Lostwood Wilderness area and at Theodore Roosevelt National Park were eliminated, North Dakota would not be able to reach the Uniform Rate of Progress – a fact EPA expressly acknowledged. App. 240-241. North Dakota calculated that the number of years it would take to reach natural conditions at Theodore Roosevelt National Park would be 151, and at Lostwood Wilderness area 201 years, well beyond the Visibility Program's goal of 2064. App. 424.

III. EPA's FIP For North Dakota.

Contrary to the authority the CAA vested with North Dakota, EPA disapproved the State's reasonable progress determination that no additional emissions controls are warranted at AVS Units 1 and 2. App. 77-78. In place of North Dakota's determination, EPA imposed a FIP that contains a more stringent reasonable progress determination of an emission level of 0.17 lb/MMBtu for the AVS Units and installation of LNBs. *See id.* EPA's FIP for North Dakota was promulgated pursuant to CAA § 110(c). App. 80.

EPA claimed that its FIP was necessary "to satisfy the requirements of CAA § 110(a)(2)(D)(i)(II)," (commonly referred to as the "good neighbor provision"). App. 80. The good neighbor provision provides that a SIP must "contain adequate provisions" prohibiting an emission source or an emission activity in one State from interfering with another State's measures to protect visibility. 42 U.S.C. § 7410(a)(2)(D)(i)(II). EPA's final rule claims that North Dakota's reasonable progress determination for AVS Units 1 and 2 did not meet "the visibility prong of CAA section 110(a)(2)(D)(i)(II)." App. 80.

In support of its assertion, EPA's FIP claimed that North Dakota's "cumulative modeling approach thwarts the goal stated by Congress in CAA section 169A and underlying the [Regional Haze Regulations]" to achieve natural conditions by the year 2064, because North Dakota utilized a realistic background. App. 124. EPA's FIP further claimed that to chart progress towards achievement of natural visibility conditions by the year 2064, a State's visibility model must use a "clean background" and not a "realistic background" such as that employed by North Dakota. App. 118-119. EPA's FIP asserted that a "realistic background" will "understate[ ] the visibility improvement that would be realized for the control options under consideration[ ]" (76 Fed. Reg. 58,627/3) and serves "to maintain current degraded conditions." App. 29. Contrary to the authority of the States under the CAA, as affirmed in *Alaska*, the Eighth Circuit merely rubber-stamped EPA's assertion that its determinations must be granted deference and not North Dakota's. The Eighth Circuit affirmed EPA's position that greater emission reductions will be obtained and thus more reasonable progress realized if EPA's visibility model is used.

IV. EPA's Authority When Reviewing A State's CAA Determinations.

When reviewing a State's SIP, EPA may only reject a State's determinations when EPA demonstrates that the determination is not supported by the data or analysis or that it fails to comply with the CAA. *See* CAA § 110(k)(3); *see also* 40 C.F.R. § 51.308(d)(1)(iii) (which sets forth that EPA shall "evaluate the demonstrations developed by the State" towards achieving the visibility goal consistent with whether the State conducted the Reasonable Progress Analysis.) The CAA "gives the [EPA] no authority to question the wisdom of a State's choices of emission limitations" if such choices are "part of a plan which satisfies the standards of § 110(a)(2)." *Train v. Natural Resources Defense Council*, 421 U.S. 60, 79 (1975);

see also Union Electric Co. v. E.P.A., 427 U.S. 246, 250 (1976) (the CAA provides that EPA "'shall approve' the proposed plan if it has been adopted after public notice and hearing" and if it meets the "specified criteria" set forth in CAA § 110(a)(2)), *aff'd,* 427 U.S. 246 (1976). The CAA § 110 division of authority between EPA and the States "is strict," and establishes a "federalism bar." *EME Homer City Generation, L.P. v. Envtl. Prot. Agency*, 696 F.3d 7, 29 (D.C. Cir. 2012), *cert. granted*, 81 U.S.L.W. 3702 (U.S. March 29, 2013) (No. 12-1182). This "statutory federalism bar prohibits EPA from using the SIP process to force States to adopt specific control measures." *Id.* EPA may reject a State's CAA determination "[o]nly when a state agency's . . . determination is not based on a reasoned analysis" and is "arbitrary." *Alaska*, 540 U.S. at 490-91. Further, it is EPA that must demonstrate that the State's determination was not reasonable. *Id.* at 494.

Here EPA has improperly overridden North Dakota's authority and discretion in developing a visibility modeling protocol that the State refined to more properly reflect its particular circumstances. EPA's FIP instead dictates (and limits) how North Dakota (or any State) may assess visibility improvement in assessing control measures even though neither the CAA nor EPA's regulations prevent North Dakota from doing so. EPA's action destroys the States' primary decision-making authority to balance the reasonable progress factors and make determinations on what measures are "reasonable" for making progress towards a statutory "goal" as opposed to a statutory requirement.

V. Proceedings Below.

In addition to North Dakota's petition for review, Great River Energy (No. 12-1961) and the National Parks Conservation Association and Sierra Club (No. 12-2331) filed petitions for review of EPA's FIP with the Eighth Circuit. All three petitions for review were consolidated into the lead case, No. 12-1844.

In addition to EPA's FIP for AVS, EPA imposed a FIP for North Dakota's BART determination for the Coal Creek Station Units 1 and 2. North Dakota and Great River Energy each separately petitioned the Eighth Circuit to review EPA's FIP for the Coal Creek Station. The Eighth Circuit found that EPA was "entitled to no deference" in its decision to reject North Dakota's BART determination for the Coal Creek Station Units, vacated EPA's FIP for the Coal Creek Station and remanded that portion of EPA's FIP to EPA for further action consistent with the court's opinion. App. 24, 45-46.

Additionally, EPA's final rule also approved North Dakota's BART determinations for the Leland Olds Station and the Milton R. Young Station, though EPA had originally proposed disapproving these BART determinations. App. 67. The National Parks Conservation Association and Sierra Club ("Environmental Groups") petitioned the Eighth Circuit to review EPA's decision to approve North Dakota's BART determinations for the Leland Olds and the Milton R. Young Stations. The Eighth Circuit denied the Environmental Groups' petition for review because they had failed to raise their objections to the BART determinations before EPA during the rulemaking process. App. 41-42.

Despite setting aside EPA's rejection of North Dakota's BART determination for the Coal Creek Station Units, the Eighth Circuit upheld EPA's FIP for AVS and the Agency's rejection of North Dakota's visibility modeling protocol. In affirming EPA's FIP for AVS, the Eighth Circuit expressly relied on the Tenth Circuit's recent decision in *Oklahoma v. E.P.A.*, and, specifically, that court's misapplication of this Court's holding in *Alaska*. Specifically, the Eighth Circuit relied on the Tenth Circuit's flawed interpretation of *Alaska* to improperly conclude that EPA's technical determinations and decision to impose a FIP is owed deference, rather than finding that deference is owed to North Dakota's technical determinations. App. 29-30.

The Eighth Circuit acknowledges that North Dakota "was free to employ its own visibility model and to consider visibility improvement in its reasonable progress determinations," for AVS. App. 30. Nonetheless, the court affirmed EPA's determination that North Dakota "did so in a manner inconsistent with the CAA." *Id.* The Eighth Circuit relied on EPA's opinion that North Dakota's use of a realistic background in its modeling protocol "will serve to maintain current degraded [visibility] conditions," which according to EPA is contrary to "the goal of § 169A . . . to attain natural visibility conditions." *Id.* The Eighth Circuit concluded that EPA's determination "is entitled to judicial deference, as it involves 'technical matters within its area of expertise[.]'" App. 29. The Eighth Circuit then went on to hold that EPA "did not act in a manner that was arbitrary, capricious or an abuse of discretion." App. 30. However, neither EPA nor the Eighth Circuit ever identified any specific CAA "requirement" that North Dakota supposedly failed to comply with.

REASONS FOR GRANTING THE WRIT

I. THE EIGHTH CIRCUIT'S DECISION CONFLICTS WITH DECISIONS OF THIS COURT AND OTHER FEDERAL COURTS OF APPEALS ON THE ALLOCATION OF FEDERAL-STATE AUTHORITY.

Congress established a clear division of responsibilities between State and EPA authority in the Visibility Program. The States, not EPA, must design and implement a SIP that "contain[s] such emission limits, schedules of compliance and other measures as may be necessary to make reasonable progress toward meeting the national [visibility] goal." 42 U.S.C. § 7491(b)(2); *see also* 40 C.F.R. § 51.308(d)(1)(i) (affirming Congress's directive that the States are to establish "reasonable progress goal[s] for any mandatory Class I Federal area within the State."). Because a reasonable progress determination is a discretionary judgment made by a State, involving the case-by-case weighing of a variety of factors, there is no single, objectively "correct" reasonable progress determination for any particular source. The fact that a State may weigh the pertinent factors differently than EPA, or consider additional technical data that EPA may not have chosen to consider, does not mean that the State has violated a requirement of the CAA, authorizing EPA to disapprove the State's judgment.

The CAA provides that when a State makes reasonable progress determinations, it shall take into consideration the cost of and time for compliance, the energy and other non-air environmental impacts of compliance, and how long the facility subject to these requirements will continue to operate. *See* 42 U.S.C. § 7491(g)(1). North Dakota observed these statutory parameters, and submitted to EPA an extensive administrative record demonstrating its reasoned determinations. The Eighth Circuit's decision therefore is deeply flawed and conflicts with this Court's decision in *Alaska* and other federal Courts of Appeals that have recognized and respected the balance of power between the States and the federal government that Congress established under the CAA. The standard of review that the Eighth Circuit should have applied was whether, granting due deference to North Dakota's exercise of its authority and discretion, EPA could meet its burden of showing that North Dakota's judgments were unreasonable. *Alaska,* 540 U.S. 461.

A. The Standard Of Review Applied By The Eighth Circuit Directly Conflicts With This Court's Decision In *Alaska.*

When reviewing a final EPA determination that is within an Agency's authority, courts will apply a deferential standard of review. *See* 5 U.S.C. § 706(2). However, where the CAA grants primary decision making authority to the States, as Congress did in the Visibility Program, a reviewing court must start with affording deference to the State's judgments and not to EPA's. *See Alaska*, 540 U.S. at 494. The holding of *Alaska* is consistent with this Court's earlier decision in *Train*, in which it established that EPA "is relegated by the [CAA] to a *secondary* role in the process of determining and enforcing the specific, source by source emission limitations which are necessary if the national standards it has set are to be met." *Train,* 421 U.S. at 79 (emphasis added). As the Court explained in *Train*, "[t]he Act gives the [EPA] no authority to question the wisdom of a State's choices of emission limitations if they are part of a plan which satisfies the [CAA's] standards." *Id.*

Before this Court in *Alaska* was the question of what was the division of responsibility between the States and the EPA when a State makes a "best available control technology" ("BACT") determination under the Prevention of Significant Deterioration ("PSD") (CAA § 167) permit program. Like a reasonable progress determination, a State's BACT determinations are incorporated into a State's SIP. And like reasonable progress determinations under CAA

§ 169A, Congress set forth in CAA § 167 specific considerations and factors that a State must consider when making a BACT determination. *See* 42 U.S.C. § 7479(3). However, unlike CAA § 169A, CAA § 167 grants to EPA "notable capacious" authority over State permitting decisions. *Alaska* at 484. Such "capacious" authority is understandable since CAA § 167 includes health based emission standards, known as National Ambient Air Quality Standards ("NAAQS"). In contrast, CAA § 169A address the aesthetic goal of returning the humanly perceptible views in Class I areas to their natural visibility conditions by the year 2064 – not health based air standards.

The Eighth Circuit looked to this Court's analysis in *Alaska* of the States' authority under CAA § 167 as "persuasive in the context of § 169." App. 17. However, the Eighth Circuit grossly overstated this Court's holding in *Alaska*, failing to take into account that the court must defer to the State's judgments of what is reasonable and not EPA's. *See Alaska* at 490-91. Rather, the Eighth Circuit was required to give deference to North Dakota's reasonable progress determinations and its reasoned conclusion that a lesser rate of progress towards the national visibility goal was appropriate.

The Eighth Circuit's clear error rests on its misapplication of the holding in *Alaska* that EPA's supervisory authority over State BACT determinations was limited "to ensur[ing] that a State's BACT determination is reasonably moored to the Act's provisions" to grant more power to EPA than *Alaska* intended. *Alaska*, 540 U.S. at 484-89. However, requiring that a State's CAA determination be grounded in the CAA does not dictate a standard of review that denies the States their authority under the CAA and gives deference to EPA's judgments. Rather, in *Alaska* this Court held that in reviewing EPA's disapproval of a State's BACT determination, the court must defer to the State's expertise. Specifically, because CAA § 167 gives States "considerable leeway" and "'places primary responsibilities and authority with the States,'" EPA was required to give "appropriate deference" to Alaska's decisions. *Id.* at 490-91. "Only when a state agency's BACT determination is not based on a reasoned analysis" and is "arbitrary," can EPA step in and correct a State's error. *Id.* at 490-91. Accordingly, *Alaska* directs that when a Court reviews an EPA disapproval of a State BACT determination "the production and persuasion burdens remain with EPA and the underlying question a reviewing court resolves remains the same: Whether the state agency's BACT determination was reasonable, in light of the statutory guides and the state administrative record." *Id.* at 494.

Ultimately, this Court affirmed EPA's disapproval of Alaska's BACT determination, but did so only after finding that Alaska had entirely failed to substantiate its determination that the emission controls that EPA sought would bankrupt the permittee at issue in the case. *Id.* at 488. Such was not the case with North Dakota's reasonable progress determination for AVS, which was fully and reasonably substantiated in the administrative record submitted to EPA. In its FIP, EPA did not object that there was not any information to support North Dakota's reasonable progress determination for AVS. Rather, EPA objected that it did not like how North Dakota decided to conduct its visibility modeling and the reasonable progress determination it made for AVS. App. 251-252. Nothing in EPA's FIP demonstrated that North Dakota's reasonable progress determination for AVS was unreasonable (or deficient) in light of the clear authority and discretion given to North Dakota to conduct the Reasonable Progress Analysis and visibility modeling.

Had the Eighth Circuit properly applied *Alaska* and deferred to North Dakota's determination[11] (and not EPA's), the Eighth Circuit would have rightly required EPA to show whether North Dakota's judgments were arbitrary. Instead, the Eighth Circuit turned the tables on North Dakota, deferring to *EPA's judgment* and concluding that because EPA's determination must be given deference, its FIP was not "arbitrary, capricious, or an abuse of discretion." App. 30. The Eighth Circuit's decision gives EPA license to

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[11] *See e.g., United States v. Minnkota Power Coop.*, 831 F. Supp. 2d 1109 (D.N.D. 2011). In *Minnkota* the district court properly applied this Court's holding in *Alaska* and reversed EPA's disapproval of North Dakota's BACT determination. In its decision, the district court found that "North Dakota's conclusions regarding such highly technical matters are entitled to deference unless the EPA proves them to be unreasonable, arbitrary, or capricious." *Id.* at 1121.

veto States' reasonable progress decisions now and for the remaining 50 years of the Visibility Program in a way that fundamentally conflicts with the primary authority and discretion given to the States under the CAA and according to this Court's holding in *Alaska*.

B. The Eighth Circuit's Decision Is In Direct Conflict With Other Federal Courts Of Appeals.

Unlike the Eighth Circuit below, other federal courts of appeals have respected the authority and deference granted to the States in the CAA and rebuked attempts by EPA to usurp authority that Congress has clearly reserved for the States. Not surprisingly, the Eighth Circuit's decision conflicts in this regard with numerous decisions of the D.C. Circuit. For instance, the Eighth Circuit's decision conflicts with the D.C. Circuit's decision in *Corn Growers*, a case involving the States' authority to make BART determinations under the Visibility Program. *Corn Growers* involved the States' authority to determine BART for certain stationary sources under the CAA. As detailed *supra* at I.A.2, BART is one specific reasonable progress measure that States must consider for particular industrial facilities. The CAA provides that in determining BART each State "shall" take into consideration five enumerated factors. *See* 42 U.S.C. §§ 7491(b)(2)(A), (g)(2). EPA originally promulgated a rule requiring the States to consider one of the factors on a group, rather than a source-by-source basis. *See Corn Growers,* 291 F.3d at

6. The D.C. Circuit invalidated the rule, holding that for EPA to require a group determination process was "inconsistent with the Act's provisions giving the states broad authority over BART determinations," and it impermissibly "constrain[ed] authority Congress conferred on the states." *Id.* at 8-9.

The D.C. Circuit emphasized over a decade ago that the "states . . . play the lead role in designing and implementing regional haze programs." *Id.* at 2, 8 (citing CAA §§ 169A(b)(2)(A); 169A(g)(2)). Just as with BART, a State's reasonable progress determinations are a discretionary judgment, involving the case-by-case weighing of a variety of public interest factors. There is no single, objectively correct reasonable progress determination for any reasonable progress source just as there is no single, objectively correct BART determination. The same broad authority granted to the States by the CAA to make BART determinations under the Visibility Program, is granted to the States to make reasonable progress determinations. By substituting its judgment for North Dakota's, EPA "infringe[d] on [the State's] authority under the Act." *Id.* at 9. The Eighth Circuit's decision approving that result cannot be reconciled with *Corn Growers*.

The D.C. Circuit has also recognized the general principle that EPA cannot substitute its judgment for a State's concerning the appropriate means of controlling air pollution. In *Virginia v. E.P.A.*, 108 F.3d 1397 (D.C. Cir. 1997), *modified on other grounds*, 116 F.3d 499 (D.C. Cir. 1997), the D.C. Circuit reviewed EPA's issuance of a "SIP call" that ordered States to revise their implementation plans to adopt California's vehicle emissions program.[12] *Virginia* held that EPA's SIP call exceeded its CAA § 110 authority since nothing in § 110 grants EPA the authority to condition approval of a state's plan on the state's adoption of control measures EPA has chosen. *Virginia,* 108 F.3d at 1404.

The conflict between the Eighth Circuit's decision below and the decisions of the D.C. Circuit alone provides a compelling basis for review. However, other courts of appeals have also strictly enforced CAA § 110's limit on EPA's role in reviewing a state's determination of what are reasonable air pollution control measures. *See Union Elec. Co.*, 515 F.2d at 212 ("In determining whether to approve or disapprove a state implementation plan, the Administrator's discretion is limited by the clear terms of the Act. He shall approve any state implementation plan which meets the requirements of § 110(a)(2)."); *Riverside Cement Co. v. Thomas*, 843 F.2d 1246, 1247-48 (9th Cir. 1988) (rejecting EPA's attempt to "approve" a SIP in a manner that would render it more stringent, because nothing in the CAA authorizes EPA to "take a

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[12] Analogous to the Act's limitations on EPA's authority to disapprove a SIP revision, EPA may exercise its "SIP call" authority under § 7410(k)(5) only if it first determines a SIP is "substantially inadequate to attain or maintain the [NAAQS] . . . or to otherwise comply with any requirement of [the Act]." 42 U.S.C. § 7410(k)(5).

portion of what the state proposes and amend the proposal ad libitum"); and *Luminant,* 675 F.3d at 932 (a State's CAA determination is to be respected by EPA since the CAA establishes a "cooperative federalism regime that affords sweeping discretion to the states to develop implementation plans and assigns to the EPA the narrow task of ensuring that a state plan meets the minimum requirements of the Act."). In sharp contrast to these federal courts of appeals' decisions, the Eighth Circuit's decision permits EPA to veto and replace State determinations that are plainly within their authority and discretion.

II. THE CONFLICT OVER FEDERAL-STATE AUTHORITY IS A RECURRING ISSUE OF NATIONAL IMPORTANCE.

Not only does the conflict between the Eighth Circuit's decision and *Alaska* and *Corn Growers* provide a compelling basis for granting this petition, but so too does the threat that the court's decision poses to the States' fundamental ability to manage their internal affairs while implementing the Visibility Program. So long as a State's regional haze SIP meets the criteria set forth in the Visibility Program, EPA must defer to the State's technical and policy judgments. When EPA impermissibly rejects a State's SIP, it "usurps state initiative in the environmental realm," thereby "disrupt[ing] the balance of state and federal responsibilities that undergird the efficacy of the [CAA]." *Florida Power and Light Co. v. Costle,* 650 F.2d 579, 589 (5th Cir. 1981). "The [CAA] is an experiment in federalism, and the EPA may not run roughshod over the procedural prerogatives that the Act has reserved to the states." *Bethlehem Steel Corp. v. Gorsuch*, 742 F.2d 1028, 1036 (7th Cir. 1984).

The CAA's requirement that reasonable progress be established by the States, 42 U.S.C. § 7491(g), highlights the important role that only a State, and not EPA, plays in determining why a certain reasonable progress measure may be better for a State than another. Here, North Dakota took into account all of the requisite statutory factors, which include the cost of compliance. North Dakota weighed the reasonable progress factors and concluded that among other things, the incredible cost per the minimal deciview unit of improvement of visibility did not justify the installation of controls at AVS. App. 407.

For the control technology that EPA has mandated be installed at AVS – LNB – North Dakota concluded that the annualized cost for LNB at AVS would be $2,280,000 for Unit 1 and Unit 2, however, no humanly perceptible improvement in visibility would result from these costly controls. App. 407. The reason for the Visibility Program is to improve visibility. North Dakota reasonably concluded that if a control technology does not improve visibility to a degree that a human can perceive it, and that control technology costs millions of dollars a year that must otherwise be borne by a North Dakota utility and its customers, it is not reasonable to require installation of the technology.

Allowing EPA to dictate reasonable progress to the States means allowing EPA to "assume control" of the States' "developing policy choices as to the most practicable and desirable methods of restricting total emissions to a level consistent with" the limitations set out in the CAA. *Train*, 421 U.S. at 80. The Eighth Circuit's decision vitiates the States' authority and discretion for making future reasonable progress decisions required in successive regional haze SIPs for the several decades remaining under the current regulatory scheme. North Dakota's SIP here is just the first of many SIPs that it and all States will develop and implement over the course of the remaining 50 years of the Visibility Program. The next regional haze SIP is due in 2018, and States are required to file SIPs every ten years thereafter. *See* 40 C.F.R. § 51.308(f). As such, the Eighth Circuit's decision dramatically constrains the States' future ability to act with the authority and discretion intended for them by Congress in all future planning periods.

Further, pending in multiple federal circuit courts of appeals are other State challenges to EPA Visibility Program FIPs. New Mexico, and Utah have each had their regional haze SIPs disapproved in part by EPA and each State filed petitions for review of EPA's FIP with the Tenth Circuit.[13] And while New Mexico's claims are on hold pending settlement,

[13] *See Utah v. United States Envtl. Prot. Agency et al.*, No. 13-9535 (10th Cir., filed Mar. 21, 2013); *Martinez et al. v. E.P.A.*, No. 11-9567 (10th Cir., filed Oct. 21, 2011).

Utah's case is pending review by the Tenth Circuit. Further, EPA just acted to disapprove major portions of Wyoming's SIP and promulgated a FIP. 79 Fed. Reg. 5032 (Jan. 30, 2014). Tenth Circuit review of Wyoming's FIP is likely. Pending in the Fifth Circuit is consideration of Louisiana's SIP, *Louisiana Dep't of Env. Quality v. E.P.A.*, No. 12-60672 (5th Cir., filed Sept. 4, 2012). In the Eighth Circuit, Nebraska has filed a petition for review of EPA's promulgation of a Visibility FIP for the State (*Nebraska v. E.P.A.*, No. 12-3084 (8th Cir., filed Sept. 4, 2012)). Similarly, Michigan has sought judicial review in the Eighth Circuit on EPA's FIP for it. *State of Michigan v. E.P.A.,* No. 13-2130 (8th Cir., filed May 22, 2013).[14] In the Ninth Circuit,[15] briefing has just begun in the case of *State of Arizona et al. v. E.P.A.,* No. 13-70366 (9th Cir., filed Aug. 9, 2013). Unless corrected, EPA will undoubtedly, in case after case, invoke the Eighth Circuit's decision as its broad license to veto (and replace) the States' role under the Visibility Program. That is not the standard of review set forth in 42 U.S.C. § 7491 or the standard of review adopted by the Supreme Court in *Alaska* or the D.C. Circuit in *Corn Growers*. It is also not consistent with the cooperative federalism bar set forth in the CAA.

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[14] *See also Cliffs Natural Res., Inc. v. E.P.A.*, No. 13-1758 (8th Cir., filed Apr. 4, 2013) (the States of Minnesota and Michigan).

[15] *See also PPL Montana, LLC v. E.P.A.*, No. 12-73757 (9th Cir., filed Nov. 16, 2012).

The potential effect of the Eighth Circuit decision is even more far-reaching. In addition to the CAA, numerous other statutes embody the principle of "cooperative federalism." *See e.g., New York v. United States*, 505 U.S. 144, 167-68 (1992) (noting "numerous federal statutory schemes" of this nature, including the Clean Water Act, 33 U.S.C. §§ 1251 *et seq.*, the Occupational Safety and Health Act, 29 U.S.C. §§ 651 *et seq.*, and the Resource Conservation and Recovery Act, 42 U.S.C. §§ 6901 *et seq.*). Like the Visibility Program, these statutes establish regulatory regimes based on shared federal-state responsibility. These programs "offer States the choice of regulating . . . activity according to federal standards," which promotes underlying values of federalism because "state governments remain responsive to the local electorate's preferences; state officials remain accountable to the people." *New York v. United States,* 505 U.S. at 167-68.

The Eighth Circuit's decision to permit the transfer of the State's authority to EPA under a leading "cooperative federalism" statutory regime threatens to destroy the balance of power struck by Congress and accepted by the States when they assumed the responsibilities offered under the CAA. This Court should not allow such a troubling decision to stand unreviewed.

CONCLUSION

For the foregoing reasons, the petition for a writ of certiorari should be granted, and the judgment reversed.

Respectfully submitted,

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No. ______

In The
Supreme Court of the United States

STATE OF NORTH DAKOTA,

Petitioner,

v.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, et al.,

Respondents.

On Petition For A Writ Of Certiorari To The United States Court Of Appeals For The Eighth Circuit

APPENDIX

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APPENDIX CONTENTS

United States Court of Appeals
for the Eighth Circuit

No. 12-1844

State of North Dakota

Petitioner

v.

United States Environmental Protection Agency, and Lisa P. Jackson, Administrator

Respondent

Basin Electric Power Cooperative

Intervenor

No. 12-1961

Great River Energy

Petitioner

v.

United States Environmental Protection Agency, and Lisa P. Jackson, Administrator

Respondent

Basin Electric Power Cooperation

Intervenor

No. 12-2331

National Parks Conservation Association; Sierra Club

Petitioners

v.

United States Environmental Protection Agency; Lisa P. Jackson, Administrator, United States Environmental Protection Agency

Respondents

Basin Electric Power Cooperative; Great River Energy; Minnkota Power Cooperative; Square Butte Electric Cooperative; State of North Dakota

Intervenors

Montana-Dakota Utilities Co., A Division of MDU Resources Group, Inc.; Northern Municipal Power Agency; Northwestern Corporation, doing business as NorthWestern Energy; Otter Tail Power Company

Amici on Behalf of Respondent

Petition for Review of an Order of the Environmental Protection Administration

Submitted: May 14, 2013
Filed: Sept. 23, 2013

Before WOLLMAN, MURPHY, and SMITH, Circuit Judges.

WOLLMAN, Circuit Judge.

In these consolidated petitions for review, the State of North Dakota (State), Great River Energy, and National Parks Conservation Association and Sierra Club (collectively Environmental Groups) challenge the final rule promulgated by Environmental Protection Agency (EPA) on April 6, 2012, *see* 77 Fed. Reg. 20,894-945 (the Final Rule). The Final Rule approved in part and disapproved in part two state implementation plans (SIPs) submitted by the State to address its obligations under §§ 110 and 169A of the Clean Air Act (CAA), 42 U.S.C. §§ 7401-7671q, and promulgated a federal implementation plan (FIP) to address those portions of the SIPs that were disapproved. We grant in part and deny in part the State's and Great River Energy's petitions for review, and deny the Environmental Groups' petition for review and voluntary motion to dismiss under Federal Rule of Appellate Procedure 42(b).

I. Background

A. Statutory Background

"[I]n 1977, '[i]n response to a growing awareness that visibility was rapidly deteriorating in many places, such as wilderness areas and national parks,' Congress added § 169A to the [Clean Air Act.]" *Am.*

Corn Growers Ass'n v. EPA, 291 F.3d 1, 3 (D.C. Cir. 2002) (per curiam) (second alteration in original) (internal citation omitted) (quoting *Chevron U.S.A., Inc. v. EPA,* 658 F.2d 271, 272 (5th Cir. 1981)). "Section 169A established as a national goal the 'prevention of any future, and the remedying of any existing, impairment in visibility in mandatory class I areas which impairment results from manmade air pollution.'" *Id.* (quoting Clean Air Act Amendments of 1977, Pub. L. No. 95-95, § 128, 91 Stat. 685, 742 (current version at 42 U.S.C. § 7491(a)(1))). In connection with § 169A, "Congress directed EPA to issue regulations requiring states to submit [SIPs] containing emission limits, schedules of compliance, and other measures necessary to make reasonable progress toward meeting the national visibility goal." *Id.*

Under the regional haze regulations promulgated by EPA, a state "must establish goals (expressed in deciviews) that provide for reasonable progress towards achieving natural visibility conditions" in "each mandatory Class I Federal area located within the State[.]"[1] 40 C.F.R. § 51.308(d)(1). In reaching these

[1] "The deciview is an atmospheric haze index that expresses uniform changes in haziness in terms of common increments across the entire range of conditions, from pristine to extremely impaired environments. A one deciview change in haziness is a small but noticeable change in haziness under most circumstances when viewing scenes in mandatory Class I Federal areas." 62 Fed. Reg. 41,145 (internal footnote omitted). Areas designated as Class I Federal areas include all international parks, national wilderness areas which exceed 5,000 acres in size, national memorial parks which exceed 5,000 acres in size, and national

(Continued on following page)

reasonable progress goals, the state must consider "the cost of compliance, the time necessary for compliance, the energy and non-air quality environmental impacts of compliance, and the remaining useful life of any potentially affected sources, and include a demonstration showing how these factors were taken into consideration in selecting a goal." *Id.* § 51.308(d)(1)(i)(A). The state must also analyze and determine the rate of progress necessary to achieve natural visibility conditions in the mandatory Class I Federal areas by the year 2064 and "consider the uniform rate of improvement in visibility and the emission reduction measures needed to achieve it for the period covered by the implementation plan." *Id.* § 51.308(d)(1)(i)(B). If the state's reasonable progress goals provide for a slower rate of improvement than necessary to achieve natural visibility conditions by 2064, the state must demonstrate "that the rate of progress for the implementation plan to attain natural conditions by 2064 is not reasonable; and that the progress goal adopted by the State is reasonable." *Id.* § 51.308(d)(1)(ii).

In addition to the reasonable progress goals, § 169A and the regional haze regulations require states to

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parks which exceed 6,000 acres in size. 42 U.S.C. § 7472(a). "[T]he term 'mandatory class I Federal areas' means Federal areas which may not be designated as other than class I[.]" 42 U.S.C. § 7491(g)(5). There are two such areas in the State: Theodore Roosevelt National Park and Lostwood Wilderness Area.

determine the best available retrofit technology (BART) for certain major stationary sources built between 1962 and 1977 that are reasonably anticipated to cause or contribute to visibility impairment in any Class I area. *See* 42 U.S.C. § 7491(b)(2)(A); 40 C.F.R. §§ 51.301, 51.308(e). To address the requirements for BART, a state must submit a SIP that contains a list of all BART-eligible sources and an analysis that takes into consideration the technology available, the costs of compliance, the energy and non-air quality environmental impacts of compliance, any pollution control equipment in use at the source, the remaining useful life of the source, and the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology. *Id.* § 51.308(e)(1)(i)-(ii). For BART-eligible sources that have a total generating capacity greater than 750 megawatts, the state must also use Appendix Y to the BART Guidelines in making its determination. *Id.* § 51.308(e)(1)(B). Appendix Y creates a five-step process for determining BART on a case-by-case basis: (1) identify all available retrofit control technologies; (2) eliminate technically infeasible options; (3) evaluate control effectiveness of remaining control technologies; (4) evaluate impacts and document the results; and (5) evaluate visibility impacts. *See* 70 Fed. Reg. 39,164.

The CAA also "charges EPA with setting National Ambient Air Quality Standards, or NAAQS, which prescribe the maximum permissible levels of common pollutants in the ambient air." *EME Homer City*

Generation, L.P. v. EPA, 696 F.3d 7, 12 (D.C. Cir. 2012). "The States implement the NAAQS within their borders through . . . SIPs." *Id.* at 13. The CAA requires states to submit revised SIPs to address new or revised NAAQS within three years after promulgation of the NAAQS. 42 U.S.C. § 7410(a)(1). Section 110(a)(2) identifies the required elements of a state's interstate transport SIP submission, which include what is known as the "good neighbor" provision. *Id.* § 7410(a)(2)(D). The good neighbor provision requires that a SIP contain four distinct components, one of which is a visibility component. *Id.* § 7410(a)(2)(D)(i)(II). The visibility component mandates that the SIP contain an adequate provision prohibiting any source of emissions within the state from emitting air pollutant in amounts that will interfere with measures required to be included in the applicable SIP for any other state to protect visibility. *Id.*

"Under the Clean Air Act, both the Federal Government and the States exercise responsibility for maintaining and improving air quality." *Am. Trucking Ass'ns v. EPA,* 600 F.3d 624, 625 (D.C. Cir. 2010). "The Act sets forth a basic division of labor: The Federal Government establishes air quality standards, but States have primary responsibility for attaining those standards within their borders." *EME Homer,* 696 F.3d at 29. "The Act thus leaves it to the individual States to determine, in the first instance, the particular restrictions that will be imposed on particular emitters within their borders." *Id.* at 12. But, if a state fails to submit a SIP, submits an incomplete SIP, or submits a SIP that does not meet the statutory requirements, EPA is obligated to implement its own FIP to correct the deficiency in the SIP, unless the State can correct the deficiency itself and EPA can approve that correction within two years. 42 U.S.C. § 7410(c). This is commonly referred to as cooperative federalism, and both § 169A and § 110 operate under this framework.

B. Procedural Background

The State submitted its interstate transport SIP for EPA approval on April 6, 2009, and submitted its regional haze SIP on March 3, 2010. The State submitted a SIP Supplement No. 1 on July 27, 2010, and also a SIP Amendment No. 1 on July 28, 2011. EPA issued a proposed rule on September 21, 2011, *see* 76 Fed. Reg. 58,570-648 (Proposed Rule), proposing to disapprove the State's regional haze SIP regarding its determination of BART for the Coal Creek Station, Milton R. Young Station Units 1 and 2, and Leland Olds Station Unit 2, as well as the reasonable progress determination for the Antelope Valley Station Units 1 and 2, and to disapprove the State's interstate transport SIP for failure to satisfy the visibility component. Along with the proposed partial disapprovals, EPA proposed the promulgation of a FIP to address the deficiencies in the SIPs. *See id.* at 58,573-74.

After the public notice and comments period on the Proposed Rule was completed, EPA issued its Final Rule. *See* 77 Fed. Reg. 20,894-945. The Final Rule differed in one major respect from the Proposed Rule – although EPA had proposed to disapprove the State's BART determinations for Young Station Units 1 and 2 and Olds Station Unit 2, EPA instead decided to approve the State's BART determinations for those units. *See* 77 Fed. Reg. 20,897-98. This determination was based primarily on the decision in *United States v. Minnkota Power Cooperative, Inc.,* 831 F. Supp. 2d 1109, 1127-30 (D.N.D. 2011), which concluded that the State's analysis of the best available control technology (BACT) for Young Station Units 1 and 2 was not unreasonable – a conclusion contrary to EPA's position at the time of EPA's Proposed Rule.

Because *Minnkota* was issued after the public notice and comments period had closed on EPA's Proposed Rule, interested parties were unable to comment on EPA's decision to rely upon it as persuasive authority for approving the State's BART determinations for Young Station Units 1 and 2 and Olds Station Unit 2. The Environmental Groups filed a petition for reconsideration with EPA on June 5, 2012, *see* 42 U.S.C. § 7607(d)(7)(B), voicing their concerns with EPA's reliance upon *Minnkota* and its subsequent approval of the State's BART determination for Young Station Units 1 and 2 and Olds Station Unit 2. The Environmental Groups moved to have their petition for review before this court held in abeyance until EPA determined whether it would entertain the petition for reconsideration. The Environmental Groups' motion for abeyance was denied without prejudice on July 31, 2012. Thereafter, EPA granted the petition for reconsideration on November 19, 2012, and that reconsideration process is still ongoing. Following EPA's grant of the petition for reconsideration, the Environmental Groups moved under Federal Rule of Appellate Procedure 42(b) to voluntarily dismiss the instant petition for review concerning the BART determinations for Young Station Units 1 and 2 and Olds Station Unit 2. That motion is still pending before us.

II. Discussion

A. Standard of Review

We will set aside EPA's Final Rule if it is "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law," or "in excess of statutory jurisdiction, authority, or limitations, or short of statutory right." 42 U.S.C. § 7607(d)(9). This standard is the same as that used under the Administrative Procedures Act, 5 U.S.C. § 706(2). *See EME Homer,* 696 F.3d at 23 n.17. But, "[o]nly an objection to a rule or procedure which was raised with reasonable specificity during the period for public comment . . . may be raised during judicial review." 42 U.S.C. § 7607(d)(7)(B). This administrative exhaustion provision is strictly enforced, *Natural Res. Def. Council v. EPA,* 571 F.3d 1245, 1259 (D.C. Cir. 2009) (per curiam), "to ensure that the agency is given the first opportunity to bring its expertise to bear on the resolution of a challenge to a rule." *Appalachian Power Co. v. EPA* (*Appalachian Power I*), 135 F.3d 791, 818 (D.C. Cir. 1998) (per curiam).

B. Simultaneous Denial of a SIP and Promulgation of a FIP

The State first contends that the Final Rule should be vacated because EPA procedurally erred under the CAA by simultaneously disapproving the State's SIP and promulgating its FIP in the same Final Rule. Under the CAA, reversal of an action because of procedural error is appropriate only when (1) the failure to observe the procedure is arbitrary or capricious; (2) the alleged error was raised during the comment period; and (3) the error was so serious and related to matters of such central relevance to the rule that there is a substantial likelihood that the rule would have been significantly changed if the error had not been made. 42 U.S.C. § 7607(d)(9)(D).

Among other things, § 7607(d)(3) requires that a proposed rule under the CAA contain a statement of basis and purpose, which must include a summary of the factual data on which the proposed rule is based, the methodology used in obtaining the data and in analyzing the data, and the major legal interpretations and policy considerations underlying the proposed rule. The State argues that a proper statement of basis and purpose for EPA's FIP could not be issued until a final rulemaking on its SIP was issued. Even assuming that the State's interpretation of § 7607(d)(3) is correct, the State has failed to demonstrate that EPA's error in this regard was "so serious and related to matters of such central relevance to the rule that there is a substantial likelihood that the rule would have been significantly changed if the error had not been made." *Id.* at § 7607(d)(9)(D). Although "[i]t may be poor policy to try to distinguish between the SIP and FIP in a single action[,]" *Oklahoma v. EPA,* Nos. 12-9526, 12-9527, 2013 WL 3766986, at *19 (10th Cir. July 19, 2013), the State has failed to demonstrate that vacating the Final Rule based upon this alleged procedural error is appropriate.

C. Coal Creek Station

The State and Great River Energy, the owner of the Coal Creek Station, challenge EPA's disapproval of the State's SIP determination that modified and additional separated overfire air with low NO_x burner (SOFA plus LNB) with an emission limit of 0.17lb/MMBtu on a thirty-day rolling average basis was BART for the Coal Creek Station. These petitioners also challenge EPA's FIP determination that selective non-catalytic reduction (SNCR) plus SOFA plus LNB with an emission limit of 0.13lb/MMBtu on a thirty-day rolling average is BART for the Coal Creek Station.

Energy production at the Coal Creek Station creates a by-product known as fly ash. Great River Energy is able to sell the fly ash created at the Coal

Creek Station to construction companies to be used as a replacement for cement in the creation of concrete. During its BART analysis for the Coal Creek Station, the State concluded that using SNCR to control additional emissions at the plant would result in ammonia slip, which in turn would contaminate the fly ash, making it unsuitable for use in concrete. The State thus concluded that SNCR would cause Great River Energy to lose revenue from the sale of fly ash and would result in additional costs to dispose of the fly ash in landfills.

The State requested information regarding fly ash sales from Great River Energy, which informed the State that it received $36 per ton of fly ash sold. The State used this information to calculate the estimated cost effectiveness of implementing SNCR as $8,551 per-ton-of-$NO_x$ removed. This estimate included the cost of lost fly ash revenue and the additional cost of disposing the unusable fly ash. *See* Great River Energy Add. 57. The State calculated the cost effectiveness of SOFA plus LNB as $411 per-ton-of-$NO_x$ removed. *Id.* The State concluded that the incremental cost of SNCR over SOFA plus LNB was excessive, but that if fly ash sales were not lost using SNCR, that the cost would not be considered excessive. *Id.* at 61. The State also found that the incremental improvement in visibility of SNCR over SOFA plus LNB was only 0.105 deciviews. The State concluded that "[b]ecause of the potential for lost sales of fly ash, the negative environmental effects of having to dispose of the fly ash instead of recycling it into concrete, and the very small amount of visibility improvement from the use of SNCR, this option is rejected as BART." *Id.* Instead, the State proposed that "BART is represented by modified and additional SOFA plus LNB[.]" *Id.*

During its review of the State's BART analysis for the Coal Creek Station, EPA identified a possible discrepancy regarding the projected costs associated with SNCR and requested additional information from Great River Energy to support its predictions on lost fly ash revenue. Great River Energy discovered that it had made a mistake in its disclosure to the State by stating that it received $36 per ton of fly ash in revenue, when its actual revenue from fly ash was only $5 per ton. On July 16, 2011, Great River Energy submitted corrected data regarding lost fly ash revenue, resulting in a projected cost effectiveness of SNCR as $2,318 per-ton-of-$NO_x$ removed. After reviewing the new data, EPA disapproved the State's BART determination for the Coal Creek Station. EPA concluded that the State's SIP failed to properly consider the cost of compliance in any meaningful sense as required by 40 C.F.R. § 51.308(e)(1)(ii)(A) because the cost of compliance analysis was based upon fundamentally flawed and greatly inflated cost estimates regarding lost fly ash revenue.

Having disapproved the State's BART determination, EPA proposed to promulgate a FIP imposing its own BART determination for the Coal Creek Station. After conducting its own BART analysis based upon the State's baseline emissions numbers for the Coal

Creek Station established in 2003-2004, as well as the corrected lost fly ash revenue projections, EPA proposed to find that BART was SNCR plus SOFA plus LNB with an emission limit of 0.12lb/MMBtu on a thirty-day rolling average. 76 Fed. Reg. 58,622. Great River Energy submitted several comments on EPA's proposed BART determination, including its objections to EPA's calculations regarding cost effectiveness on the ground that EPA had failed to consider existing control technology in use at the Coal Creek Station. *See, e.g.,* 77 Fed. Reg. 20,927. From 2006 to 2009, Great River Energy tested a prototype pollution control technology that is now known as DryFining™. Great River Energy voluntarily installed a full version of the technology at the Coal Creek Station in 2009, two years prior to EPA's proposed BART determination. EPA acknowledged Great River Energy's comments but concluded that it was not required to consider voluntarily installed control technology that was installed after the baseline period. 77 Fed. Reg. 20,918. EPA's Final Rule concluded that BART was SNCR plus SOFA plus LNB, but determined that the emission limit should be 0.13lb/MMBtu on a thirty-day rolling average. 77 Fed. Reg. 20,899.

1. Disapproval of the State's BART determination

The State and Great River Energy contend that EPA's disapproval of the State's BART determination for the Coal Creek Station was arbitrary, capricious, and an abuse of discretion. They contend that because EPA is required to approve a SIP submission that meets all of the requirements of § 169A, *see* 42 U.S.C. § 7410(k)(3), and because the State's SIP contained an analysis of each mandatory BART factor, EPA was without authority to disapprove the SIP, notwithstanding that the cost of compliance factor was based upon admittedly erroneous data. Under the State and Great River Energy's interpretation of § 169A, EPA's role in reviewing a state's BART determination is limited to ensuring that at least minimal consideration is given to each factor and does not permit EPA to examine the rationality or reasonableness of the underlying decision.

EPA contends that it possessed the authority to disapprove the State's BART determination because the State had failed to consider, in any meaningful sense, the cost of compliance, which is a factor that a state must consider under the statute and the applicable guidelines. *See* 42 U.S.C. § 7491(g)(2); 40 C.F.R. § 51.308(3)(1)(ii)(A). EPA argues that although the BART analysis contained a discussion of the cost of compliance for SNCR, the discussion was based upon grossly erroneous data that skewed the results and prevented the State from properly considering this factor. Moreover, EPA notes that the State acknowledged in its SIP that but for the cost of lost revenue for fly ash, the State would not have found the cost of compliance for SNCR excessive.

Although the CAA grants states the primary role of determining the appropriate pollution controls within their borders, EPA is left with more than the ministerial task of routinely approving SIP submissions. The Tenth Circuit recently concluded that EPA acted within its power under § 169A in rejecting a BART determination on the basis that the state "did not properly take into consideration the costs of compliance when it relied on cost estimates that greatly overestimated the costs of dry and wet scrubbing to conclude these controls were not cost effective." *Oklahoma v. EPA,* 2013 WL 3766986, at *3, *5-6 (internal quotation marks omitted). The court held that because the state's cost of compliance estimate was based upon fundamental methodological flaws, EPA had a reasonable basis for rejecting the state's BART determination for failure to comply with the requisite BART guidelines. *Id.* at *8. Moreover, in *Alaska Department of Environmental Conservation v. EPA,* 540 U.S. 461 (2004), the Supreme Court rejected an argument similar to that raised here regarding EPA's oversight role in the BACT determination process under § 167 of the CAA. The Court held that EPA was not limited simply to verifying that a BACT determination was actually made, concluding instead that EPA could examine the substance of the BACT determination to ensure that it was one that was "reasonably moored to the Act's provisions" and was based on "reasoned analysis." *See id.* at 485, 490. Although the Court's analysis was one under § 167, we nonetheless find it persuasive in the context of § 169A.

We see little difference between the rejection of a factor containing methodological flaws that led to an overestimated cost of compliance, as occurred in

Oklahoma v. EPA, and the rejection of a factor containing data flaws that led to an overestimated cost of compliance, as occurred in this case. In both cases, the flaw in the analysis prevented the state from conducting a meaningful consideration of the factor, as required by the BART guidelines. As did the Supreme Court in its § 167 analysis in *Alaska Department of Environmental Conservation,* we reject the argument that EPA is required under § 169A to approve a BART determination that is based upon an analysis that is neither reasoned nor moored to the CAA's provisions. At oral argument, the State all but conceded EPA's ability to review the substantive content of the BART determination when it acknowledged that EPA would have the authority to disapprove a SIP if the state plainly proceeded without a sufficient factual basis. Accordingly, we conclude that EPA's disapproval of the State's BART determination for failing to consider the cost of compliance as required under the statute and the BART guidelines was neither arbitrary, capricious, nor an abuse of discretion.[2]

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[2] Nor do we find convincing Great River Energy's argument that under *Friends of the Boundary Waters Wilderness v. Dombeck,* 164 F.3d 1115, 1129 (8th Cir. 1999), EPA was first required to prove that the data error was material to the State's determination before rejecting its BART determination all together. *Friends of the Boundary Waters Wilderness* is inapplicable because the data error discussed and addressed in that case was one contained in a factor voluntarily considered by the agency under a completely different regulatory act. In this case, the data error was contained in a factor that the State was obligated

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The State argues in the alternative that EPA's decision was arbitrary and capricious because it prematurely rejected the State's SIP based upon the data error in the cost of compliance factor before the State could supplement its SIP and address the data error. The State contends that it notified EPA that it would submit a supplemental BART determination for the Coal Creek Station once it received the projected final revised cost estimates from Great River Energy. The State argues further that EPA prematurely disapproved the State's original BART determination in its regional haze SIP, knowing that a supplemental BART determination was forthcoming.

Under 42 U.S.C. § 7410(k)(2), EPA is required to take action on a SIP submission within twelve months of the date that the submission is deemed complete. EPA may approve the submission as a whole or in part, but whatever action it takes must be done within twelve months of the completed SIP submission. *See* 42 U.S.C. § 7410(k)(2)-(3). The State's regional haze SIP submission was deemed complete on April 30, 2011, leaving EPA until April 30, 2012, to take action thereon. Although Great River Energy submitted initial information regarding lost fly ash revenue on June 16, 2011, as of April 2012, it had yet to submit its final revised calculations regarding the projected costs associated with lost fly ash sales. EPA

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to properly consider under the CAA; thus, EPA need only demonstrate that the State failed to consider this factor as required by the CAA and accompanying regulations.

took final action on the State's SIP addressing the BART determination for the Coal Creek Station on April 6, 2012. Great River Energy did not submit its final revised calculations regarding the projected cost associated with lost fly ash sales until June 2012. The State has identified no provision of the CAA that obligated EPA to wait for its supplemental BART determination before disapproving its original Coal Creek Station BART determination. Nor has the State identified any provision that tolled the twelve-month period within which EPA was required to take final action. The State has thus failed to demonstrate that EPA's disapproval of the State's BART determination for the Coal Creek Station was arbitrary, capricious, or an abuse of discretion.

2. Promulgation of a FIP for the Coal Creek Station

In light of its decision to disapprove the State's SIP related to its BART determination for the Coal Creek Station, EPA was obligated under the CAA to promulgate a FIP within two years of the disapproval "unless the State correct[ed] the deficiency, and the Administrator approve[d] the plan or plan revision, before the Administrator promulgate[d] such Federal implementation plan." 42 U.S.C. § 7410(c)(1)(B). Great River Energy challenges EPA's determination that SNCR is BART for the Coal Creek Station on the ground that EPA violated the CAA by refusing to consider existing pollution control technology at the station during its BART analysis. One of the statutory factors that a state and EPA must consider when determining BART is "any existing pollution control technology in use at the source." 42 U.S.C. § 7491(g)(2). During its BART analysis EPA refused to consider the DryFining™ pollution control technology in use at the Coal Creek Station, stating in its Final Rule that "DryFining™ was not installed until after the baseline period and was installed voluntarily, not to meet any regulatory requirement[,]" and that EPA was not required to reconsider cost estimates based on voluntarily installed controls installed after the baseline period. 77 Fed. Reg. 20,918. Great River Energy contends that EPA's refusal to consider the voluntarily installed pollution control technology in use at the Coal Creek Station demonstrates that EPA failed to consider all of the statutory factors required under 42 U.S.C. § 7491(g)(2) and 40 C.F.R. § 51.308(e)(1)(i)(A) and that its BART determination must therefore be vacated.

EPA contends that it was not required to consider the voluntarily installed pollution controls at the Coal Creek Station, including the DryFining™ technology, because it permissibly interpreted the ambiguous phrase "existing pollution control technology in use at the source" to mean existing technology "incorporated into emission limits in an approved SIP or specified in a Clean Air Act permit for the facility and . . . adopted to meet Clean Air Act requirements." EPA Br. 82. Making no mention of or giving any significance to the word "any" in § 7491(g)(2), EPA argues that its interpretation of the ambiguous statutory language "existing pollution control technology" is entitled to deference, presumably under *Chevron, U.S.A., Inc. v. Natural Resources Defense Council, Inc.,* 467 U.S. 837 (1984). Great River Energy contends that EPA's interpretation of "any existing pollution controls" is entitled to no deference because the statutory language at issue is clear and unequivocal, not ambiguous.

Chevron deference is appropriate when an agency exercises its generally conferred authority to resolve a particular statutory ambiguity and the resulting interpretation is based on a permissible construction of the statute. *See Chevron,* 467 U.S. at 842-43. To determine if an agency interpretation is entitled to *Chevron* deference,

> [W]e ask first whether the intent of Congress is clear as to the precise question at issue. If, by employing traditional tools of statutory construction, we determine that Congress' intent is clear, that is the end of the matter. But if the statute is silent or ambiguous with respect to the specific issue, the question for the court is whether the agency's answer is based on a permissible construction of the statute. If the agency's reading fills a gap or defines a term in a reasonable way in light of the Legislature's design, we give that reading controlling weight, even if it is not the answer the court would have reached if the question initially had arisen in a judicial proceeding.

Baptist Health v. Thompson, 458 F.3d 768, 773 (8th Cir. 2006) (alteration in original) (citations omitted in original) (internal quotation marks omitted).

Under the first step of the *Chevron* analysis, we employ the traditional tools of statutory interpretation to determine whether the statute makes clear the intent of Congress as to the meaning of the phrase "any existing pollution control technology in use at the source." 42 U.S.C. § 7491(g)(2). "As in all such cases, we begin by analyzing the statutory language, 'assum[ing] that the ordinary meaning of that language accurately expresses the legislative purpose.'" *Hardt v. Reliance Standard Life Ins. Co.,* 560 U.S. 242, 130 S. Ct. 2149, 2156 (2010) (alteration in original) (quoting *Gross v. FBL Fin. Servs., Inc.,* 557 U.S. 167, 175 (2009)).

The Supreme Court has acknowledged that "'any' can and does mean different things depending upon the setting." *Nixon v. Mo. Mun. League,* 541 U.S. 125, 132 (2004). Nevertheless, "[i]n a series of cases, the Supreme Court has drawn upon the word 'any' to give the word it modifies an 'expansive meaning' when there is 'no reason to contravene the clause's obvious meaning.'" *New York v. EPA,* 443 F.3d 880, 885 (D.C. Cir. 2006) (quoting *Norfolk S. Ry. Co. v. Kirby,* 543 U.S. 14, 31-32 (2004)). This line of cases adopting an expansive meaning includes the interpretation of the term "any" under § 307(b)(1) of the CAA, 42 U.S.C. § 7607(b)(1). *See Harrison v. PPG Indus., Inc.,* 446 U.S. 578 (1980).

An examination of the relevant statutory language in § 7491(g)(2) reveals "no reason to contravene the clause's obvious meaning[,]" *Kirby,* 543 U.S. at 31-32, nor has EPA proffered any reason to do so. We thus afford the term its obvious and expansive meaning and conclude that Congress's use of the term "any" to modify "existing pollution control technologies" demonstrates that it intended the decision maker to consider "one or some indiscriminately of whatever kind," *Webster's Third International Dictionary* (*Unabridged*), 97 (1981), of control technologies in use at the source, not simply those that are "incorporated into emission limits in an approved SIP or specified in a Clean Air Act permit for the facility and . . . adopted to meet Clean Air Act requirements." EPA Br. 82.

Because we find no ambiguity in the kind of technologies that must be considered under § 7491(g)(2), EPA's interpretation that it was not required to consider the existing pollution control technologies in use at the Coal Creek Station is entitled to no deference. Just as the State was required to properly consider each statutory factor in the BART analysis in the implementation of its SIP, so too was EPA in the promulgation of its FIP. Accordingly, EPA's refusal to consider the existing pollution control technology in use at the Coal Creek Station because it had been voluntarily installed was arbitrary and capricious and its FIP promulgating SNCR as BART for the Coal Creek Station is therefore vacated.

D. Antelope Valley Station

The State challenges EPA's disapproval of its reasonable progress determination for Antelope Valley Station Units 1 and 2 and EPA's subsequent promulgation of a FIP.

As discussed above, the CAA requires that states make determinations of reasonable progress for achieving natural visibility in Class I Federal areas. The state is required to analyze and determine the rate of progress necessary to achieve natural visibility conditions in the mandatory Class I Federal areas by the year 2064 and "consider the uniform rate of improvement in visibility and the emission reduction measures needed to achieve it for the period covered by the implementation plan." 40 C.F.R. § 51.308(d)(1)(i)(B). During its analysis, the State concluded that the rate of progress necessary "for the implementation plan to attain natural conditions by 2064 [was] not reasonable[.]" *Id.* § 51.308(d)(1)(ii). This determination allowed the State to implement a slower rate of progress but it also obligated the State to demonstrate that its reasonable progress goals were reasonable. *Id.*

When the State established its reasonable progress goals for the Theodore Roosevelt National Park and Lostwood Wilderness Areas it determined that additional pollution control technologies for Antelope Valley Station Units 1 and 2 were unnecessary to achieve reasonable progress. The State reached this conclusion after examining the four statutory factors that must be taken into account in determining reasonable progress under § 7491(g)(1): costs of compliance; the time necessary for compliance; the energy and non-air quality environmental impacts of compliance; and the remaining useful life of the units – as well as one nonstatutory factor, incremental visibility improvement. In its analysis of the projected improvement in visibility, the State created and used its own cumulative source visibility model, which employs current degraded background visibility conditions as its baseline. Using the cumulative source visibility model, the State concluded that the maximum combined improvement for the average of the 20% worst days was 0.11 deciviews at Lostwood Wilderness Area and 0.03 deciviews at Theodore Roosevelt National Park. The State then chose to evaluate the cost effectiveness of additional controls at Antelope Valley using the dollar-per-deciview of improvement metric rather than the more conventional dollar-per-ton-of-NO_x removed metric. With the visibility numbers calculated using the cumulative source visibility model, the State found that the cost effectiveness of additional controls would be 618 million dollars-per-deciview of improvement at Lostwood Wilderness Area and 2.3 billion dollars-per-deciview of improvement at Theodore Roosevelt National Park. The State found these costs excessive and determined that installing additional controls at the Antelope Valley Station was not reasonable.

EPA proposed to disapprove the State's determination, concluding that the decision not to install additional controls was unreasonable in light of the State's admission that it could not meet the uniform rate of progress to restore natural visibility in Class I Federal areas by 2064. EPA took issue with two aspects of the State's reasonable progress determination: the results of the State's incremental visibility improvement analysis and the results of the State's cost effectiveness analysis. Both sets of results were based upon the State's use of its cumulative source visibility modeling. In the Proposed Rule, EPA found "that North Dakota's visibility modeling significantly understates the visibility improvement that would be realized for the control options under consideration." 76 Fed. Reg. 58,627. EPA concluded:

> While it is reasonable for a state to consider visibility improvement as an additional factor in its reasonable progress analysis when evaluating visibility benefits from potential control options at individual sources, it is not appropriate to assume degraded background conditions, as the State did. As we note above, using degraded rather than natural background in the modeling produces estimates that greatly underestimate the benefits of potential control options. The ultimate goal of the regional haze program is to achieve natural visibility conditions, not to preserve degraded conditions.

76 Fed. Reg. 58,629. EPA also found that because of the greatly underestimated improvement in visibility attributable to the State's visibility model, that "cost effectiveness values, when expressed in dollars per

deciview, were overestimated." *Id.* EPA thus proposed to disapprove the reasonable progress determination for Antelope Valley Station Units 1 and 2. In its place, EPA proposed to promulgate a FIP determining that separated overfire air plus low NO_x burners (SOFA + LNB) with an emission limit of 0.17 lb/MMBtu on a thirty-day rolling average represented reasonable progress for Units 1 and 2. 76 Fed. Reg. 58,632. EPA concluded that this technology would cost approximately $586 and $661 per-ton-of-$NO_x$ removed at Units 1 and 2 and would result in the total removal of approximately 3,500 tons of NO_x per unit per year. *Id.*

The State challenges EPA's disapproval of its reasonable progress determination, contending that EPA's rejection of the incremental visibility improvement results and the dollars-per-deciview of improvement results based upon the State's cumulative source visibility modeling was arbitrary, capricious, and an abuse of discretion. Because this was a reasonable progress determination, the State contends that it was not obligated to use the single source visibility model required under the BART Guidelines and that it could instead develop and utilize its own visibility model. EPA concedes that the State was not obligated to use EPA's single source visibility model, but argues that if a state chooses to consider incremental visibility improvement in the reasonable progress context, it must do so in a manner that is consistent with the CAA.

As discussed above, EPA's review of a SIP extends not only to whether the state considered the necessary factors in its determination, but also to whether the determination is one that is reasonably moored to the CAA's provisions. *See ante* 12-14. This is especially true when a state is obligated to demonstrate that its determination is one that is reasonable, as was the case here. *See* 40 C.F.R. § 51.308(d)(1)(ii). In its review of the State's reasonable progress determination, EPA concluded that the cumulative source visibility model employing the current degraded conditions as its baseline was not consistent with the CAA. EPA noted that the use of such a visibility model will rarely if ever demonstrate that emissions reductions at a single source will have an appreciable effect on incremental visibility improvement in a given area. "This is true because of the nonlinear nature of visibility impairment. In other words, as a Class I area becomes more polluted, any individual source's contribution to changes in impairment becomes geometrically less." 77 Fed. Reg. 20,912 (quoting 70 Fed. Reg. 39,124). EPA found that rather than restore Class I areas to natural conditions, such a visibility model will serve instead to maintain current degraded conditions. EPA's determination on this matter is entitled to judicial deference, as it involves "technical matters within its area of expertise[.]" *Lockhart v. Kenops,* 927 F.2d 1028, 1034 (8th Cir. 1991) (quoting *Louisiana ex rel. Guste v. Verity,* 853 F.2d 322, 329 (5th Cir. 1988)); *see also Marsh v. Or. Natural Res. Council,* 490 U.S. 360, 378 (1989) ("When specialists express conflicting views, an agency must have discretion to rely on the reasonable opinions of its own qualified experts even if, as an original matter, a court might find contrary views more persuasive.").

The State's determination that no additional NO_x controls were necessary for Antelope Valley Station Units 1 and 2 was based primarily on the lack of incremental visibility improvement expected from the installation of the technology and its excessive cost effectiveness on a dollars-per-deciview of improvement metric. Each of these conclusions, however, was reached through the use of the State's cumulative source visibility modeling. Although the State was free to employ its own visibility model and to consider visibility improvement in its reasonable progress determinations, it was not free to do so in a manner that was inconsistent with the CAA. Because the goal of § 169A is to attain natural visibility conditions in mandatory Class I Federal areas, *see* 42 U.S.C. § 7491(a)(1), and EPA has demonstrated that the visibility model used by the State would serve instead to maintain current degraded conditions, we cannot say that EPA acted in a manner that was arbitrary, capricious, or an abuse of discretion by disapproving the State's reasonable progress determination based upon its cumulative source visibility modeling.

Although the State has challenged EPA's promulgation of its FIP – concluding that reasonable progress for Antelope Valley Station Units 1 and 2 was SOFA+LNB with a 0.17 lb/MMBtu emission limit on a thirty-day rolling average – it has done so only on procedural grounds, arguing that because the disapproval of the SIP was improper, so too was the promulgation of the FIP. Because we conclude that EPA properly disapproved the State's reasonable progress determination, the State's challenge to the FIP necessarily fails. Accordingly, the State's petition for review of EPA's disapproval of the State's SIP and promulgation of a FIP is denied.

E. Coyote Station

The Environmental Groups challenge EPA's approval of the 0.50 lb/MMBtu emission limit as reasonable progress for the Coyote Station.

As part of its regional haze SIP, the State conducted a reasonable progress determination for the Coyote Station. During this determination, the State evaluated several possible pollution control technologies, including advanced separated overfire air (ASOFA). The State estimated that installing ASOFA would result in a 40% reduction of NO_x emissions. Although the State determined that ASOFA would result in a cost effectiveness of $246 per-ton-of-$NO_x$ removed, it concluded that the more appropriate measure of cost effectiveness for determining reasonable progress was expressed in dollars-per-deciview of improvement. Using its own visibility modeling discussed above, the State calculated a combined maximum improvement in deciviews over the 20% worst days at Lostwood Wilderness Area and Theodore Roosevelt National Park. As with the determination for Antelope Valley Station Units 1 and 2, the State used the projected visibility improvements to calculate the cumulative cost effectiveness of additional technologies of approximately 618 million dollars-per-deciview of improvement at Lostwood Wilderness Area and 2.3 billion dollars-per-deciview of improvement at Theodore Roosevelt National Park. Based upon these cost effectiveness calculations, the State concluded that no additional NO_x controls were reasonably necessary at the Coyote Station.

Notwithstanding this conclusion, the State engaged in negotiations with the owner of the Coyote Station, reaching an agreement that established an NO_x emission limit of 0.50 lb/MMBtu on a thirty-day rolling average. This emission limit would be satisfied through the installation of additional pollution controls, assumed to be overfire air (OFA), that would remove approximately 4,213 tons of NO_x, which represents an approximate 32% decrease in emissions from the station's 2000-2004 baseline. This agreement was made enforceable through a permit for construction at the Coyote Station and was submitted with the State's SIP.

In its review of the State's reasonable progress determination, EPA concluded that the State had unreasonably rejected ASOFA as a potential technology representing reasonable progress because its decision was based on the same cumulative source visibility modeling discussed above. *See* 76 Fed. Reg. 58,630. Unlike the determination involving the Antelope Valley Station, however, the State nevertheless had included in its SIP an emission limit for the Coyote Station. EPA found the following:

> [W]e continue to disagree with the manner in which North Dakota evaluated visibility improvement when it evaluated single source controls and have disregarded this evaluation in our consideration of the reasonableness of North Dakota's reasonable progress control determinations. We also disagree with some of North Dakota's legal conclusions about the necessity of reasonable progress controls for certain sources – specifically, for Coyote Station for NO_x and for Heskett Station 2 for sulfur dioxide (SO_2). However, in these instances, North Dakota nonetheless included emission limits in the SIP that reflect reasonable levels of control for reasonable progress for this initial planning period. Here again, we understand that there is room for disagreement about the State's analyses and appropriate limits. And, again, we may have reached different conclusions had we been performing the determinations. However, the comments have not convinced us that the State, conducting specific case-by-case analyses for the relevant units, made unreasonable determinations for this initial planning period or that we should be disapproving the State's reasonable progress determinations that we proposed to approve.

77 Fed. Reg. 20,899. Therefore, after "disregard[ing] the State's visibility analysis . . . and instead focus[ing]

on the four reasonable progress factors[,]" EPA concluded that the State's proposed 0.50 lb/MMBtu emission limit was not unreasonable. 77 Fed. Reg. 20,937.

The Environmental Groups first argue that EPA's approval of the 0.50 lb/MMBtu emission limit as reasonable progress was arbitrary, capricious, and an abuse of discretion because EPA could not find that the State unreasonably rejected ASOFA as a potential technology representing reasonable progress, while simultaneously approving the more lax 0.50 lb/MMBtu emission limit. But EPA's finding that the State unreasonably rejected ASOFA on the ground that it was not cost effective has no bearing on whether the emission limit was itself reasonable progress. EPA's implicit conclusion that ASOFA would have been technology representing reasonable progress does not mean that EPA concluded that ASOFA was the only technology representing reasonable progress. Even if ASOFA were perhaps the most reasonable technology available, the CAA requires only that a state establish reasonable progress, not the most reasonable progress. EPA acknowledged that had it been making the decision in the first instance, it perhaps would have chosen ASOFA, but concluded that was not its decision to make. Given the procedural posture, EPA was obligated to review the State's decision to ensure that the State's determination represented reasonable progress, which it concluded the State had done. We thus find nothing arbitrary about EPA's conclusion that ASOFA would have represented reasonable progress and its ultimate determination that the 0.50

lb/MMBtu emission limit contained in the SIP also represented reasonable progress.

The Environmental Groups argue in the alternative that EPA's decision approving the emission limit lacked a reasoned basis and therefore must be vacated. "While we may not supply a reasoned basis for the agency's action that the agency itself has not given, . . . we will uphold a decision of less than ideal clarity if the agency's path may reasonably be discerned." *Bowman Transp., Inc. v. Arkansas-Best Freight Sys., Inc.,* 419 U.S. 281, 285-86 (1974) (internal citation omitted). In its consideration of the emission limit as reasonable progress, EPA disregarded the State's visibility modeling and instead evaluated the emission limit against the four statutory factors for reasonable progress. *See* 77 Fed. Reg. 20,937. In the Proposed Rule, EPA acknowledged that ASOFA was estimated to reduce emissions by approximately 40%, *see* 76 Fed. Reg. 58,626, but also acknowledged that the emission limit established for the Coyote Station was estimated to reduce emissions by approximately 32%, *see* 76 Fed. Reg. 58,628. Furthermore, OFA technology might well be considered cost effective in light of EPA's conclusion that the more advanced version of the technology ASOFA was cost effective. Thus, although EPA's decision in this instance is not a model of clarity, we nonetheless can discern its path.

Because the Environmental Groups have failed to demonstrate that EPA's approval of the 0.50 lb/MMBtu emission limit as reasonable progress for the Coyote Station was arbitrary, capricious, or an abuse of discretion, their petition for review of this issue is denied.

F. Milton R. Young and Leland Olds Stations

The Environmental Groups contend that EPA's approval of the State's BART determinations for Milton R. Young Station Units 1 and 2 and Leland Olds Station Unit 2 was arbitrary, capricious, and an abuse of discretion because it violated applicable notice and comments requirements and failed to provide a rational basis for EPA's change of position from the Proposed Rule to the Final Rule.[3]

The State determined during its evaluation of its regional haze obligations that these three units were subject to the BART requirements of § 169A. As discussed above, the second step in the BART Guidelines evaluation process involves the elimination of technically infeasible control technologies. *See* 70 Fed. Reg. 39,164. When the State conducted its BART analysis for each of these units, it eliminated selective catalytic reduction (SCR) as a potential control technology, concluding that SCR was not technically

[3] Young Station Units 1 and 2 and Olds Station Unit 2 each generate electricity by burning North Dakota lignite coal in Babcock & Wilcox cyclone boilers. Because each of these units operates the same type of boiler and burns the same type of coal, the technical feasibility determination required under the BART Guidelines will be the same for each unit. They are thus addressed together.

feasible for a unit that burned lignite coal in a cyclone boiler. The State thus concluded that BART for these units was SNCR. Contemporaneously, the State was also determining the best available control technology (BACT) for Young Station Units 1 and 2 pursuant to a consent decree entered into between the owner of the station, the State, and EPA under the CAA's Prevention of Significant Deterioration program. The consent decree gave the State the initial responsibility of determining BACT and gave EPA the authority to challenge that determination in the district court if it believed that it was unreasonable. BART and BACT both involve the elimination of technically infeasible control options, using substantially the same criteria. *See* 77 Fed. Reg. 20,897. In its BACT analysis, the State similarly concluded that SCR was technically infeasible because of the type of coal and type of boiler at issue and instead selected SNCR as BACT. EPA promptly challenged the State's BACT determination in district court, contending that SCR was a technically feasible emission control and should have been selected as BACT.

While EPA's petition challenging the State's BACT determination was pending, it proposed to disapprove the State's regional haze SIP, determining that BART for Young Station Units 1 and 2 and Olds Station Unit 2 was SNCR. The basis for EPA's proposed disapproval of the SIP mirrored its position in its petition challenging the State's BACT determination, namely, its belief that SCR was technically feasible and that the State's determination that it was not technically feasible was unreasonable. EPA acknowledged the district court proceeding in the Proposed Rule, stating that its "proposed action here pertains to BART, not BACT, is governed by CAA provisions and regulations specific to regional haze and BART, and is not governed by [the] consent decree." 76 Fed. Reg. 58,604 n.41. EPA simultaneously proposed to promulgate a FIP finding that SCR was BART for these units. On December 21, 2011, after the notice and comment period for the Proposed Rule had closed, the district court issued its decision on EPA's petition challenging the State's BACT determination. The district court found that the State's conclusion that SCR was not technically feasible was not unreasonable. *See Minnkota Power Co-op.,* 831 F. Supp. 2d at 1127-30.

Rather than disapproving the State's determination that SNCR was BART for Young Station Units 1 and 2 and Olds Station Unit 2 and promulgating its own FIP, EPA's Final Rule approved the State's SIP. In explaining its decision, EPA found two portions of the BART Guidelines relevant. First, EPA noted that the technical feasibility determination under the BART and BACT analyses was substantially the same. *See* 77 Fed. Reg. 20,897. Second, EPA noted that the BART Guidelines permit a state to rely upon a BACT determination for purposes of selecting BART, unless new technologies have become available or best control levels for recent retrofits have become more stringent. *See id.* EPA then acknowledged that over its "vigorous challenge of the information and analysis relied upon by North Dakota, the U.S. District Court upheld North Dakota's recent BACT determination based on the same technical feasibility criteria that apply in the BART context." *Id.* at 20,897-98. EPA concluded that "[i]n light of the court's decision and the views we have expressed in our BART guidelines, we have concluded that it would be inappropriate to proceed with our proposed disapproval of SNCR as BART[.]" *Id.* at 20,898. Accordingly, EPA approved the State's SIP addressing the BART determinations for Young Station Units 1 and 2 and Olds Station Unit 2.

Thereafter, the Environmental Groups filed this petition for review, while simultaneously filing a petition for reconsideration with EPA. On November 19, 2012, after all of the petitioners had filed their initial briefs, EPA granted the Environmental Groups' petition for reconsideration, a process that is still ongoing. On February 8, 2013, after briefing in the present case was completed, the Environmental Groups moved under Federal Rule of Appellate Procedure 42(b) to voluntarily dismiss their petition to the extent it challenges EPA's approval of the State's BART determination for Young Station Units 1 and 2 and Olds Station Unit 2.

"[T]he procedural requirements of the Clean Air Act do not permit [petitioners] to raise . . . objection[s] for the first time on appeal." *Appalachian Power Co. v. EPA* (*Appalachian Power II*), 249 F.3d 1032, 1055 (D.C. Cir. 2001) (first two alterations in original) (quoting *Am. Petroleum Inst. v. Costle,* 665 F.2d 1176, 1190-91 (D.C. Cir. 1981)). "Only an objection to a rule or procedure which was raised with reasonable specificity during the period for public comment . . . may be raised during judicial review." 42 U.S.C. § 7607(d)(7)(B). Section 7607(d)(7)(B) is "a jurisdictional administrative exhaustion requirement," *Noel Canning v. NLRB,* 705 F.3d 490, 497 (D.C. Cir. 2013), which courts are to strictly enforce, *Natural Res. Def. Council,* 571 F.3d at 1259. "The purpose of the exhaustion requirement is to ensure that the agency is given the first opportunity to bring its expertise to bear on the resolution of a challenge to a rule." *Appalachian Power I,* 135 F.3d at 818. "Consequently, the court enjoys the benefit of the agency's expertise and possibly avoids addressing some of the challenges unnecessarily." *Motor & Equip. Mfrs. Ass'n v. Nichols,* 142 F.3d 449, 462 (D.C. Cir. 1998).

EPA contends that the Environmental Groups' challenges to the approval of these BART determinations are not properly before us because they are being raised for the first time on appeal. The Environmental Groups acknowledge that because they had no notice that EPA was considering approving the BART determinations prior to publication of the Final Rule they did not raise a challenge to EPA's approval during the rulemaking process. In such cicumstances, "the CAA requires a petitioner to first raise its objection to the agency th[r]ough a petition for reconsideration." *Oklahoma v. EPA,* 2013 WL 3766986, at *11 (alteration in original) (quoting *Appalachian Power II,* 249 F.3d at 1065). The Environmental

Groups have done just that, filing a petition for reconsideration that is still under consideration.

Notwithstanding the Environmental Groups' failure to raise these objections during the rulemaking process, Intervenors Minnkota Power Cooperative, Inc. and Square Butte Electric Cooperative argue that § 7607(d)(7)(B) does not deprive us of jurisdiction. Intervenors contend that because § 7607(d)(7)(B) permits courts to stay the effectiveness of a final rule during reconsideration, it "expressly contemplates that a reviewing court retains subject matter jurisdiction over the claims during the pendency of EPA reconsideration." Intervenors Minnkota & Square Butte Br. 52 (citing § 7607(d)(7)(B) ("Such reconsideration shall not postpone the effectiveness of the rule. The effectiveness of the rule may be stayed during such reconsideration, however, by . . . the court for a period not to exceed three months.")). Intervenors are incorrect that this section contemplates that we retain jurisdiction to hear unexhausted claims. Rather, it establishes that we retain jurisdiction over the entire final rule pending the reconsideration of unexhausted claims, and thus have the authority to postpone the effectiveness of the entire final rule.

Because the Environmental Groups' challenges to EPA's approval of the State's BART determination for Young Station Units 1 and 2 and Olds Station Unit 2 were not raised before EPA during the rulemaking process, we conclude that we are without jurisdiction to hear them under § 7607(d)(7)(B). This conclusion renders moot the Environmental Groups' motion to dismiss their petition for review of these matters under Federal Rule of Appellate Procedure 42(b).

G. Interstate Transport SIP

The State contends that EPA's disapproval of its interstate transport SIP was arbitrary, capricious, and an abuse of discretion. In July 1997, EPA promulgated new NAAQS, which triggered the State's obligation to submit an interstate transport SIP addressing the new standards. As discussed above, one of the elements of this SIP is the "good neighbor" provision, which contains a visibility component. *See* 42 U.S.C. § 7410(a)(2)(D)(i)(II). In 2006, EPA issued guidance to the states on satisfying the good neighbor provision. *See* Environmental Protection Agency, *Guidance for State Implementation Plan Submissions to Meet Current Outstanding Obligations Under Section 110(a)(2)(D)(i) for the 8-Hour Ozone and* $PM_{2.5}$ *National Ambient Air Quality Standards* (2006) [hereinafter *2006 Guidance*].

The first paragraph of the *2006 Guidance* "emphasizes that this guidance document merely provides suggestions and . . . EPA may elect to follow or deviate from this guidance, as appropriate." *See id.* at 1. Regarding the visibility component of the good neighbor provision, the *2006 Guidance* recognized that because states' regional haze SIPs were not due until December 17, 2007, it was "currently premature" to determine whether a state's SIP complies with the good neighbor provision. *Id.* at 9-10.

Therefore, the *2006 Guidance* suggested "that States may make a simple SIP submission confirming that it is not possible at this time to assess whether there is any interference with measures in the applicable SIP for another State designed to 'protect visibility' for the 8-hour ozone or $PM_{2.5}$ NAAQS until regional haze SIPs are submitted and approved." *Id.* "Thus, EPA's recommendation to states as of that particular point in time was that they refer to the imminent regional haze SIP submission as the means by which they could address the visibility prong of [§ 7410(a)(2)(D)(i)]." 76 Fed. Reg. 58,642.

On April 6, 2009, the State submitted a SIP revision designed to satisfy its interstate transport requirements under the CAA. The State did not substantively address the visibility component, but instead referred to the *2006 Guidance* and included a placeholder submission, stating that until regional haze SIPs were submitted, it was not possible to assess whether there is any interference with measures in another state's applicable regional haze SIP. The State thus suggested that it planned to satisfy the visibility component through the submission of its regional haze SIP, which it submitted on March 3, 2010.

EPA reviewed the State's interstate transport SIP in 2011 and approved three of the four components, but disapproved the visibility component. EPA rejected the State's use of the placeholder submission suggested in the *2006 Guidance* and found that the SIP had failed to address substantively the visibility prong. EPA also concluded that the regional haze SIP could not be used to satisfy the visibility component because it was not fully approvable. *See* 76 Fed. Reg. 58,642. To address the visibility component, EPA proposed to promulgate a FIP. The FIP concluded that the visibility component would be satisfied by relying on a combination of the portions of the State's regional haze SIP that had been approved and the FIP promulgated to replace the disapproved portions of the regional haze SIP.

The State first contends that EPA acted arbitrarily by not following its *2006 Guidance* and refusing to accept its placeholder submission for the visibility component. We disagree, for the *2006 Guidance* clearly placed the State on notice that EPA was not issuing binding regulations but was instead only issuing suggestions that left EPA free "to follow or deviate from this guidance, as appropriate." *2006 Guidance* at 1. Moreover, the *2006 Guidance* suggested that it was "currently premature" to require a submission addressing visibility prior to the 2007 deadline for regional haze SIP submissions. This demonstrates that the *2006 Guidance* contained time-sensitive suggestions. It is undisputed that the State did not submit its interstate transport SIP until 2009, well after the period discussed in the *2006 Guidance*. Given the disclaimer within the *2006 Guidance* that EPA was free to deviate from it, as well as the time frame during which it was issued – prior to the deadline for submitting regional haze SIPs – the State has failed to demonstrate that EPA's refusal to accept the

State's placeholder statement regarding the visibility component was arbitrary, capricious, or an abuse of discretion.

The State argues in the alternative that its submission of the regional haze SIP satisfied the visibility component of the interstate transport SIP. EPA concluded, however, that because the regional haze SIP was not fully approvable, it could not satisfy the visibility component of the interstate transport SIP. The State does not challenge EPA's authority to disapprove the interstate transport SIP on this basis. Rather, it contends that because the regional haze SIP should have been approved as to all portions, it should have satisfied the visibility component in its interstate transport SIP. *See* State's Reply Br. 36 ("Because EPA's disapproval of North Dakota's [Coal Creek Station] BART determination and [Antelope Valley Station reasonable progress] determinations were arbitrary and capricious, so too is EPA's disapproval of North Dakota's SIP as it pertains to interstate visibility."). Because we have concluded that EPA properly disapproved portions of the State's regional haze SIP, the State's argument on this issue fails, and thus the State's petition for review of EPA's disapproval of the State's interstate transport SIP is denied.

III. Conclusion

We grant the State's and Great River Energy's petitions for review to the extent that they challenge

EPA's BART determination for the Coal Creek Station promulgated in EPA's FIP, and we vacate and remand that portion of the Final Rule to EPA for further proceedings consistent with this opinion. We deny the remainder of the State's, Great River Energy's, and the Environmental Groups' petitions for review, as well as the Environmental Groups' motion for voluntary dismissal under Federal Rule of Appellate Procedure 42(b).

Federal Register / Vol. 77, No. 67 /
Friday, April 6, 2012 / Rules and Regulations

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 52

[EPA-R08-OAR-2010-0406; FRL-9648-3]

Approval and Promulgation of Implementation Plans; North Dakota; Regional Haze State Implementation Plan; Federal Implementation Plan for Interstate Transport of Pollution Affecting Visibility and Regional Haze

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

[20894] **SUMMARY:** EPA is partially approving and partially disapproving a revision to the North Dakota State Implementation Plan (SIP) addressing regional haze submitted by the Governor of North Dakota on March 3, 2010, along with SIP Supplement No. 1 submitted on July 27, 2010, and part of SIP Amendment No. 1 submitted on July 28, 2011. These SIP revisions were submitted to address the requirements of the Clean Air Act (CAA or Act) and our rules that require states to prevent any future and remedy any existing man-made impairment of visibility in mandatory Class I areas caused by emissions of air pollutants from numerous sources located over a wide geographic area (also referred to as the "regional haze program"). EPA is promulgating a Federal Implementation Plan (FIP) to address the gaps in the plan

resulting from our partial disapproval of North Dakota's Regional Haze (RH) SIP.

In addition, EPA is disapproving a revision to the North Dakota SIP addressing the interstate transport of pollutants that the Governor submitted on April 6, 2009. We are disapproving it because it does not meet the Act's requirements concerning noninterference with programs to protect visibility in other states. To address this deficiency, we are promulgating a FIP.

DATES: This final rule is effective May 7, 2012.

ADDRESSES: EPA has established a docket for this action under Docket ID No. EPA-R08-OAR-2010-0406. All documents in the docket are listed on the www.regulations.gov Web site. Although listed in the index, some information is not publicly available, e.g., Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy form. Publicly available docket materials are available either electronically through www.regulations.gov. or in hard copy at the Air Program, Environmental Protection Agency (EPA), Region 8, 1595 Wynkoop Street, Denver, Colorado 80202-1129. EPA requests that if at all possible, you contact the individual listed in the **FOR FURTHER INFORMATION CONTACT** section to view the hard copy of the docket. You may view the hard copy of the docket Monday through Friday, 8 a.m. to 4 p.m., excluding Federal holidays.

FOR FURTHER INFORMATION CONTACT: Gail Fallon, Air Program, Mailcode 8P-AR, Environmental Protection Agency, Region 8, 1595 Wynkoop Street, Denver, Colorado 80202-1129, (303) 312-6281, or fallon.gail@epa.gov.

SUPPLEMENTARY INFORMATION:

Definitions

For the purpose of this document, we are giving meaning to certain words or initials as follows:

- The word *Act* or initials *CAA* mean or refer to the Clean Air Act, unless the context indicates otherwise.
- The initials *ASOFA* mean or refer to advanced separated overfire air.
- The initials *AVS* mean or refer to Antelope Valley Station.
- The initials *BACT* mean or refer to Best Available Control Technology.
- The initials *BART* mean or refer to Best Available Retrofit Technology.
- The initials *CAM* mean or refer to compliance assurance monitoring.
- The initials *CAMx* mean or refer to Comprehensive Air Quality Model.
- The initials *CCS* mean or refer to Coal Creek Station.

- The initials *CEMS* mean or refer to continuous emission monitoring system.

- The initials *CMAQ* mean or refer to Community Multi-Scale Air Quality modeling system.

- The initials *CSAPR* mean or refer to Cross-State Air Pollution Rule.

- The initials *EGUs* mean or refer to Electric Generating Units.

- The words *we*, *us* or *our* or the initials EPA mean or refer to the United States Environmental Protection Agency.

- The initials *FIP* mean or refer to Federal Implementation Plan.

- The initials *FLMs* mean or refer to Federal Land Managers.

- The initials *GRE* mean or refer to Great River Energy.

- The initials *IMPROVE* mean or refer to Interagency Monitoring of Protected Visual Environments monitoring network.

- The initials *IWAQM* mean or refer to Interagency Workgroup on Air Quality Modeling.

- The initials *LDSCR* mean or refer to low-dust SCR.

- The initials *LOS* mean or refer to Leland Olds Station.

• The words *Lostwood* or *Lostwood Wilderness Area* or initials *LWA* mean or refer to Lostwood National Wildlife Refuge Wilderness Area.

• The initials *LNB* mean or refer to low NO_x burners.

• The initials *LTS* mean or refer to Long-Term Strategy.

• The initials *MRYS* mean or refer to Milton R. Young Station.

• The initials *NAAQS* mean or refer to National Ambient Air Quality Standards.

• The words *North Dakota* and *State* mean the State of North Dakota unless the context indicates otherwise.

• The initials NO_x mean or refer to nitrogen oxides.

• The initials *NPCA* mean or refer to National Parks Conservation Association.

• The initials *NPS* mean or refer to National Park Service.

• The initials *PM* mean or refer to particulate matter.

• The initials PM_{10} mean or refer to particulate matter with an aerodynamic diameter of less than 10 micrometers or course particulate matter.

• The initials $PM_{2.5}$ mean or refer to particulate matter with an aerodynamic diameter of less than 2.5 micrometers or fine particulate matter.

- The initials *PRB* mean or refer to Powder River Basin.

- The initials *PSAT* mean or refer to Particle Source Apportionment Technology.

- The initials *PSD* mean or refer to Prevention of Signification Deterioration.

- The initials *RHR* mean or refer to the Regional Haze Rule.

- The initials *RH SIP* mean or refer to North Dakota's Regional Haze State Implementation Plan.

- The initials *RMC* mean or refer to the Regional Modeling Center at the University of California Riverside.

- The initials *RP* mean or refer to Reasonable Progress.

- The initials *RPG* mean or refer to Reasonable Progress Goal.

- The initials *SCR* mean or refer to selective catalytic reduction.

- The initials *SIP* mean or refer to State Implementation Plan.

- The initials *SNCR* mean or refer to selective non-catalytic reduction.

- The initials SO_2 mean or refer to sulfur dioxide.

- The initials *SOFA* mean or refer to separated overfire air.

• The initials *TRNP* mean or refer to Theodore Roosevelt National Park.

[20895] • The initials *TSD* mean or refer to Technical Support Document.

• The initials *URP* mean or refer to Uniform Rate of Progress.

• The initials *WEP* mean or refer to Weighted Emissions Potential.

• The initials *WRAP* mean or refer to the Western Regional Air Partnership.

Table of Contents

I. Background

The CAA requires each state to develop plans, referred to as SIPs, to meet various air quality requirements. A state must submit its SIPs and SIP revisions to us for approval. Once approved, a SIP is enforceable by EPA and citizens under the CAA, also known as being federally enforceable. If a state fails to make a required SIP submittal or if we find that a state's required submittal is incomplete or unapprovable, then we must promulgate a FIP to fill this regulatory gap. CAA section 110(c)(1).

This action involves two separate requirements under the CAA and EPA's regulations. One is the requirement that states have SIPs that address regional haze, the other is the requirement that states have SIPs that address the interstate transport of pollutants that may interfere with programs to protect visibility in other states.

A. Regional Haze

In 1990, Congress added section 169B to the CAA to address regional haze issues, and we promulgated regulations addressing regional haze in 1999. 64 FR 35714 (July 1, 1999), codified at 40 CFR part 51, subpart P. The requirements for regional haze, found at 40 CFR 51.308 and 51.309, are included in our visibility protection regulations at 40 CFR 51.300-309. The requirement to submit a regional haze SIP applies to all 50 states, the District of Columbia and the Virgin Islands. States were required to submit a SIP addressing regional haze visibility impairment no later than December 17, 2007. 40 CFR 51.308(b).

Few states submitted a regional haze SIP prior to the December 17, 2007 deadline, and on January 15, 2009, EPA found that 37 states, including North

Dakota, and the District of Columbia and the Virgin Islands, had failed to submit SIPs addressing the regional haze requirements. 74 FR 2392. Once EPA has found that a state has failed to make a required submission, EPA is required to promulgate a FIP within two years unless the state submits a SIP and the Agency approves it within the two year period. CAA section 110(c)(1).

North Dakota initially submitted a SIP addressing regional haze on March 3, 2010. On July 27, 2010, North Dakota submitted a revision to that submittal, entitled "SIP Supplement No. 1." On July 28, 2011, North Dakota submitted another revision, entitled "SIP Amendment No. 1."

B. Interstate Transport Requirements

Section 110(a)(1) of the CAA requires states to submit SIPs to address new or revised National Ambient Air Quality Standards (NAAQS) within 3 years after promulgation of such standards, or within such shorter period as we may prescribe. On July 18, 1997, we promulgated the 1997 8-hour ozone NAAQS and the 1997 fine particulate ($PM_{2.5}$) NAAQS. 62 FR 38652. Section 110(a)(2) of the CAA lists the elements that such new SIPs must address, as applicable, including section 110(a)(2)(D)(i), which pertains to the interstate transport of certain emissions.

Section 110(a)(2)(D)(i) contains four distinct requirements or "prongs" related to the impacts of interstate transport. The SIP must prevent sources in the state from emitting pollutants in amounts which will: (1) Contribute significantly to nonattainment of the NAAQS in other states; (2) interfere with maintenance of the NAAQS in other states; (3) interfere with provisions to prevent significant deterioration of air quality in other states; or (4) interfere with efforts to protect visibility in other states.

On April 25, 2005, we published a "Finding of Failure to Submit SIPs for Interstate Transport for the 8-hour Ozone and $PM_{2.5}$ NAAQS." 70 FR 21147. This action included a finding that North Dakota and other states had failed to submit SIPs to address interstate transport of air pollution and started a 2-year clock for the promulgation of a FIP by us, unless a state made a submission to meet the requirements of section 110(a)(2)(D)(i), and we approved the submission, prior to that time. *Id.*

On April 6, 2009, we received a SIP revision from North Dakota to address the interstate transport provisions of CAA 110(a)(2)(D)(i) for the 1997 8-hour ozone NAAQS and the 1997 $PM_{2.5}$ NAAQS. In prior actions, we approved this North Dakota SIP submittal for the first three prongs of section 110(a)(2)(D)(i). (75 FR 31290, June 3, 2010 and 75 FR 71023, November 22, 2010). This action addresses the fourth prong.

C. Lawsuits

In two separate lawsuits, one in U.S. District Court for the Northern District of California and one in the U.S. District Court for the District of Colorado, environmental groups sued us for our failure to timely take action with respect to the interstate transport requirements and the regional haze requirements of the CAA and our regulations. In particular, the lawsuits alleged that we [20896] had failed to promulgate FIPs for these requirements within the two-year period allowed by CAA section 110(c) or, in the alternative, fully approve SIPs addressing these requirements.

As a result of these lawsuits, we entered into two separate consent decrees in these two jurisdictions. The consent decree in the Northern District of California, as modified on several occasions, required that we sign a notice of proposed rulemaking for prong four of the interstate transport requirements for North Dakota by September 1, 2011. As lodged with the court, but before it was entered, the proposed consent decree in the District of Colorado required that we sign a notice of proposed rulemaking for regional haze requirements for North Dakota by July 21, 2011. Because the latter consent decree was not entered by the court until September 27, 2011, and we signed our notice of proposed rulemaking on September 1, 2011, the July 21, 2011 deadline was mooted.

Both consent decrees, as modified, require that we sign a notice of final rulemaking addressing the regional haze requirements and prong four of the interstate transport requirements by March 2, 2012.

We are meeting that requirement with the signing of this notice of final rulemaking.

D. Our Proposal

We signed our notice of proposed rulemaking on September 1, 2011, and it was published in the **Federal Register** on September 21, 2011 (76 FR 58570). In that notice, we provided a detailed description of the various regional haze and interstate transport requirements. We are not repeating that description here; instead, the reader should refer to our notice of proposed rulemaking for further detail.

In our proposal, we proposed to take the following actions:

1. Regional Haze

We proposed to disapprove the following parts of North Dakota's RH SIP:

a. North Dakota's nitrogen oxides (NO_x) best available retrofit technology (BART) determinations and emissions limits for Milton R. Young Station (MRYS) Units 1 and 2, Leland Olds Station (LOS) Unit 2, and Coal Creek Station (CCS) Units 1 and 2.

b. North Dakota's determination under the reasonable progress requirements found at section 40 CFR 51.308(d)(1) that no additional NO_x emissions controls were warranted at Antelope Valley Station (AVS) Units 1 and 2.

c. North Dakota's reasonable progress goals (RPGs).

d. Portions of North Dakota's long-term strategy (LTS) that relied on or reflected other aspects of the RH SIP that we were proposing to disapprove.

We proposed to approve the remaining aspects of North Dakota's RH SIP revision that was submitted on March 3, 2010 and SIP Supplement No. 1 that was submitted on July 27, 2010. We proposed to approve the following parts of SIP Amendment No. 1 that the State submitted on July 28, 2011:

a. Amendments to Section 10.6.1.2 pertaining to Coyote Station.

b. Amendments to Appendix A.4, the Permit to Construct for Coyote Station.

We proposed to not act on the remainder of the State's July 28, 2011 submittal.

We proposed to promulgate a FIP to address the deficiencies in the North Dakota RH SIP that we identified in our proposal. The proposed FIP included the following elements:

a. NO_x BART determinations and emission limits for MRYS Units 1 and 2 and Leland Olds Station Unit 2.

b. NO_x BART determination and emission limit for CCS Units 1 and 2.

c. A reasonable progress determination and NO_x emission limit for AVS Units 1 and 2.

d. A five-year deadline to meet the emission limits and monitoring, recordkeeping, and reporting requirements for the above seven units to ensure compliance.

e. RPGs consistent with the SIP limits proposed for approval and proposed FIP limits.

f. LTS elements that would reflect the other aspects of the proposed FIP.

We also proposed approval of a SIP revision in lieu of our regional haze FIP if the State submitted a revision in a timely way that matched the terms of our proposed FIP.

2. Interstate Transport, Visibility Prong

We proposed to disapprove the portion of North Dakota's April 6, 2009, SIP revision for interstate transport in which North Dakota intended to address the requirement of section 110(a)(2)(D)(i)(II) that emissions from North Dakota sources not interfere with measures required in the SIP of any other state under part C of the CAA to protect visibility.

Because of this proposed disapproval, we proposed a FIP to meet the visibility protection requirement of section 110(a)(2)(D)(i)(II). To meet this FIP duty, we proposed to find that North Dakota sources would be sufficiently controlled to eliminate interference with the visibility programs of other states by a combination of the measures that we were proposing to approve as meeting the regional haze SIP requirements combined with the additional measures that we were proposing to impose in a FIP to meet the remaining regional haze SIP requirements.

We noted that acting on both the section 110(a)(2)(D)(i)(II) requirement and the regional haze SIP requirement simultaneously would ensure the most efficient use of resources by the affected sources and EPA.

E. Public Participation

We requested comments on all aspects of our proposed action and provided a two-month comment period, with the comment period closing on November 21, 2011. We also provided a public hearing. Initially, we scheduled the hearing to last four hours on one day. 76 FR 58570. At the request of the Governor of North Dakota, we expanded the time for the public hearing to 14 hours over two days and changed the venue. 76 FR 60777 (September 30, 2011). The public hearing was held in Bismarck, North Dakota on October 13 and 14, 2011.

We received a significant number of comments on our proposed rule, both from commenters, particularly citizens and environmental groups, that supported our proposed action, and from commenters, primarily from state and city agencies, rural power cooperatives, and industrial facilities and groups, that were critical of our proposed action.

In this action, we are responding to the comments we have received, taking final rulemaking action, and explaining the bases for our action, including any changes from our proposed action.

II. Final Action

A. Regional Haze

With this final action we are partially approving and partially disapproving North Dakota's RH SIP revision that was submitted on March 3, 2010, SIP Supplement No. 1 that was submitted on July 27, 2010, and part of SIP Amendment No. 1 that was submitted on July 28, 2011. Specifically we are disapproving:

- North Dakota's NO_x BART determinations and emissions limits for CCS Units 1 and 2.

- North Dakota's determination under the reasonable progress requirements found at 40 CFR 51.308(d)(1) that no additional NO_x emissions controls are warranted at AVS Units 1 and 2.

- North Dakota's RPGs.

- Portions of North Dakota's LTS that rely on or reflect other aspects of the RH SIP that we are disapproving.

[20897] We are approving the remaining aspects of North Dakota's RH SIP revision that was submitted on March 3, 2010 and SIP Supplement No. 1 that was submitted on July 27, 2010. We are approving the following parts of SIP Amendment No. 1 that the

State submitted on July 28, 2011: (1) Amendments to Section 10.6.1.2 pertaining to Coyote Station, and (2) amendments to Appendix A.4, the Permit to Construct for Coyote Station. We are not taking action on the remainder of the July 28, 2011 submittal at this time.

We are finalizing a FIP to address the deficiencies in the North Dakota RH SIP that result from our partial disapproval of the SIP.

The final FIP includes the following elements:

- NO_x BART determination and emission limit for CCS Units 1 and 2 of 0.13 lb/MMBtu averaged across the two units on a 30-day rolling average, and a requirement that the owners/operators comply with this NO_x BART limit within five (5) years of the effective date of this final rule.

- A reasonable progress determination and NO_x emission limit for AVS Units 1 and 2 of 0.17 lb/MMBtu that applies singly to each of these units on a 30-day rolling average, and a requirement that the owner/operator meet the limit as expeditiously as practicable, but no later than July 31, 2018.

- Monitoring, record-keeping, and reporting requirements for the above four units to ensure compliance with these emission limitations.

- RPGs consistent with the SIP limits approved and the final FIP limits.

- LTS elements that reflect the other aspects of the finalized FIP.

B. Interstate Transport, Visibility Prong

We are disapproving a portion of a SIP revision that North Dakota submitted for the purpose of addressing the "good neighbor" provisions of CAA section 110(a)(2)(D)(i) for the 1997 8-hour ozone NAAQS and the 1997 $PM_{2.5}$ NAAQS. Specifically, we are disapproving the portion of the April 6, 2009 SIP in which North Dakota intended to address the requirement of section 110(a)(2)(D)(i)(II) that emissions from North Dakota sources do not interfere with measures required in the SIP of any other state under part C of the CAA to protect visibility. Because of this disapproval, we are promulgating a FIP to meet this requirement of section 110(a)(2)(D)(i)(II). To meet this FIP duty, we are finding that North Dakota sources will be sufficiently controlled to eliminate interference with the visibility programs of other states by a combination of the measures in the North Dakota SIP that we are simultaneously approving as meeting the regional haze SIP requirements combined with the additional measures that we are imposing in a FIP to meet the remaining regional haze SIP requirements. We note that North Dakota always has the discretion to revise its SIP and submit the revision to us. Should such a revision meet CAA requirements, we would replace our FIP with North Dakota's SIP revision. We encourage the State to revise its SIP.

III. Changes From Proposed Rule and Reasons for the Changes

A. NO_x BART for Milton R. Young Station Units 1 and 2 and Leland Olds Station Unit 2

As noted, we proposed to disapprove North Dakota's NO_x BART determinations for MRYS 1 and 2 and LOS 2 and to promulgate a FIP for NO_x BART for these units to fill the gap that would have resulted from our disapproval. After considering a recent judicial decision, we have decided to approve North Dakota's NO_x BART determination for MRYS 1 and 2 and LOS 2 and to not promulgate a FIP for NO_x BART for these units. We more fully describe the reasons for this change below.

On July 27, 2006, the U.S. District Court for the District of North Dakota entered a consent decree between EPA, the State, and Minnkota Power Cooperative ("Minnkota"). The consent decree resulted from an enforcement action that EPA and the State brought against Minnkota for alleged violations of Prevention of Significant Deterioration (PSD) permitting requirements at MRYS 1 and 2. The consent decree called for North Dakota to make a best available control technology (BACT) determination for NO_x for MRYS 1 and 2 but also provided a dispute resolution procedure in the event of disagreement regarding the BACT determination.

In November 2010, North Dakota determined BACT for NO_x to be limits of 0.36 lb/MMBtu for MRYS 1 and 0.35 lb/MMBtu for MRYS 2 based on the use of selective non-catalytic reduction (SNCR) technology, with separate limits during startup. In reaching this decision, North Dakota eliminated selective catalytic reduction (SCR), a higher performing control technology, based on a finding that SCR was not technically feasible to control emissions from North Dakota lignite coal. In particular, North Dakota noted that no SCR has ever been employed on an electric generating unit (EGU) burning North Dakota lignite, that North Dakota lignite has unique properties that have the potential to quickly degrade the SCR catalyst, and that no catalyst vendor supplied with the specifications for the coal at MRYS 1 and 2 would provide a guarantee of catalyst life without first conducting slipstream or pilot tests at MRYS.

EPA disagreed with North Dakota's findings and the selection of selective non-catalytic reduction (SNCR) as BACT and initiated the dispute resolution process under the consent decree. Under the consent decree, the court was tasked with upholding North Dakota's BACT determination unless the disputing party was able to demonstrate that North Dakota's decision was unreasonable. We have included a copy of the consent decree and the court's order in the docket for this action.

On December 21, 2011, following briefing by the parties, and consideration of North Dakota's record for its BACT determination, the court determined that EPA had not demonstrated that North Dakota's findings were unreasonable. The court decided that North Dakota, based on the administrative record for its BACT determination, had a reasonable basis for concluding that SCR is not technically feasible for treating North Dakota lignite at MRYS. The court upheld North Dakota's determination that SNCR is BACT.

There are two critical principles expressed in our BART guidelines that are relevant here. First, as part of a BART analysis, technically infeasible control options are eliminated from further review. For BART, EPA's criteria for determining whether a control option is technically infeasible are substantially the same as the criteria used for determining technical infeasibility in the BACT context. 70 FR 39165; EPA's "New Source Review Workshop Manual," pages B.17-B.22. Second, the BART guidelines indicate that states generally may rely on a BACT determination for a source for purposes of determining BART for that source, unless new technologies have become available or best control levels for recent retrofits have become more stringent. 70 FR 39164. As a general rule, the selection of a recent BACT level as BART is the equivalent of selecting the most stringent level of control, and consideration of the five statutory BART factors becomes unnecessary.

Over our vigorous challenge of the information and analysis relied upon by North Dakota, the U.S. District Court upheld North Dakota's recent BACT determination based on the same [20898] technical feasibility criteria that apply in the BART context. In light of the court's decision and the views we have expressed in our BART guidelines on the relationship of BACT to BART, we have concluded that it would be inappropriate to proceed with our proposed disapproval of SNCR as BART and our proposed FIP to impose SCR at MRYS 1 and 2 and LOS 2. While LOS 2 was not the subject of the BACT determination, the same reasoning that applies to MRYS 1 and 2 also applies to LOS 2. It is the same type of boiler burning North Dakota lignite coal, and North Dakota's views regarding technical infeasibility that the U.S. District Court upheld in the MRYS BACT case apply to it as well. Thus, with this action we are approving North Dakota's NO_x BART determinations for MRYS 1 and 2 and LOS 2, and no FIP for these units is necessary. The applicable limits are 0.36 lb/MMBtu for MRYS 1 and 0.35 lb/MMBtu for MRYS 2 and 0.35 lb/MMBtu for LOS 2.

We note, however, that the State has indicated a willingness to pursue the conduct of a pilot study at MRYS and/or LOS to analyze the expected replacement rate of SCR catalyst exposed to flue gas from the combustion of North Dakota lignite at these cyclone units in a low-dust or tail-end configuration. It is our expectation that the results of such a study could be used to inform further evaluation of SCR as a potential control technology when the State evaluates reasonable progress in the next planning period for regional haze. This position is supported by the State's December 20, 2011 letter from North Dakota Department of Health (NDDH), L. David Glatt, to EPA, Janet McCabe.

B. NO_x BART for Coal Creek Station (CCS) Units 1 and 2

We proposed a NO_x BART FIP limit for CCS 1 and 2 of 0.12 lb/MMBtu that would apply to each unit individually on 30-day rolling average basis. We based this limit on our proposed finding that SNCR plus separated overfire air (SOFA) plus low NO_x burners (LNB) was the best available retrofit technology. While we continue to find that SNCR plus SOFA plus LNB is the best available retrofit technology, we are changing the emission limit to 0.13 lb/MMBtu averaged over both units on a 30-day rolling average basis. Evidence submitted by commenters and our own additional research in evaluating comments has led us to conclude that this represents a more reasonable limit to apply on a 30-day rolling average basis.

This limit represents a control efficiency of 48% based on the average annual baseline emission rate of 0.22 lb/MMBtu (2003-2004) provided in the State's BART determination. This value is slightly lower than the 49% control efficiency we assumed in our proposal, a value that was based on the State's analysis. Beginning in 2010, CCS 2 voluntarily started employing LNC3, the more stringent level of combustion controls that the State evaluated in its BART determination. Annual average Clean Air Markets data for this unit reflects a NO_x emission rate of 0.153 lb/MMBtu. We estimate that SNCR would achieve an additional 25% reduction, equivalent to an emission rate of 0.115 lb/MMBtu. This compares to a value of 0.108 lb/MMBtu that the State originally estimated.

Great River Energy (GRE), the owner of CCS, asserted in comments that SNCR will only achieve a 20% reduction beyond LNC3. We find that 25% is a conservative and reasonable estimate. We considered several sources of information in arriving at this value. First, the Control Cost Manual states that in typical field applications, SNCR provides a 30% to 50% NO_x reduction. The manual provides a scatter plot with NO_x reduction efficiency plotted as a function of boiler size in MMBtu/hr.[1] The plot supports GRE's assertion that control efficiency could be lower than 50%, and could approach 30%, for larger boilers such as those at CCS. Second, Fuel Tech (one of the most recognized SNCR technology suppliers) estimates a range of 25% to 50% NO_x reduction with application of SNCR.[2] Lastly, ICAC has published information that supports a control efficiency of 20 to 30% for SNCR above LNB/combustion modifications.[3] Given this range of control efficiencies, we have settled on a control efficiency – 25% – that is lower than the lowest value given by the Control Cost Manual, at the low end of the range estimated by Fuel Tech, and in the middle of the range estimated by ICAC.

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[1] U.S. EPA, EPA Air Pollution Control Cost Manual, EPA/452/B-02-001, 6th Ed., January 2002, Section 4.2, Chapter 1, p. 1-3.

[2] http://www.ftek.com/en-US/products/apc/noxout/.

[3] Institute of Clean Air Companies, White Paper Selective Non-Catalytic Reduction (SNCR) for Controlling NO_x Emissions. February 2008, p. 9.

To arrive at a final BART emission limit, we adjusted the projected annual average of 0.115 lb/MMBtu upward by 10% and then rounded to the nearest hundredth to arrive at 0.13 lb/MMBtu. In our experience, a 5 to 15% upward adjustment is appropriate when converting an annual average emission rate to a limit that will apply on a 30-day rolling average to account for the fact that shorter averaging periods result in higher variability in emissions due to load variation, startup, shutdown, and other factors.

We decided to allow the averaging across Units 1 and 2 in response to comments we received. The BART Guidelines state, "You should consider allowing sources to "average" emissions across any set of BART-eligible emission units within a fenceline, so long as the emission reductions from each pollutant being controlled for BART would be equal to those reductions that would be obtained by simply controlling each of the BART-eligible units that constitute the BART-eligible source." 40 CFR part 51, appendix Y, section V. This principle applies here.

C. Other Resultant Changes

Because we are now approving North Dakota's NO_x BART determinations for MRYS 1 and 2 and LOS 2, the basis for our proposed disapproval of North Dakota's RPGs is slightly changed from our proposal. Disapproval is still warranted because North Dakota's RPGs do not represent our final NO_x

BART FIP limits at CCS 1 and 2 or our final NO_x reasonable progress FIP limits at AVS 1 and 2 (or the Heskett or Coyote controls that North Dakota included in the SIP). As part of our FIP, we are finalizing RPGs that are consistent with the controls we are imposing at CCS 1 and 2 and AVS 1 and 2, and the Heskett and Coyote controls that North Dakota included in the SIP. For further details regarding our rationale, please refer to our proposal and to our response to comments.

Similarly, because we are now approving North Dakota's NO_x BART determinations for MRYS 1 and 2 and LOS 2, the basis for our proposed partial disapproval of North Dakota's LTS is slightly changed from our proposal. Partial disapproval is still warranted because we are disapproving North Dakota's NO_x BART determination for CCS 1 and 2 and NO_x reasonable progress determination for AVS 1 and 2, and the LTS does not reflect our final NO_x BART FIP limits at CCS 1 and 2 or our final NO_x reasonable progress FIP limits at AVS 1 and 2, or corresponding compliance provisions. Except for these missing elements, the LTS satisfies the requirements of 40 CFR 51.308(d)(3), so we are approving the remainder of the LTS. Our FIP fills the gap left by our partial disapproval of the LTS by specifying NO_x emission limits for CCS 1 and 2 and AVS 1 and 2, compliance schedules, and monitoring, recordkeeping, and reporting [20899] requirements. For further details regarding our rationale, please refer to our proposal and our response to comments.

IV. Basis for Our Final Action

We have fully considered all significant comments on our proposal, and, except as noted in section III, above, have concluded that no other changes from our proposal are warranted. Our action is based on an evaluation of North Dakota's SIP submittals and our FIP against the regional haze requirements at 40 CFR 51.300-51.309 and CAA sections 169A and 169B, and against the interstate transport requirements concerning visibility at CAA section 110(a)(2)(D)(i)(II). All general SIP requirements contained in CAA section 110, other provisions of the CAA, and our regulations applicable to this action were also evaluated. The purpose of this action is to ensure compliance with these requirements. Our authority for action on North Dakota's SIP submittals is based on CAA section 110(k). Our authority to promulgate our partial FIP is based on CAA section 110(c).

A. Regional Haze

We are approving most of North Dakota's RH SIP provisions because they meet the relevant regional haze requirements. Most of the adverse comments we received concerning our proposed partial approval of the RH SIP pertained to North Dakota's BART and reasonable progress determinations.

With respect to the BART determinations that we proposed to approve, we understand that there is room for disagreement about certain aspects of the State's analyses. Furthermore, we may have reached different conclusions had we been performing the determinations in the first instance. However, the comments have not convinced us that the State, conducting specific case-by-case analyses for the relevant units, acted unreasonably or that we should be disapproving the State's BART determinations that we proposed to approve.

With respect to North Dakota's reasonable progress determinations that we proposed to approve, we continue to disagree with the manner in which North Dakota evaluated visibility improvement when it evaluated single source controls and have disregarded this evaluation in our consideration of the reasonableness of North Dakota's reasonable progress control determinations. We also disagree with some of North Dakota's legal conclusions about the necessity of reasonable progress controls for certain sources – specifically, for Coyote Station for NO_x and for Heskett Station 2 for sulfur dioxide (SO_2). However, in these instances, North Dakota nonetheless included emission limits in the SIP that reflect reasonable levels of control for reasonable progress for this initial planning period. Here again, we understand that there is room for disagreement about the State's analyses and appropriate limits. And, again, we may have reached different conclusions had we been performing the determinations. However, the comments have not convinced us that the State, conducting specific case-by-case analyses for the relevant units, made unreasonable determinations for this initial planning period or that we should be disapproving the State's reasonable progress determinations that we proposed to approve.

As noted, we are disapproving North Dakota's NO_x BART determination for CCS 1 and 2 and its NO_x reasonable progress determination for AVS 1 and 2 and promulgating a partial FIP to establish the required limits and corresponding compliance provisions. For CCS 1 and 2, the State relied on values for costs of compliance supplied by the owner that were admittedly erroneous. As explained in detail in our response to comments, the comments we received have not convinced us that our disapproval of the State's NO_x BART determination for CCS 1 and 2 is unreasonable, or that our NO_x BART FIP determination and limits (as modified in this final action) are unreasonable. In particular, we conclude that GRE's latest cost estimates and cost effectiveness values for SNCR, as reflected in its November 2011 comments, are not based on reasonable assumptions and overestimate the costs of compliance. Instead, our consideration of the five statutory BART factors leads us to conclude that SNCR plus SOFA plus LNB is BART, with a limit of 0.13 lb/MMBtu on a 30-day rolling average basis. Also, we continue to find that the costs of SCR are not reasonable given the projected visibility improvement; the comments we received on this issue have not convinced us otherwise.

For AVS 1 and 2, consistent with our proposal, we are disapproving the State's determination under our reasonable progress requirements (40 CFR 51.308(d)(1)) that no additional NO_x emissions controls are warranted, and we are finalizing a FIP with a reasonable progress determination and a NO_x emission limit for AVS 1 and 2 of 0.17 lb/MMBtu on a 30-day rolling average basis. Nothing in the comments has convinced us that the State's determination was reasonable or that our proposed FIP was unreasonable. As we noted in our proposal, the costs for installation and operation of combustions controls at AVS 1 and 2 are very reasonable ($586 and $661 per ton) and the predicted NO_x reductions are substantial – 3,500 tons per unit per year. Appropriate single-source modeling also indicates that the visibility benefits will be substantial – 0.754 deciviews. Based on these facts, and given that North Dakota's RPGs will not meet the uniform rate of progress (URP), it was unreasonable for North Dakota to reject LNB at AVS 1 and 2. We have determined that the State's rejection of this level of control, and the corresponding RPGs, are not justifiable based on a reasonable consideration of the applicable regulatory factors – costs of compliance, time necessary for compliance, energy and non-air quality environmental impacts of compliance, and remaining useful life of the source. LNB is a modest, widely-used, cost-efficient means to achieve significant NO_x reductions, and the resultant visibility benefits will be comparable to or greater than the benefits achieved through selected controls at several BART units in North Dakota. We have also rejected comments that call for more stringent controls at AVS 1 and 2 in this planning period. While such controls may be appropriate in a later planning period, we cannot say that the State's rejection of such controls in this planning period was unreasonable. For further details regarding our rationale, please refer to our proposal and our response to comments.

Consistent with our proposal, we are approving the remaining elements of North Dakota's RH SIP because such elements meet the relevant requirements of our regional haze regulations.

B. Interstate Transport, Visibility Prong

The basis for this part of our action remains unchanged from our proposal. Nothing in the comments has convinced us that a change from our proposal is warranted. North Dakota's April 6, 2009 transport submittal contained only a cursory reference to CAA section 110(a)(2)(D)(i)(II)'s requirement for a SIP revision that contains adequate provisions "prohibiting any source or other type of emission activity within the State from emitting any air pollutant in amounts which will * * * interfere with measures required to be included in the applicable implementation plan for any other State under part C [of the CAA] to protect visibility." Because of the impacts on visibility from the interstate transport of pollutants, we [20900] interpret the "good neighbor" provisions of section 110 of the Act described above as requiring states to include in their SIPs either measures to prohibit emissions that would interfere with the RPGs required to be set to protect Class I areas in other states, or a demonstration that emissions from North Dakota sources and activities will not have the prohibited impacts. North Dakota's April 6, 2009 submittal contains neither. Thus, we are disapproving it. To the extent that the State intended to meet the requirement of section 110(a)(2)(D)(i)(II) with the RH SIP, the RH SIP submission itself is not fully approvable.

As required by section 110(c), we are promulgating a FIP to satisfy the requirements of CAA section 110(a)(2)(D)(i)(II) concerning visibility protection. As explained in section II, the FIP relies on the combination of the North Dakota RH SIP provisions that we are approving and the additions to the regional haze program for North Dakota that we are promulgating in our FIP for NO_x BART for CCS 1 and 2 and NO_x reasonable progress for AVS 1 and 2. Because this combination exceeds the stringency of BART and reasonable progress limits that were already factored into the Western Regional Air Partnership (WRAP) modeling for RPGs, this combination meets the visibility prong of CAA section 110(a)(2)(D)(i)(II). This combination of regional haze controls will ensure that emissions from sources in North Dakota do not interfere with other states' visibility programs as required by section 110(a)(2)(D)(i)(II) of the CAA.

For further details regarding our rationale, please refer to our proposal and our response to comments.

V. Issues Raised by Commenters and EPA's Responses

A. NO_x BART for Milton R. Young Station Units 1 and 2 and Leland Olds Station Unit 2

As noted in section III of this action, in a major change from our proposal, we are now approving North Dakota's NO_x BART determinations for MRYS 1 and 2 and LOS 2, and we are not proceeding with a FIP for NO_x BART for these units. We explain the basis for this change in section III.

We received numerous comments that were specific to the NO_x BART determinations for MRYS 1 and 2 and LOS 2. These related to a variety of issues – modeling and visibility improvement, costs of compliance, technical feasibility, appropriate emission limits, and other issues. The grounds for our decision to approve North Dakota's NO_x BART determinations for MRYS 1 and 2 and LOS 2 render irrelevant further consideration of these issues. Essentially, we are approving the State's determination of BART based on a federal court's ruling on our challenge to the State's BACT determination for MRYS. In establishing BACT, the State established an emission limit based on what it considered the maximum degree of reduction of NO_x, taking into account various factors similar to those in a BART determination. Thus, while we disagree with the vast majority of the comments that disputed our technical and legal analyses concerning NO_x BART for MRYS 1 and 2 and LOS 2, we generally are not summarizing or responding to those comments to the extent they are specific to the assessment of NO_x BART for MRYS 1 and 2 and LOS 2.[4] However, we are responding to comments that may be relevant to other aspects of this action.

B. Comments on Legal Issues

1. EPA's Authority

Comment: Multiple commenters stated that CAA Section 169A and the Regional Haze Rule (RHR) give the states (North Dakota in this instance) the lead in developing their regional haze SIPs. Some commenters went further in stating that North Dakota is given almost complete discretion in creating its RH SIP. These commenters argued that, because North Dakota is given such discretion, EPA lacks the statutory authority to disapprove the State's RH SIP. Specifically, some commenters pointed to the flexibility the State is granted in developing its BART determination, RPGs, modeling protocol and cost analysis. The State of North Dakota, for instance, argued that each factor in the five-factor analysis used to make its BART determination was appropriately weighed based on the State's own discretion. The State therefore argues that the EPA has no basis on which to disapprove the five-factor analysis.

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[4] Some commenters criticized the credibility and credentials of one of our sub-contractors. Because of their focused nature, we have included a response to some of those comments in our docket for this action, even though the substance of the issues is no longer relevant to our decision.

Response: Congress crafted the CAA to provide for states to take the lead in developing implementation plans, but balanced that decision by requiring EPA to review the plans to determine whether a SIP meets the requirements of the CAA. EPA's review of SIPs is not limited to a ministerial type of automatic approval of a state's decisions. EPA must consider not only whether the State considered the appropriate factors but acted reasonably in doing so. In undertaking such a review, EPA does not "usurp" the state's authority but ensures that such authority is reasonably exercised. EPA has the authority to issue a FIP either when EPA has made a finding that the State has failed to timely submit a SIP or where EPA has found a SIP deficient. Here, EPA has authority on both grounds, and we have chosen to approve as much of the North Dakota SIP as possible and to adopt a FIP only to fill the remaining gap. Our action today is consistent with the statute. In finalizing our proposed determinations, we are approving the State's determinations in identifying BART eligible sources and largely approving the State's BART determinations for seven different emission units subject to BART. Also, we are largely approving the State's reasonable progress determinations. We are, however, disapproving the State's NO_x BART determinations for two units – CCS 1 and 2 – and its NO_x reasonable progress determinations for two units – AVS 1 and 2.

The State's NO_x BART determinations for CCS 1 and 2 are not approvable because North Dakota did not properly follow the requirements of section

51.308(e)(1)(ii)(A). Specifically, North Dakota did not reasonably "take into consideration the costs of compliance," when it relied on cost estimates that greatly overestimated the costs of controls. We have determined that the faults in the cost estimates were significant enough that they resulted in BART determinations for NO_x for CCS 1 and 2 that were both unreasoned and unjustified. Accordingly, these determinations are not approvable.

We are disapproving the State's determination that no NO_x controls are needed at AVS 1 and 2 to achieve reasonable progress because the State's determination is not reasonable under the relevant statutory and regulatory requirements.

In the absence of approvable NO_x BART determinations in the SIP for CCS 1 and 2 and in the absence of an approvable reasonable progress determination concerning NO_x controls at AVS 1 and 2, we are obliged to promulgate a FIP to satisfy the CAA requirements. Likewise, in the absence of an approvable SIP that addresses the requirement that emissions from North Dakota sources do not interfere with measures required in the SIP of any other state to protect visibility, we are obliged to promulgate a FIP to address the defect. This authority and [20901] responsibility exists under CAA section 110(c)(1).

We also are required by the terms of two separate consent decrees, one in the U.S. District Court for the District of Colorado and one in the U.S. District Court for the Northern District of California to ensure that North Dakota's CAA requirements for regional haze and for 110(a)(2)(D)(i)(II), respectively, are finalized by March 2, 2012. Because we have found that the State's SIP submissions do not adequately satisfy either requirement in full and because we have previously found that North Dakota failed to timely submit these SIP submissions, we have not only the authority, but a duty to promulgate a FIP that meets those requirements.

Our action in large part approves the RH SIP submitted by North Dakota. The disapproval of the NO_x BART and reasonable progress determinations and imposition of the FIP is not intended to encroach on state authority. This action is only intended to ensure that CAA requirements are satisfied using our authority under the CAA.

Comment: The NDDH commented that states are free to deviate from the BART guidelines in the preparation of their BART analyses, except for power plants with a capacity exceeding 750 megawatts (MW).

Response: We agree that the BART guidelines are only mandatory under the regional haze regulations for "fossil-fuel fired power plants having a total generating capacity greater than 750 megawatts." 40 CFR 51.308(e)(1)(ii)(B). However, the fact that a state may deviate from the guidelines for other BART sources does not mean that the state has unfettered discretion to act unreasonably or inconsistently with the CAA and our regulations. Where the BART guidelines are not mandatory, a state must still meet the requirements of the CAA and our regulations. In other words, the State must still adopt and apply the best available retrofit technology, considering the statutory factors.

Our regulations define best available retrofit technology to mean "an emission limitation based on the degree of reduction achievable through the application of the *best system* of continuous emission reduction for each pollutant which is emitted by an existing stationary facility." 40 CFR 51.301 (emphasis added). We do not consider that this definition can simply be dismissed under the mantle of state discretion.

In addition, North Dakota's own regulations, which have been submitted for our approval and which we are approving with this action, provide as follows:

> "33-15-25-03 Guidelines for best available retrofit technology determinations under the Regional Haze Rule.
>
> Title 40, Code of Federal Regulations, part 51, appendix y, as published in the **Federal Register** on July 6, 2005, is incorporated by reference into this chapter. The owner or operator of a fossil-fuel-fired steam

> electric plant with a generating capacity greater than seven hundred fifty megawatts of electricity shall comply with the requirements of appendix y. All other facility owners or operators *shall use* appendix y as guidance for preparing their best available control retrofit technology determinations."

(Emphasis added.) Appendix Y contains EPA's BART guidelines. Our approval of this regulation makes it federally enforceable.

North Dakota appears to disavow the dictates of its own regulation:

> "EGUs with a capacity of less than 750 MW * * * are free to deviate from the BART Guidelines in the preparation of their BART analyses.
>
> MRYS * * * *may use* the Guidelines as guidance only."

State of North Dakota's November 21, 2011 comments, p. 22 (emphasis added). But, the regulation says that EGUs less than 750 MW "shall use" EPA's BART guidelines as guidance, not that they "may use" them as guidance or that they are "free to deviate" from them.

Given that North Dakota's own regulation, which we are making federally enforceable with this action, requires the use of the BART guidelines as guidance for BART analyses, we think it reasonable to conclude that any deviation from the guidelines must be based on a reasonable justification.

Regardless, the BART guidelines are mandatory for CCS, which is the one source for which we are disapproving the State's BART determination.

Comment: North Dakota meets the presumptive BART limits for NO_x at CCS 1 and 2, based on the 2005 BART Guidelines. EPA's rationale for disapproving the BART determinations at CCS 1 and 2 is therefore flawed and contrary to the BART Guidelines. EPA appears to be undertaking a national effort to change its BART Rule without going through notice and comment rulemaking to amend or repeal the rule. EPA is doing so by "applying BART determinations made for sources in one state as a new presumptive limit for all states." Commenter cites 76 FR 58623 of the proposed rule, where EPA justifies a cost/ton "that states other than North Dakota have considered reasonable for BART," but is higher than the presumptive BART limits.

Response: We disagree with the commenter. First, for each source subject to BART, the RHR, at 40 CFR 51.308(e)(1)(ii)(A), requires that states identify the level of control representing BART after considering the factors set out in CAA section 169A(g), as follows: States must identify the best system of continuous emission control technology for each source subject to BART taking into account the technology available, the costs of compliance, the energy and non-air quality environmental impacts of compliance, any pollution control equipment in use at the source, the remaining useful life of the source, and the degree of visibility improvement that may be expected from available control technology. 70 FR 39158. In other words, the presumptive limits do not obviate the need to identify the best system of continuous emission control technology on a case-by-case basis considering the five factors. A state may not simply "stop" its evaluation of potential control levels at the presumptive level of control if more stringent control technologies or limits are technically feasible. We do not read the BART guidelines in appendix Y to contradict the requirement in our regulations to determine "the degree of reduction achievable through the application of the best system of continuous emission reduction" "on a case-by-case basis," considering the five factors. 40 CFR 51.301 (definition of Best Available Retrofit Technology); 40 CFR 51.308(e). Also, our interpretation is supported by the following language in our BART guidelines:

> While these levels may represent current control capabilities, we expect that scrubber technology will continue to improve and control costs continue to decline. You should be sure to consider the level of control that is currently best achievable at the time that you are conducting your BART analysis.

70 FR 39171. The presumptive limits are meaningful as indicating a level of control that EPA generally considered achievable and cost effective at the time it adopted the BART guidelines in 2005, but not a value that a state could adopt without conducting a five factor analysis considering more stringent, technically feasible levels of control.

The commenter focuses on narrow passages of the BART guidelines to support its view that the presumptive limits represent the most stringent BART controls that EPA can require for regional haze. However, these passages must be reconciled with the language of the RHR cited above, as well as other passages of the BART guidelines and associated preamble. A central concept expressed in the guidelines is that a [20902] state is not required to consider the five factors if it has selected the most stringent level of control; otherwise, a state must fully consider the five factors in determining BART. 40 CFR part 51, appendix Y, section IV.D.1, step 1.9. Undoubtedly, as the commenter notes, the presumptive limits for NO_x represent cost effective controls, but it is well-understood that limits based on combustion controls do not represent the most stringent level of control for NO_x. Thus, a state which selects combustion controls and the associated presumptive limit for NO_x as BART may only do so after rejecting more stringent control technologies based on full consideration of the five factors. Our interpretation reasonably reconciles the various provisions of our regulations. We clearly communicated our views on this subject to North Dakota while it was developing its RH SIP, and, following our interpretation, North Dakota conducted an analysis of control technologies that would achieve a more stringent limit than combustion controls.

While North Dakota conducted a five-factor analysis to determine BART at CCS, its determination was based on erroneous values for the costs associated with potential loss of fly ash sales due to ammonia contamination, something the source acknowledged in June of 2011. 76 FR 58603. A BART determination based on substantially erroneous cost values does not meet the requirements of the CAA or our regulations to determine the best system of continuous emission control technology considering cost and the other statutory factors. Because we cannot approve the State's BART determination, we are authorized, and in this case obligated, to promulgate a FIP.

In promulgating a FIP for CCS, we arrived at an emission limit that is more stringent than the presumptive limit based on consideration of the five factors. Contrary to the commenter's suggestion, EPA's BART guidelines do not establish a presumptive cost effectiveness level that is a "safe harbor" or "shield" for state BART determinations, or that EPA, when promulgating a FIP, may not exceed in determining BART. Once a FIP is required, we stand in the state's shoes. In considering the cost factor, it is reasonable for us to consider other sources of information to inform our decision, including the cost values other states have considered reasonable. This is not EPA establishing a new presumptive limit or national rule; it is EPA, acting in the state's shoes, conducting a reasonable source-specific consideration of cost and the other regulatory factors. In addition, although not required, we considered cost effectiveness values that the State of North Dakota had considered to be reasonable in reaching its BART determinations. See 76 FR 58623 ("It is also within the range of values that North Dakota considered reasonable in its NO_x BART determinations * * *")

Comment: EPA has failed to articulate, or apply, a SIP review standard that preserves state authority over BART determinations. EPA can't rely on vague references to the overarching purpose of the regional haze program to define what's reasonable. The CAA only requires consideration of the five statutory factors and emission limits that yield a reduction in visibility impairment. EPA has contradicted prior statements in various contexts, such as reports to Congress. EPA has provided no objective measure to gauge EPA's assessment. EPA's vague standards result in arbitrary and capricious decision making. EPA must articulate the standard by which it evaluates and disapproves a SIP and must support its decision with a plausible explanation.

Response: Our proposal clearly laid out the bases for our proposed disapproval of the State's BART and reasonable progress determinations, and we have relied on the standards contained in our regional haze regulations and the authority that Congress granted us to review and determine whether SIPs comply with the minimum statutory and regulatory requirements. To the extent a cost analysis relies on values that are inaccurate, a state has not considered cost in a reasoned or reasonable fashion. To the extent a state has considered visibility improvement from potential emissions controls in a way that substantially understates the improvement or does so in a way that is not consistent with the CAA, the state has not considered visibility improvement in a reasoned or reasonable fashion. In these circumstances, it is reasonable for EPA to disapprove the relevant aspects of the SIP. In determining SIP adequacy, we inevitably exercise our judgment and expertise regarding technical issues, and it is entirely appropriate that we do so. Courts have recognized this necessity and deferred to our exercise of discretion when reviewing SIPs. See, e.g., *Connecticut Fund for the Env't., Inc.* v. *EPA,* 696 F.2d 169 (2nd Cir. 1982); *Michigan Dep't. of Envtl. Quality* v. *Browner,* 230 F.3d 181 (6th Cir. 2000); *Mont. Sulphur & Chem. Co.* v. *United States EPA,* 2012 U.S. App. LEXIS 1056 (9th Cir. Jan. 19, 2012).

We disagree with the argument that we must approve a BART determination where the SIP reflects consideration of the five factors and the BART selection will result in some improvement in visibility. We think Congress expected more when it required the application of "best available retrofit technology."

While the commenter places great emphasis on EPA's prior statements in reports to Congress, these statements have no regulatory effect. Also, these statements are not as supportive of commenter's position as commenter suggests. For example, "some flexibility" does not suggest unfettered flexibility; a report's suggestion that a cooperative approach would make sense does not suggest that EPA will or must approve unilateral decision-making by a state no matter what.

Contrary to the commenter's assertion, we have not destroyed the State's primacy. In fact, we have approved the vast majority of the State's determinations. We are only rejecting the State's unreasonable analyses and decisions. We are authorized to do so.

Comment: The grounds invoked by EPA to disapprove the RH SIP are legislative in nature and cannot be imposed without advance notice and comment rulemaking. EPA's proposed action on North Dakota's SIP articulates a number of grounds not contained in CAA section 169A that must be met for a SIP to be "approvable." These additional grounds have never been defined or promulgated with notice and comment rulemaking. For example, EPA's proposed action articulates a two pronged test for BART SIP approval: first, "a state must meet the requirements of the CAA and our regulations for selection of BART"; and second, "the state's BART analysis and determination must be reasonable in light of the overarching purpose of the regional haze program." 76 FR 58577. The commenter objects to the second prong, *i.e.,* that "the state's BART analysis and determination must be reasonable in light of the overarching purpose of the regional haze program." According to the commenter, this is a new "reasonableness" standard that is neither defined nor separately set forth in the Act. The commenter asserts that EPA is proposing to measure a BART determination not just against the statutory criteria but also against EPA's own subjective view whether the result reached is reasonable enough to meet the "overarching goal" of the Act. EPA's new subjective reasonable enough requirement imposes a new legislative standard that either goes beyond or, for [20903] the first time, purports to define "the requirements of the Act." This empowers EPA to disapprove a state BART determination and replace it with its own on reasonableness grounds that have never been defined or first vetted through public notice and comment.

Response: First, even assuming that EPA's proposed action on the North Dakota RH SIP articulated new grounds for evaluating a regional haze SIP, the proposed action provides the public with the opportunity to comment. As evidenced by the commenter's submission, the commenter had the opportunity to comment on EPA's approach to evaluating the North Dakota RH SIP and to identify any concerns associated with the statement at issue from our proposal and other aspects of our action.

Second, the CAA requires states to submit SIPs that contain such measures as may be necessary to make reasonable progress toward achieving natural visibility conditions, including BART. The CAA accordingly requires the states to submit a regional haze SIP that includes BART as one necessary measure for achieving natural visibility conditions. In view of the statutory language, it is hardly a novel idea that the reasonableness of the state's BART analysis and determination would be evaluated in light of the purpose of the regional haze program. In addition, our regional haze regulations, at 40 CFR 51.308(d)(ii), provide that when a state has established a RPG that provides for a slower rate of improvement in visibility than the URP (as has North Dakota), the state must demonstrate, based on the reasonable progress factors – *i.e.*, costs of compliance, time necessary for compliance, energy and non-air quality environmental impacts of compliance, and remaining useful life of affected sources – that the rate of progress to attain natural visibility conditions by 2064 is not reasonable and that the progress goal adopted by the state is reasonable. 40 CFR 51.308(d)(iii) provides that, "in determining whether the State's goal for visibility improvement provides for reasonable progress towards natural visibility conditions, the Administrator will evaluate" the state's demonstrations under section 51.308(d)(ii). It is clear that our regulations and the CAA require that we review the reasonableness of the State's BART determinations in light of the goal of achieving natural visibility conditions. This approach is also inherent in our role as the administrative agency empowered to review and approve SIPs. Thus, we are not establishing a new reasonableness standard, as the commenter asserts.

Comment: EPA established a new adequacy criterion when it found that North Dakota's cost analysis did not provide a reasonable basis to make a NO_x BART determination for LOS 2. It was illegal for EPA to establish a new adequacy criterion without rulemaking.

Response: While we have decided to approve the State's NO_x BART determination for LOS 2, this comment may be relevant to other aspects of our final action.

Our prior response largely addresses this assertion. However, in addition, we think the illogic of the commenter's claim is revealed when the potential consequences of the commenter's views are examined. The necessary product of the commenter's view is that a state could rely on irrational values for any of the five factors, and EPA would be powerless to disapprove the SIP. We reject that view. We are not establishing new criteria for approval of a regional haze SIP. We are applying the criteria and requirements already specified in the CAA and our regulations. Cost is one of the factors a state must consider in determining BART. If North Dakota has relied on greatly inflated cost estimates in its consideration of the cost factor, it has not considered cost in any meaningful sense of the word.

It is also our opinion that the commenter, in its effort to put our action in a specific legal box – *i.e.*, "illegal administrative action" – consistently misrepresents the nature of our action. This *is* a SIP review action, and we believe that EPA is not only authorized, but required to exercise independent technical judgment in evaluating the adequacy of the State's RH SIP, including its BART determinations, just as EPA must exercise such judgment in evaluating other SIPs. In evaluating other SIPs, EPA is constantly exercising judgment about SIP adequacy, not just to meet and maintain the NAAQS, but also to meet other requirements that do not have a numeric value. In this case, Congress did not establish NAAQS by which to measure visibility improvement; instead, it established a reasonable progress standard and required that EPA assure that such progress be achieved. Here, contrary to the commenter's assertion, we are exercising judgment within the parameters laid out in the CAA and our regulations. Our interpretation of our regulations and of the CAA, and our technical judgments, are entitled to deference. See, e.g., *Michigan Dep't. of Envtl. Quality* v. *Browner,* 230 F.3d 181 (6th Cir. 2000); *Connecticut Fund for the Env't., Inc.* v. *EPA,* 696 F.2d 169 (2nd Cir. 1982); *Voyageurs Nat'l Park Ass'n* v. *Norton,* 381 F.3d 759 (8th Cir. 2004); *Mont. Sulphur & Chem. Co.* v. *United States EPA,* 2012 U.S. App. LEXIS 1056 (9th Cir. Jan. 19, 2012).

Comment: EPA has no statutory authority to disapprove North Dakota's BART determination for LOS 2. CAA section 169A(b)(2) leaves that determination expressly and exclusively in the hands of the State. EPA's SIP approval authority under CAA section 110 only permits EPA to confirm whether the State considered the statutory factors; it does not authorize EPA to pass judgment on how the State considers them. The commenter cites the *American Corn Growers* and *UARG* decisions as support for its comments. Nor, according to the commenter, does section 110 permit EPA to propose its own emission controls. By doing so, EPA's FIP "run[s] roughshod over the procedural prerogatives that the Act has reserved to the States" (citing *Bethlehem Steel Corp.* v. *Gorsuch,* 742 F.2d 1028, 1036 (7th Cir. 1984)).

Response: While we have decided to approve the State's NO_x BART determination for LOS 2, this comment may be relevant to other aspects of our final action. The commenter reads too much into the language of 169A. We do not agree that the language, "as determined by the State," grants the State unlimited discretion or "sole control" in making a BART determination, any more than the accompanying language, "or the Administrator in the case of a plan promulgated under section 7410(c) of this title," grants EPA unlimited discretion in making a BART determination in a FIP.

Instead, while States are assigned the primary statutory and regulatory authority to determine BART, and have significant freedom to determine the weight and significance of the statutory factors, they have an overriding obligation to come to a reasoned determination. They may not act unreasonably or in an arbitrary and capricious fashion, and Congress has assigned EPA, as the reviewing agency, the role of determining whether a State's BART determination or reasonable progress determination is reasonable.

The commenter's citations to legislative history are unconvincing. Among other things, they are incomplete. The commenter ignores the intent behind the 1977 legislation:

> "The Administrator must promulgate regulations which assure attainment of the national goal * * * Specifically, the regulations must require that States which contain mandatory class I areas, and States [20904] whose emissions cause or contribute to visibility problems in such areas, revise their implementation plan to include two elements. The first element of the plan revision is that the State plan must provide for installation of "best available retrofit technology" for existing major stationary sources which cause or contribute to visibility impairment in such areas."

95 Cong. Conf. Report H. Rept. 564, at 154.

Commenters suggest that visibility issues are only of state and local concern and that is why Congress left states with sole control. This is inconsistent with the very first sentence of the statute: "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 * * *" CAA section 169A, (emphasis added). It is also inconsistent with the legislative history, which states:

> "There are certain national lands, including national parks, national monuments, national recreation areas, national primitive areas, and national wilderness areas, in which protection of clean air quality is obviously a critical national concern * * * Indeed, the millions of Americans who travel thousands

> of miles each year to visit Yosemite or the Grand Canyon or the North Cascades will find little enjoyment if, for example, upon reaching the Grand Canyon it is difficult if not impossible to see across the great chasm. If that were to come to pass – and several of our great national parks, including the Grand Canyon, are threatened today by such a fate – the very values which these unique areas were established to protect would be irreparably diminished, perhaps destroyed."

95 Cong. House Report 294 at 137.

Thus, we do not agree that Congress assigned us a merely ministerial role; it is not evident how such a limited role would assure attainment of the national goal or the actual imposition of the best available retrofit technology where a state's BART determination is unreasonable, arbitrary and capricious, or not in accordance with the law.

We also disagree that our proposal is inconsistent with the *American Corn Growers* and *UARG* decisions. These cases dealt with EPA's authority to issue generic regulations regarding BART determinations. They did not address EPA's authority in reviewing a SIP.

Contrary to the commenter's assertion, the *Bethlehem Steel* case is inapplicable here. We are promulgating BART and reasonable progress limits under the authority of CAA section 110(c), not through our action on North Dakota's SIP. We have authority to promulgate our FIP under 110(c) on two separate grounds: first, based on our January 2009 finding of failure to submit the RH SIP; and second, based on our partial disapproval of the RH SIP.

Comment: Commenter stated that EPA is incorrect to assert that NDDH did not adequately consider all five statutory factors for LOS 2. Commenter stated that EPA concludes, in its own BART evaluation, that SNCR + ASOFA (NDDH's BART selection) is cost effective and provides substantial visibility benefits. When a state has taken into consideration the five statutory factors and selected a technology that reduces visibility impairments, it has complied with the statute and EPA must approve the SIP. Since EPA's own HP analysis proves North Dakota's choice complies with the statute, EPA has no basis to disapprove it.

Response: While we have decided to approve the State's NO_x BART determination for LOS 2, this comment may be relevant to other aspects of our final action. The commenter cites no authority in the CAA or our regulations for its assertion that a BART determination that considers the five statutory factors is adequate as long as it provides some reduction in visibility impairment. We know of no such criterion. Instead, our regulations define BART as an emission limitation based on the degree of reduction achievable through the application of the best system of continuous emission reduction for each pollutant which is emitted by an existing stationary facility. The emission limitation must be established, on a case-by-case basis, taking into consideration the technology available, the costs of compliance, the energy and non-air quality environmental impacts of compliance, any pollution control equipment in use or in existence at the source, the remaining useful life of the source, and the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology. Given that the BART limit must reflect the "application of the best system of continuous emission reduction," we interpret the Act to require a reasonable consideration of the five factors, one that is not arbitrary and capricious.

Comment: EPA's effort to impose BART determinations by federal rulemaking impermissibly deprives source owners of the substantive procedural rights they are otherwise afforded under State law. The commenter notes that the State used a permit process to establish BART limits, and that a similar source-by-source adjudication of such limits must be provided by EPA. The commenter also asserts that EPA must allow for examination and cross-examination of witnesses, and that, otherwise, the process is not consistent with due process.

Response: While the State has chosen to use the permit process to establish BART limits for individual sources, there is nothing in the CAA or our regulations that requires states or EPA to use permits or a source-by-source adjudicatory proceeding to establish BART limits. Both the CAA and our regulations require that BART limits be contained in a SIP. In the absence of an approvable SIP, CAA section 110(c) requires us to issue a FIP. We have issued a partial FIP pursuant to CAA section 307. CAA section 307 provides that its provisions apply in lieu of the Administrative Procedure Act (APA). The procedures provided by CAA section 307 are adequate to ensure due process to source owners. We have provided a substantial opportunity for comment (a two-month long comment period) and an extensive public hearing that lasted 14 hours over two days. The commenter submitted over 140 pages of comments with several attachments, and other commenters submitted comments of similar length. It is not unusual for FIPs to include source-specific limits and requirements. An opportunity for examination and cross-examination of witnesses is not required by the CAA, nor is it required to ensure due process. Individuals and entities affected by EPA's action have had ample opportunity to challenge EPA's conclusions.

Comment: Sole control over BART determinations for EGUs under 750 MW is left to the states. Congressional intent to exclude federal involvement in BART determinations for smaller generating stations is apparent from the plain text of the statute and is binding on EPA. EPA may not disapprove a state BART determination for an EGU the size of Leland Olds.

Response: EPA disagrees with the suggestion that Congress intended to totally remove EPA from review of BART determinations for EGUs less than 750 MW. The statute merely says that for EGUs greater than 750 MW, BART must be determined in accordance with guidelines promulgated by EPA. That does not obviate the need for the State to select BART, after considering the five statutory factors. And, it does not remove EPA's review role over SIP submittals.

Comment: North Dakota has the authority under the RHR to review the new updated cost analyses provided by URS and Golder Associates on behalf of GRE.

[20905] *Response:* Our action does not prevent North Dakota from reviewing GRE's updated cost analyses, or from submitting a revised SIP. States always have the freedom to submit SIP revisions to EPA. We need not speculate in this action whether such a revision would be approvable. However, such a SIP revision is not the subject of this action, and we are neither obligated nor authorized to wait for such a revision before we finalize our proposed action. To the contrary, we have already exceeded the statutory deadline for promulgating a FIP or approving a SIP for regional haze, and, under two separate consent decrees, we must finalize this action by March 2, 2012.

GRE acknowledged in a June 2011 email that it had made errors in its original cost estimates for NO_x BART for CCS. The State relied on those erroneous cost figures in its NO_x BART analysis and determination for CCS in its RH SIP that it submitted on March 3, 2010. This is the main RH SIP submittal that we are acting on today.

Because of the magnitude of these acknowledged errors, it is appropriate to disapprove the BART determination for CCS 1 and 2 that is contained in the March 3, 2010 submittal. We explain in response to a prior comment why selection of the presumptive limits without a valid case-specific analysis supporting such limits as BART is not sufficient to meet the requirements of the regional haze regulations. Based on our disapproval of the SIP, and on separate grounds related to our January 2009 finding of failure to submit, we are authorized and obligated to promulgate a FIP for NO_x BART for CCS 1 and 2. CAA section 110(c). We have considered GRE's revised cost analyses in the context of our proposed FIP and address those analyses in a subsequent response.

Comment: Commenter stated that EPA's action is in violation of the 10th amendment to the Constitution.

Response: Our action does not compel North Dakota to enforce federal law and does not intrude on authority reserved to the states. Thus, our action is consistent with the 10th amendment to the Constitution.

Comment: Commenter stated that EPA's action is in violation of Article 4 of the Constitution.

Response: The comment does not specify which aspect of Article 4 we are alleged to have violated. However, we conclude that our action does not violate any aspect of Article 4 of the Constitution.

Comment: Commenter stated that Federal Land Managers (FLMs) are using their Air Quality Related Values Workgroup (FLAG) report, a guidance document, in highly inappropriate ways.

Response: This comment appears to relate to how the FLMs respond to proposed PSD permits rather than EPA's proposed actions here. Accordingly, we are not responding to the substance of this comment. Contrary to the commenter's assertion, we do not consider our own actions to be inflexible. We note that we are approving the great majority of the State's BART and reasonable progress determinations.

2. Interstate Transport Consent Decree

Comment: Commenter states that EPA wrongly uses the Interstate Transport consent decree to justify action by the September 1, 2011 deadline. Commenter claims that EPA separately acknowledged that the Interstate Transport consent decree never addressed the regional haze plan. North Dakota has sought leave of the court that issued the consent decree to intervene in the case. North Dakota is also seeking a declaration from the Court that EPA is exceeding its authority under that consent decree to use it for justification of the regional haze proposal.

Response: The United States District Court for the Northern District of California rejected the commenter's arguments in an order dated December 27, 2011. We agree that the transport consent decree does not address the regional haze plan. However, as the court in California recognized, we made an appropriate administrative decision to address the CAA's transport requirements and regional haze requirements in the same action. Given that we faced a September 1, 2011 deadline for our proposed transport action under the transport consent decree, and faced an uncertain deadline for proposed action and a January 26, 2011 deadline for final action under the then-lodged regional haze consent decree, we acted in a prudent and reasonable fashion to sign our notice of proposed rulemaking by the September 1, 2011 deadline in the transport consent decree.

Comment: North Dakota's Interstate Transport SIP, specifically the "visibility" element of CAA Section 110(A)(2)(D)(i)(II), must be approved. North Dakota commented that EPA had no reason not to act on the visibility portion of the State's interstate transport SIP submission according to EPA's 2006 guidance. Another commenter stated that the EPA "admits" in the Proposed North Dakota RH SIP/FIP that the State met the sole obligation of Section 110(A)(2)(D)(i)(II), and that the EPA's reasons for disapproval therefore lack basis.

Response: We fully explained the basis for our proposed disapproval of North Dakota's interstate transport SIP in our proposal. See 76 FR 58641-58642. We have fully considered the comments, but nothing in the comments has caused us to change our views. As we explained in our proposal, our 2006 guidance was premised on a certain set of assumptions – in particular, that states would submit their regional haze SIPs by the regulatory deadline and that the regional haze SIPs would be the appropriate means for states to establish that their SIPs contained adequate provisions to prevent interference with the visibility programs required in other states. It turned out we were mistaken in our assumptions, and we explained in our proposal that subsequent events have rendered our 2006 guidance inappropriate in this specific action. Thus, we appropriately and reasonably evaluated the State's interstate transport SIP against the statutory requirements and found it deficient. The State disagrees with the way in which we characterized the State's transport SIP in our proposal at 76 FR 58574, but we were clear in our discussion later in our notice that "North Dakota did not explicitly state in its April 6, 2009, submittal that it intended that its Regional Haze SIP be used to satisfy the visibility prong * * *" 76 FR 58641.

Basin Electric misrepresents our proposed action. While we indicated that the State had not explicitly indicated that it was submitting the RH SIP to meet the interstate transport requirements, which left us in an uncertain position, that was not the only basis for our conclusion that the RH SIP did not meet the transport requirements. Instead, we stated, "Most importantly, however, EPA must review the April 6, 2009 submission in light of the current facts and circumstances, and the RH SIP revision that the State ultimately submitted does not fully meet the substantive requirements of the regional haze program * * * To the extent that the State intended to meet the requirement of section 110(a)(2)(D)(i)(II) with the RH SIP, the RH SIP submission itself is not fully approvable." 76 FR 58642.

The State and Basin Electric assert that we should approve the RH SIP as satisfying the transport requirements even though we are disapproving the SIP as meeting regional haze requirements. We disagree. Under the suggested approach, EPA would simultaneously codify in the Code of Federal Regulations disparate and conflicting requirements – the SIP limits [20906] and associated requirements (or in the case of AVS, the lack thereof) for certain EGUs and the FIP limits and associated requirements for those same EGUs. This could lead to confusion regarding the requirements applicable to the industrial sources affected, including confusion in enforcement actions. Accordingly, we have decided to finalize our proposed disapproval of North Dakota's interstate transport SIP.

Comment: The NDDH commented that EPA has not provided any credible evidence that the additional emission reductions from the FIP will produce any discernible visibility improvement in out-of-state Class I areas and has not provided any credible evidence that these additional emission reductions are necessary to prevent North Dakota sources from interfering with another state's ability to protect visibility.

Response: In our proposal, we did not claim that our FIP to address the requirements of CAA section 110(a)(2)(D)(i)(II) would result in visibility improvement in out-of-state areas. We did not have the time or resources to re-do the WRAP modeling that states in the region had relied on in assessing the impacts of emissions reductions and in setting their RPGs. Instead, we noted that the emission limits in our proposed FIP to address certain deficiencies in the State's BART and reasonable progress measures in its RH SIP would exceed the emissions reductions for BART and reasonable progress for these sources that had been factored into the WRAP modeling for RPGs. As a result, we concluded that the limits in the FIP, in combination with the measures in the SIP that we had proposed to approve, would satisfy the interstate transport requirements for visibility. We continue to find that this is a reasonable conclusion. Although there may be other acceptable approaches to satisfying the requirements of CAA section 110(a)(2)(D)(i)(II) that would require additional visibility modeling, the approach that we have adopted does not require that we assess through modeling the visibility improvement that will result from our FIP to assure that North Dakota's emissions do not interfere with measures required in the plans of other states to protect visibility.

3. Other General Legal Comments

Comment: Some commenters stated that EPA cannot promulgate a FIP until it has taken final action on the related SIP.

Response: We have the authority to promulgate a FIP concurrently with a disapproval action. As has been noted in past FIP promulgation actions, if EPA "finds that a State has failed to make a required submission * * * or * * * disapproves a [SIP] in whole or in part," CAA Section 110(c)(1) establishes a two-year period within which we must promulgate a FIP, and provides no further constraints on timing. See, e.g., 76 FR 25178, at 25202. North Dakota failed to submit its RH SIP to us by December 2007, as required by Congress. Two years later, North Dakota had still not submitted its RH SIP. When we made a finding in 2009 that North Dakota had failed to submit its RH SIP, (see 74 FR 2392), that created an obligation for us to promulgate a FIP by January 2011. We are promulgating the FIP concurrently with our disapproval action because of the applicable statutory deadlines requiring us at this time to promulgate regional haze BART determinations and reasonable progress (RP) determinations to the extent North Dakota's BART and RP determinations are not approvable.

We also note that North Dakota made this same argument to the U.S. District Court for the District of Colorado – in a motion opposing entry of a consent decree containing deadlines for EPA to promulgate a FIP for regional haze for North Dakota and in comments on the proposed consent decree. The court rejected North Dakota's argument. First, the court noted that we had proposed action on North Dakota's SIP in our September 1, 2011 proposal and we were, therefore, not proposing to take final action on the regional haze FIP before making a determination on North Dakota's SIP revision. Second, the court indicated that we would be authorized to promulgate the regional haze FIP even without taking final action on North Dakota's SIP. As we had argued, the court found that the duty to promulgate a FIP (triggered by our 2009 finding of failure to submit an RH SIP) remains "*unless* the State corrects the deficiency, *and* the Administrator approves the plan or plan revision, *before* the Administrator promulgates such [FIP]." Order Entering Consent Decree, *WildEarth Guardians* v. *Jackson,* Civil Action No. 11-cv-00001-CMA-MEH, USDC Colorado, p. 17, citing CAA section 110(c) (emphasis and brackets added by the court).

Comment: Commenter stated that EPA must review the "blanket five year compliance date" to install and operate BART to ensure that it is as expeditious as practicable, as required by the CAA.

Response: We have reviewed the compliance dates for meeting BART limits that are contained in the portions of the SIP we are approving and in the FIP we are promulgating. These dates are reasonable given the magnitude of the retrofits being undertaken. We note that the State permits that we are approving as part of this action provide for compliance as expeditiously as practicable, but in no event later than five years.

C. Comments on Modeling

Comment: Several commenters questioned aspects of the single-source CALPUFF modeling that North Dakota included in the SIP and which EPA relied upon in our evaluation of visibility impacts. Among other things, commenters questioned (1) Whether CALPUFF overestimates nitrate formation, (2) whether newer versions of CALPUFF would give more accurate results, (3) the method for establishing natural visibility background, (4) how to establish ammonia background concentrations, and (5) the method for interpreting model results as they relate to visibility improvement. The commenters submitted revised single-source CALPUFF modeling results to address what they believed to be deficiencies in the single-source CALPUFF modeling that North Dakota included in the SIP.

Response: While each of these comments is addressed separately in detailed responses below, a general response is warranted. We note that many of these comments were submitted by Minnkota and Basin Electric and were directed specifically to EPA's proposal regarding SCR at MRYS 1 and 2 and LOS 2. As we have explained, such comments are not relevant to our final action. Nonetheless, we are responding to most of the comments in the event that they could be interpreted as having broader application to the assessment of visibility improvement from potential control options.

The second point we note is that the source owners are essentially questioning modeling that they conducted and submitted to the State as part of their BART evaluations, and that the State specifically called for and included in the SIP. The State established procedures for single-source BART modeling used to support its SIP in the "Protocol for BART-Related Visibility Impairment Modeling Analyses in North Dakota" (the BART modeling protocol). North Dakota RH SIP, Appendix A.1. North Dakota intended for the protocol to apply to "visibility modeling for both identification of sources 'subject to BART' (*i.e.,* BART screening), and for determining the degree of visibility improvement related to the selection of BART controls." North Dakota RH SIP, Appendix A.1, p. 1. In fact, North [20907] Dakota specifically stated: "[A]ll BART-related single-source modeling for sources in North Dakota must follow the protocol outlined here. Because of this requirement, the NDDH will not expect companies which operate BART-eligible sources to provide individual protocols for their BART-related modeling." *Id.,* p. 3. North Dakota's protocol conforms to the BART Guidelines.[5] It also follows recommendations for modeling long

[5] There is one aspect of the protocol that does not conform to the BART guidelines – North Dakota's inclusion of the 90th percentile modeling results in addition to the 98th percentile. The use of the 90th percentile modeling results is not consistent with the CAA. 70 FR 39121. We provide more detail about the deficiency in the use of the 90th percentile value in subsequent responses.

range transport contained in 40 CFR part 51, appendix W ("The Guideline on Air Quality Models") and EPA's Interagency Workgroup on Air Quality Modeling (IWAQM) Phase 2 Summary Report and Recommendations for Modeling Long Range Transport Impacts. Furthermore, as discussed in Section 3 of the SIP, *Plan Development and Consultation,* the protocol was developed in consultation with EPA and FLM meteorologists. Adherence to the protocol ensures that a consistent comparison of visibility improvement can be made for potential control technologies across different individual units and different pollutants.

As the State's single-source BART modeling followed established guidance and was developed in consultation with FLMs and EPA, we find that it provides a reasonable basis for making control technology determinations. We do not agree with the sources' attempt to deviate from the established protocol for assessing visibility impacts. This is because it would lead to a less consistent and rational assessment of potential control options. Nonetheless, we have considered the revised single-source modeling and the comments submitted by the commenters in making our final action. We conclude that nothing contained in their modeling analysis undermines the single-source modeling that North Dakota included in the SIP.

Comment: Two commenters stated that the receptor-specific approach to identifying the 98th percentile result in CALPUFF is more technically correct than the default day-specific approach. The commenters also supplied revised CALPUFF modeling based on the receptor-specific approach. These modeling results suggest that controls would achieve less visibility improvement than indicated by North Dakota's single-source BART modeling.

Response: We do not agree that the receptor-specific approach is more technically correct; it is not part of the standard CALPUFF model and merely serves to decrease the conservatism of the model predictions through the creation of 98th percentile values that are specific to specific receptor locations within a Class I area. The standard CALPUFF approach considers the daily impacts within a Class I area at all receptor points; *i.e.,* the model predicts the highest daily value for each day of the year from all receptors within a Class I area. The 98th percentile reflects the eighth highest of these daily values.

In its BART modeling protocol, North Dakota stated that "the context of the 98th percentile 24-hour delta-deciview prediction is with respect to days of the year, and is not receptor specific." RH SIP, Appendix A.1, Section 4.0, p. 50. In addition, in establishing the 98th percentile as a reasonable contribution threshold in the BART Guidelines, EPA intended that the day-specific, or "day-by-day," approach be used. 70 FR 39121. This was the approach EPA considered appropriate to account for the assumptions and uncertainties in CALPUFF; the receptor-specific approach goes beyond what EPA considers appropriate to address these assumptions and uncertainties and would undermine the goal of achieving natural visibility conditions. Therefore, we do not consider the revised CALPUFF modeling results based on the flawed receptor-specific approach that were submitted by the commenters to be useful in assessing visibility impacts..

Comment: Several of the commenters argue that it is inappropriate to evaluate visibility impacts in comparison to natural background visibility conditions. Instead, the commenters propose to evaluate visibility impacts in comparison to current, degraded visibility conditions. The commenters further argue that EPA's use of natural conditions is inconsistent with section 169A of the CAA and that EPA should amend its BART Guidelines to use current, degraded visibility conditions.

Response: We disagree. EPA's approach is consistent with Congress's intent in passing section 169A, and the proposal to use degraded visibility conditions is inconsistent with section 169A. Visibility impacts must always be evaluated relative to some reference visibility condition, and a given reduction in ambient $PM_{2.5}$ will result in smaller relative improvement in visibility when compared to polluted conditions versus clean conditions. Because current degraded visibility conditions are considerably worse than natural background visibility, comparison of a BART source's impact relative to current degraded visibility conditions would result in a smaller relative benefit than would a comparison relative to natural background visibility. EPA previously considered and responded to the same comment in 40 CFR part 51, appendix Y, promulgated at 70 FR 39104, July 6, 2005. After receiving this comment on the BART Guidelines, EPA considered the approach of assessing a BART-eligible source's impacts on visibility by using current or near-term future conditions, and EPA determined that BART visibility impacts should be evaluated in comparison to natural background visibility. In the final rulemaking EPA wrote (70 FR 39124):

> "Using existing conditions as the baseline for single source visibility impact determinations would create the following paradox: the dirtier the existing air, the less likely it would be that any control is required. This is true because of the nonlinear nature of visibility impairment. In other words, as a Class I area becomes more polluted, any individual source's contribution to changes in impairment becomes geometrically less. Therefore the more polluted the Class I area would become, the less control would seem to be needed from an individual source. We agree that this kind of calculation would essentially raise the "cause or contribute" applicability threshold to a level that would never allow enough emission control to significantly improve visibility. Such a reading would render the visibility provisions meaningless, as EPA and the States would be prevented from assuring "reasonable progress" and fulfilling the statutorily-defined goals of the visibility program. Conversely, measuring

> improvement against clean conditions would ensure reasonable progress toward those clean conditions."

See, also, Memorandum from Gail Tonnesen, Regional Modeler, to North Dakota Regional Haze File, dated September 1, 2011, regarding "Modeling Single Source Visibility Impacts." This memorandum is included in Appendix B of the Technical Support Document (TSD) for this action.

Comment: Two commenters performed new CALPUFF simulations using EPA's current regulatory version 5.881 and submitted these modeling results to EPA during the comment period. The commenters found lower visibility impacts using CALPUFF version 5.8 than did the State with an earlier CALPUFF version 5.711a.

Response: For these new model results, the commenters did not submit a modeling protocol for EPA review and did not provide a complete copy of the CALPUFF input and output files. As a result, EPA was not able to fully review the data sets used in this modeling. [20908] Moreover, while EPA did approve the use of the Rapid Update Cycle meteorology for modeling the Heskett facility, EPA has not approved this alternate modeling protocol for other BART sources in North Dakota and has not reviewed or approved other modifications to the modeling approach that the commenters used in developing new CALPUFF results.

From the information that the commenters provided, EPA determined that the differences in the new CALPUFF version 5.8 modeling results are due in part to a change in the natural background visibility that was used in the modeling analysis. The State's modeling protocol called for use of the 20% best natural visibility days in its BART analysis while the commenters' new CALPUFF version 5.8 analysis used the annual average natural visibility days. If the commenters had adopted the same approach as North Dakota and compared CALPUFF version 5.8 visibility impacts to the 20% best natural visibility days, the results of the new analysis would have been more similar to the original modeling performed by North Dakota.

We do not find that the commenters' new modeling demonstrates that single-source modeling performed according to North Dakota's BART modeling protocol should be disregarded. That modeling was conducted using the latest version of CALPUFF that was available at the time, and we are approving the great majority of North Dakota's BART determinations that relied on results from that modeling. In our FIP, in which we are merely filling gaps in the SIP, we are not required to conduct new modeling using CALPUFF version 5.8 or disregard the results of the modeling conducted using CALPUFF version 5.711a. In fact, we find the better course is to rely on modeling based on the same version of the model that the State employed to ensure we are using a consistent comparison. See, *Mont. Sulphur & Chem. Co. v.*

United States EPA, 2012 U.S. App. LEXIS 1056 (9th Cir. Jan. 19, 2012).

Comment: The commenters argue that CALPUFF overstates visibility impact due to the complexity of the chemistry affecting visibility impairment and that EPA acknowledges that "the simplified chemistry in the [CALPUFF] model tends to magnify the actual visibility effects of [a] source." 70 FR 39121. The commenters further state that when EPA adopted the BART Guidelines, EPA concurred with "the concerns of commenters that the chemistry modules of the CALPUFF model are less advanced than some of the more recent atmospheric chemistry simulations." Id. at 39123. The commenters also assert that several published papers or presentations show that CALPUFF over predicts nitrate by a factor of 2 to 4 in the winter.

Response: For the reasons already stated, EPA's reliance on the CALPUFF modeling results that the State included in the SIP is reasonable. In addition, EPA has acknowledged that the simplified chemistry used in the CALPUFF model creates uncertainty in the accuracy of the model for predicting visibility impacts for pollutants such as NO_x that are converted from the gas phase to aerosol through complex photochemical reactions. However, it is uncertain whether the simplified chemistry will always overpredict visibility impacts. For example, Anderson *et al.*

(2010)[6] found that the CALPUFF model frequently predicted lower nitrate concentrations compared to the Comprehensive Air Quality Model (CAMx) photochemical grid model, which has a much more rigorous treatment of photochemical reactions. EPA recognized the uncertainty in the CALPUFF modeling results, and EPA made the decision in the final BART guidelines that the model should be used to estimate the 98th percentile visibility impairment rather than the highest daily impact value as proposed. 70 FR 39121. We made the decision to consider the less conservative 98th percentile *(i.e.,* the eighth highest 24-hour deciview impact in a year rather than the highest) primarily because the chemistry modules in the CALPUFF model are simplified and might in some cases predict a maximum 24-hour impact that is an "outlier." Id. If recent updates to CALPUFF cause the model to predict lower visibility impacts, the use of the updated model might also require EPA to reconsider the choice of the less conservative 98th percentile for evaluating visibility impacts. In any event, our reliance on CALPUFF modeling is reasonable for the reasons discussed above.

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[6] Anderson, B., K. Baker, R. Morris, C. Emery, A. Hawkins, E. Snyder "Proof-of-Concept Evaluation of Use of Photochemical Grid Model Source Apportionment Techniques for Prevention of Significant Deterioration of Air Quality Analysis Requirements" Community Modeling and Analysis System (CMAS) 2010 Annual Conference, October 11-15, 2010, Research Triangle Park, NC. http://www.cmascenter.org/conference/2010/agenda.cfm.

Comment: Several commenters suggested that the State has unlimited discretion to consider visibility or cost or other factors in any way it wishes, even in ways that are inaccurate or inconsistent with the purpose of the CAA.

Response: We disagree. We have already largely addressed the assertions in this comment in our responses to comments on our legal authority. Furthermore, as a hypothetical example, EPA would not defer to a state determination that the remaining useful life of a source is one year if relevant evidence indicates the remaining useful life is 20 years. Limits on state discretion are inherent in the CAA and our regulations; otherwise, states would be free to reach decisions that are arbitrary and capricious or inconsistent with the purpose behind the CAA and EPA's regulations. As we have stated, North Dakota's cumulative modeling approach thwarts the goal stated by Congress in CAA section 169A and underlying the RHR.

Comment: One commenter claimed that pictorial examples demonstrate that the visibility benefits which EPA claims can be achieved with NO_x control technologies are not perceptible. The commenter compares archived pictures copied from the National Park Service (NPS) Web site, along with the monitored haze index, for days having varying levels of visibility impairment. For example, the commenter compares two pictures from different days for which the haze index changes by 1.26 deciviews and concludes that "no perceptible difference can be seen * * * "

Response: We do not expect that a 1.0 deciview change in visibility, which is considered a "small but noticeable change in haziness under most circumstances" (64 FR 35725), could be easily perceived in a small picture on the printed page. Moreover, North Dakota did not provide visibility improvement relative to a pre-control baseline as recommended by the BART guideline (70 FR 39170), so many of the estimates of visibility improvement contained in the SIP are misleadingly low. Regardless, the BART Guidelines establish that predicted visibility improvement below perceptibility thresholds does not provide a basis to automatically eliminate a control option: "Even though the visibility improvement from an individual source may not be perceptible, it should still be considered in setting BART because the contribution to haze may be significant relative to other source contributions in the Class I area. Thus, we disagree that the degree of improvement should be contingent upon perceptibility. Failing to consider less-than-perceptible contributions to visibility impairment would ignore the CAA's intent to have BART requirements apply to sources that contribute to, as well as cause, such impairment." 70 FR 39129. The [20909] importance of visibility impacts below the thresholds of perceptibility cannot be ignored given that regional haze (as contrasted with reasonably attributable visibility impairment) is a problem that is produced by a multitude of sources and activities which are located across a broad geographic area.

Comment: Commenter states that it takes a larger change in pollutant emissions to cause a perceptible visibility change when the change is measured against current degraded visibility conditions rather than "natural" visibility conditions. Visibility benefits estimated relative to natural background will "tend to be five to seven times larger" than the benefits estimated relative to current degraded visibility. Therefore, using the natural background conditions overstates the visibility improvement that would be achieved by controls at the time of installation.

Response: As noted in our responses to other similar comments, it is precisely this effect that leads us to conclude that the only approach consistent with the statutory and regulatory goals when considering visibility improvement associated with potential single-source control options is to use natural background values in the model. The goal is reasonable progress, not stasis.

Comment: One commenter argues that the natural background specified by EPA significantly exaggerates how clean natural conditions actually are. The commenter provides a report on natural visibility background which argues that EPA's estimate of natural conditions significantly understates the extent of natural particulate emissions, including dust and wildfires, which are uncontrollable.

Response: EPA recognized that variability in natural sources of visibility impairment cause variability in natural haze levels as described in its "Guidance for Estimating Natural Visibility Conditions Under the Regional Haze Rule."[7] The preamble to the BART guidelines (70 FR 39124) describes an approach used to measure progress toward natural visibility in Mandatory Class I Areas that includes a URP toward natural conditions for the 20 percent worst days and no degradation of visibility on the 20 percent best days. The use of the 20 percent worst natural conditions days in the calculation of the URP takes into consideration visibility impairment from wild fires, windblown dust and other natural sources of haze. The "Guidance for Estimating Natural Visibility" also discusses the use of the 20 percent best and worst estimates of natural visibility, provides for

[7] Guidance for Estimating Natural Visibility Conditions Under the Regional Haze Rule, U.S. Environmental Protection Agency, September 2003. http://www.epa.gov/ttncaaa1/t1/memoranda/rh_envcurhr_gd.pdf, page 1-1: "Natural visibility conditions represent the long-term degree of visibility that is estimated to exist in a given mandatory Federal Class I area in the absence of human-caused impairment. It is recognized that natural visibility conditions are not constant, but rather they vary with changing natural processes (e.g., windblown dust, fire, volcanic activity, biogenic emissions). Specific natural events can lead to high short-term concentrations of particulate matter and its precursors. However, for the purpose of this guidance and implementation of the regional haze program, natural visibility conditions represents a long-term average condition analogous to the 5-year average best- and worst-day conditions that are tracked under the regional haze program."

revisions to these estimates as better data becomes available,[8] and discusses possible approaches for refining natural conditions estimates (pages 3-1 to 3-4).

For the evaluation of visibility impacts for BART sources, EPA recommended the use of the natural visibility baseline for the 20% best days for comparison to the "cause or contribute" applicability thresholds. This estimated baseline is reasonably conservative and consistent with the goal of attaining natural visibility conditions. While EPA recognizes that there are natural sources of haze, the use of the 20% worst natural visibility days is inappropriate for the "cause or contribute" applicability thresholds. For example, if BART source visibility impacts were evaluated in comparison to days with very poor natural visibility resulting from nearby wild fires or dust storms, the BART source impacts would be significantly reduced relative to these poor natural visibility conditions and would not be protective of natural visibility on the best 20% days.

The commenter and the cited report on natural visibility by Robert Paine appear to suggest that EPA requires the use of the best 20% visibility days for all

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[8] Guidance for Estimating Natural Visibility Conditions * * *: "The preamble further stated that 'with each subsequent SIP revision, the estimates of natural conditions for each mandatory Federal Class I area may be reviewed and revised as appropriate as the technical basis for estimates of natural conditions improve.' "

aspects of visibility analysis. This does not accurately characterize EPA's recommended use of the 20% worst natural visibility days for URP calculations and the 20% best natural visibility days for the "cause or contribute" applicability thresholds. For example, natural visibility conditions at the Badlands National Park for the best 20%, annual average, and worst 20% natural visibility days are 2.9, 5.0, and 8.1 deciviews, respectively.[9] By contrast, current visibility conditions at the Badlands National Park for the best 20%, annual average, and worst 20% days are 6.9, 11.6 and 17.1 deciviews, respectively. The URP calculation uses the worst 20% natural visibility value of 8.1 deciviews, and this value adequately represents the impacts of natural sources of visibility impairment. Finally, as part of the settlement of a case brought by the Utility Air Regulatory Group challenging the BART Guidelines,[10] EPA agreed to issue guidance clarifying that states may use either the 20% best or the annual average in estimating natural visibility in the evaluation of a BART source's impacts. This guidance makes clear that states have the flexibility to use either approach in estimating natural background conditions. The State was not required to use the annual average and did not.

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[9] Natural Haze Levels II Committee Report.

[10] Settlement Agreement in *Utility Air Regulatory Group v. EPA,* Case No. 06-1056 in the United States Court of Appeals for the District of Columbia Circuit, April 19, 2006.

Similarly, in issuing a FIP, we are not required to use the annual average either.

The commenter cited modeling studies that purportedly show that the model-predicted natural haze levels are substantially larger than the natural haze levels used by EPA. In fact, the results of those studies compare well with EPA's natural background levels. The modeling study by Tonnesen *et al.*[11] predicted annual average natural PM2.5 concentrations in North Dakota in the range of 1.9 to 2.5 ug/m^3, while the Koo *et al.* study[12] predicted annual average natural $PM_{2.5}$ concentrations in the range of 2.5 to 3.1 ug/m^3 in North Dakota. These model estimates are consistent with EPA's estimated 2.6 ug/m^3 annual average $PM_{2.5}$ concentration at Class I Areas in western North Dakota.

Comment: One commenter felt that EPA's decision appears to be driven by its desired outcome – more emission reductions – and not by any legal basis for disapproving the North Dakota SIP.

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[11] Tonnesen, G., Omary, M., Wang, Z., Jung, C.J., Morris, R., Mansell, G., Jia, Y., Wang, B., Adelman, Z., 2006. Report for the Western Regional Air Partnership Regional Modeling Center. University of California Riverside, Riverside, California, November. http://pah.cert.ucr.edu/aqm/3088/reports/final/2006/WRAP-RMC_2006_report_FINAL.pdf.

[12] Koo, B.; Chien, C.J.; Tonnesen, G.; Morris, R.; Johnson, J.; Sakulyanontvittaya, T.; Piyachaturawat, P.; Yarwood, G.; Natural emissions for regional modeling of background ozone and particulate matter and impacts on emissions control strategies, *Atmos. Env.,* 44:19, 2372-2382.

Response: Our decision is driven by our interpretations of the CAA and our [20910] regulations. We note that we are approving the vast majority of North Dakota's decisions.

Comment: One commenter stated that EPA should not ignore two of the three years of CALPUFF modeling results in our review of modeling results presented by North Dakota. The commenter suggested that this is inconsistent with EPA's typical practice of using long-term averages when addressing regional haze as is necessary to prevent undue influence from short-term events or unusual meteorological events.

Response: In our review of the single-source CALPUFF modeling results presented by North Dakota, we cited the change in the maximum 98th percentile impact over the modeled three year meteorological period (2001-2003). As the 98th percentile value is intended to reflect the 8th high value in any year, it already eliminates 7 days per year from consideration in order to account for short-term events, unusual meteorological conditions, and any over-prediction bias in the model. Therefore, the modeling results which we cited in our proposal are designed to exclude influence from unusual events or meteorological conditions and are sufficient to address the commenter's concerns. We also note that our approach is consistent with the method used by North Dakota in identifying subject-to-BART sources where a source is considered to contribute to impairment if it "exceeds the threshold when the ninety-eighth percentile of the modeling results based on any one year of the three years of meteorological data modeled exceeds five-tenths deciviews." North Dakota RH SIP, p. 63. We find that this is a reasonable method for the purposes of evaluating visibility improvements associated with potential control options.

Comment: Commenters stated that EPA should not ignore the 90th percentile impact in our review of the CALPUFF visibility results presented by North Dakota.

Response: In the BART Guidelines, EPA addressed the appropriate interpretation of CALPUFF modeling results within the context of subject-to-BART modeling. We rejected the use of the 90th percentile because it would be inconsistent with the Act: "The use of the 90th percentile value would effectively allow visibility effects that are predicted to occur at the level of the threshold (or higher) on 36 or 37 days a year. We do not believe that such an approach would be consistent with the language of the statute." 70 FR 39121. On the same page, EPA explained that the 98th percentile was sufficient to account for any overestimation of visibility benefits by CALPUFF.

While the BART Guidelines do allow states to consider the "frequency, duration, and intensity" of a source's visibility impact when making control determinations, the use of the 90th percentile would overcompensate for any uncertainties in CALPUFF and would underestimate visibility benefits from potential control options and unduly bias the resulting analysis. When the 90th percentile is used to assess predicted visibility improvement from a potential control option, the 37th or 38th highest predicted improvement value from 365 predicted daily values is selected; higher predicted improvement values on 36 or 37 days a year are ignored. This is not rational. In the actual BART determination, a state could so dilute the predicted visibility improvement, one of the very goals of CAA section 169A, as to nullify its initial determination using the 98th percentile that the source is subject to BART. Accordingly, the BART guidelines specifically mention the use of the 98th percentile as an option to compare pre- and post-control modeling runs; use of the 90th percentile is not mentioned. 70 FR 39170. Moreover, the FLMs have affirmed the use of the 98th percentile in their most recent guidance for evaluating visibility impacts at Class I areas. FLAG 2010, p. 23.[13]

Comment: One commenter stated that CALPUFF overpredicts visibility impacts associated with nitrates due to incorrect (too high) ammonia background. The commenter stated that monitored background ammonia data from Wyoming shows lower concentrations. The commenter also cites a

[13] The complete reference is: U.S. Forest Service, National Park Service, and U.S. Fish and Wildlife Service. 2010. Federal land managers' air quality related values work group (FLAG): phase I report – revised (2010). Natural Resource Report NPS/NRPC/NRR-2010/232. National Park Service, Denver. Colorado.

study by Colorado Department of Public Health and Environment (CDPHE) related to the sensitivity of the CALPUFF model to ammonia background concentrations.

Response: The monthly ammonia background concentrations used by North Dakota were derived from data collected at the State's only ammonia monitor located near Beulah and range from a low of 0.98 ppb to a high of 2.29 ppb. (BART modeling protocol, Table 3-4). Due to their proximity to the North Dakota sources and Class I areas, the Beulah ammonia background concentrations are clearly more representative than those which the commenter cites for Wyoming that "were on the order of only 0.1 ppb." We also note that, in its revised modeling, the commenter did not use alternate ammonia background concentrations that would differ from those used by North Dakota.

With regard to the ammonia background sensitivity study conducted by CDPHE,[14] the commenter has not shown that the study is relevant to North Dakota. CDPHE found that visibility impacts are "not very sensitive to the background ammonia concentration across the range from 1.0 ppb to 100.0 ppb." *Id* at 24. Therefore, we disagree with the commenter's

[14] CALMET/CALPUFF BART Protocol for Class I Federal Area Individual Source Attribution Visibility Impairment Modeling Analysis, Colorado Department of Public Health and Environment, October 24, 2005.

assertion that CALPUFF overpredicts visibility impacts associated with nitrates due to incorrect (too high) ammonia background.

Comment: One commenter cited a paper by Terhorst and Berkman (2010) regarding the impact of the Mohave Generating Station (MGS), also known as the Mohave Power Project (MPP), on visibility in the Grand Canyon. The MGS was located about 115 km from the Grand Canyon National Park ("GCNP") and was shut down in 2005. Based on measured values, and after controlling for the prevailing environmental and anthropogenic factors in the region, the authors found virtually no evidence that the MGS closure improved visibility in the GCNP or that the plant's operation degraded it. This was in contrast to air quality transport models, including CALPUFF, that predicted visibility would have improved by 5% or more after closure.

Response: For the reasons stated in our responses to comments earlier in this section, our reliance on the CALPUFF modeling the State submitted in the SIP is reasonable. In addition, the study by Terhorst and Berkman does not convince us that use of CALPUFF modeling is inappropriate for this action or that the CALPUFF modeling results should be ignored. A model such as CALPUFF essentially holds constant a number of factors in order to isolate the impacts of a single source. As acknowledged by the study's authors, it is extremely difficult in observational analyses to sufficiently control for all factors, including emissions from other sources, to be able to isolate the impacts of closure of a facility, especially one located over 100 km from the Class I area at issue. In fact, the paper notes that coarse soil mass impacts are an omitted variable in the analytical analysis and that changes in those [20911] emissions may have counteracted the visibility improvements expected from the source shutdown.

Comment: One commenter noted that the BART Guidelines allows states to consider if the time of year is important (e.g., high impacts are occurring during tourist season)". 70 FR 39130. The commenter provided information that shows that 85% of all visits to Theodore Roosevelt National Park (TRNP) occur during the period from mid-May to mid-October but that nitrate concentrations measured at TRNP and Lostwood Wilderness Area (LWA) during this period are extremely low.

Response: We agree that our BART guidelines acknowledge that states may consider the timing of impacts in addition to other factors related to visibility impairment. However, states are not required to do so, and to our knowledge, this was not part of North Dakota's analysis. We are not required to substitute a source's desired exercise of discretion for that of the State's. Furthermore, for purposes of our FIP, we stand in the shoes of the State. In that capacity, we are not required to consider the seasonality of impacts, and we have chosen not to. The experience of visitors who come to the Class I areas in North Dakota during periods other than mid-May to mid-October is not discounted.

As a factual matter, the commenter's assertions are misleading. A review of the Interagency Monitoring of Protected Visual Environments (IMPROVE) monitoring data on the WRAP Technical Support System[15] reveals that significant nitrate impacts occur during periods of high visitation at TRNP. For example, the contribution to visibility impairment from nitrates in May and October of 2002 was 26.9% and 37.9%, respectively. There was also relatively high visitation to the Park during these months.[16]

Also, the commenter's reference to 40 CFR 51.301's definition of "adverse impact on visibility" is misplaced. This term is defined for purposes of 40 CFR 51.307 only and is not used in 40 CFR 51.308. Section 51.307 applies to new source review only, not to the regional haze program.

Comment: One commenter states that further controlling NO_x emissions from North Dakota sources would not advance the goal of improving visibility. The commenter bases this statement on (1) back trajectory analysis that shows that emissions from North Dakota point sources only impact TRNP and LWA a small part of the time, and (2) a modeling study of large North Dakota point sources of NO_x emissions that followed North Dakota's 2005 EPA-approved protocol and shows that these sources

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[15] http://vista.cira.colostate.edu/tss/Resultss/HazePlanning.aspx.

[16] http://www.nature.nps.gov/stats/park.cfm?parkid=467.

contribute a very small fraction of light extinction attributable to nitrates.

Response: We disagree that controlling large NO_x point sources in North Dakota will not advance the goal of improving visibility.

IMPROVE monitoring data shows that nitrates (from all sources) are among the highest contributors to visibility impairment at TRNP and LWA on the worst 20% visibility days. The contribution to visibility impairment from nitrate at TRNP from 2000-2004 ranged between 13.8% and 24.1%, with nitrate contributing more than any other pollutant in 2001 and 2002. Similarly, the contribution to visibility impairment from nitrate at LWA from 2000-2004 ranged between 19.2% and 31.5%, with nitrate contributing more than any other pollutant in 2004.

In order to help states identify the origins of haze-forming pollutants, such as nitrates, the WRAP conducted source apportionment analyses that identify the contribution from source regions and types to specific Class I areas. These source apportionment methods included CAMx Particle Source Apportionment Technology (PSAT) and the Weighted Emissions Potential (WEP). Both of these analysis tools can be found on the WRAP Technical Support System.[17] As described below, these analyses clearly demonstrate

[17] http://vista.cira.colostate.edu/tss/Results/HazePlanning.aspx.

that North Dakota point sources are among the largest contributors to nitrates at TRNP and LWA on the 20% worst visibility days.

PSAT is a tracer analysis approach that utilizes a mass-tracking algorithm in the CAMx air quality model to explicitly track the chemical transformations, transport, and removal of haze-forming pollutants associated with a particular source region, source type, or combination of the two. The WRAP PSAT results demonstrate that in 2002, North Dakota point sources were the third and fifth largest contributors to nitrate on the worst 20% visibility days at TRNP and LWA, respectively (see charts and tables contained in docket).

The WEP analysis relies on an integration of gridded emissions data, back trajectory residence time data, a one-over-distance factor to approximate deposition, and a normalization of the final results. This method does not produce highly accurate results because, unlike the CAMx air quality model and associated PSAT analysis, it does not account for chemistry and removal processes. Nonetheless, it is more informative than the simpler back trajectory analysis submitted by the commenter because WEP incorporates gridded emissions in addition to back trajectory. The WRAP WEP results show that the grid cells in which the North Dakota BART sources are located have among the highest potential to contribute to nitrate on the worst 20% visibility days at TRNP and LWA (see graphics contained in docket).

Based on the WRAP source apportionment analyses, we find that there is ample evidence to conclude that further controlling NO_x emissions from North Dakota point sources would advance the goal of improving visibility.

Comment: One commenter submitted new single-source modeling for the AVS units that are subject to reasonable progress. The new modeling included results based on the current EPA-approved version of CALPUFF and use of annual average natural background conditions.

Response: In our proposal, we noted that North Dakota provided modeling results showing a "visibility improvement of 0.754 deciviews at Theodore Roosevelt [2002] from the installation of LNB for both units combined." 76 FR 58632. The commenter's new modeling for the two units combined shows a visibility improvement of 0.39 deciviews at Theodore Roosevelt (98th percentile, 2002). As we have stated elsewhere in response to comments, EPA has not reviewed or approved the specific modeling methodology used by the commenter for AVS; because the newly submitted modeling uses annual average natural background conditions, it is not consistent with North Dakota's protocol for single-source modeling in the BART context. In our consideration of visibility improvement as an additional factor to the statutory and regulatory reasonable progress factors, we are not convinced that we must disregard North Dakota's visibility improvement value of 0.754 deciviews in favor of the commenter's lower estimate.

For reasons already explained, we find it reasonable to continue to consider and rely on single-source CALPUFF modeling that has been conducted in accordance with North Dakota's modeling protocol for BART sources.

However, even if we were required to consider the commenter's new modeling results, they would not cause us to change our opinion about our disapproval of the State's determination [20912] that no NO_x controls are needed at AVS 1 and 2 for purposes of reasonable progress or our determination that LNB must be installed for purposes of reasonable progress. The costs for LNB are very reasonable – $586 and $661 per ton for AVS 1 and 2, respectively. This is well below cost effectiveness values the State found reasonable in making some of its BART determinations. Also, the AVS units are not small EGUs. To the contrary, at 435 MW apiece, they are comparable to some of the larger EGUs in the State, and their NO_x emissions are considerably greater than emissions from some other EGUs in North Dakota. North Dakota predicted that LNB at AVS would achieve NO_x reductions of about 3,500 tons per unit per year. These reductions are substantially greater than those that will be achieved at the Stanton Station (maximum reduction of 983 tons per year, based on firing of lignite) and LOS 1 (reduction of 1,246 tons per year reduction), where the State selected SNCR as BART, and significantly greater than the reductions that will be achieved at CCS (reduction of 2,572 tons per year, based on our FIP), the largest EGU in the State.

Finally, even the commenter's new modeling predicts combined visibility improvement of 0.39 deciviews for LNB on both units. Even if one were to consider this on a unit-by-unit basis, 0.2 deciviews per unit is significant, and we find that this level of visibility improvement, when considered along with the four statutory factors under reasonable progress, would continue to support our selection of LNB for AVS 1 and 2.

Comment: One commenter stated that: "EPA has no basis in law for rejecting the cumulative modeling performed by the State for AVS since, as EPA admits, there is no requirement that visibility impacts be addressed under a four-factor analysis for a reasonable progress source. That is, there is no authority that precludes the State from modeling the way it did." In addition, EPA ignores the fact that reasonable progress is not the same as BART.

Response: The following language from 40 CFR 51.308(d)(1)(ii) applies because North Dakota established a RPG that provides for a slower rate of progress than would be needed to attain natural conditions by 2064:

> [The State must demonstrate, based on the factors in paragraph (d)(1)(i)(A) of this section, that the rate of progress for the implementation plan to attain natural conditions by 2064 is not reasonable; and that the progress goal adopted by the State is reasonable.

The factors in paragraph (d)(1)(i)(A) are "the costs of compliance," "the time necessary for compliance," "the energy and non-air quality environmental impacts of compliance," and "the remaining useful life of any potentially affected sources." "Visibility improvement" is not one of the factors listed. EPA is required to determine "whether the State's goal for visibility improvement provides for reasonable progress towards natural visibility conditions." 40 CFR 51.308(d)(1)(iii). In doing so, we must "evaluate the demonstrations developed by the State" pursuant to (d)(1)(ii). There is accordingly no explicit requirement for the State to take into account visibility impacts in determining what measures are reasonable. For regional haze, which is caused by emissions from numerous sources located over a wide geographic area, this makes sense. Controls on one specific source may have little measurable impact on visibility, but controls on multiple similar sources would likely have an impact on improving visibility. We note that states are unlikely to reach the national goal without, at some point, focusing on emissions from a range of sources. In these first regional haze SIPs, however, states have focused on those individual sources with the largest potential impacts on visibility.

When a state considers the visibility improvement associated with controlling just one source or a small handful of sources in attempting to demonstrate that its progress goal is reasonable, it is not appropriate for the state to model visibility improvement on a source-by-source basis in a way that is inconsistent with the CAA. As discussed above, given the nature of visibility impairment, a single source's impact on visibility under current, degraded visibility conditions is much less than when compared against a clean background. North Dakota's approach using current degraded background would almost always result in the conclusion that reducing emissions will have little or no impact on visibility.

North Dakota used cumulative modeling, which assumed current degraded background to evaluate and reject single-source control options for reasonable progress for every reasonable progress source in North Dakota. Such an approach to single-source modeling is inconsistent with the CAA. As we explained in the TSD for our proposal, we had previously considered and rejected the use of current degraded background in promulgating the BART Guidelines.[18] The central logic of our interpretation, as expressed in the BART Guidelines, applies with equal force to single-source analysis of potential control options in the reasonable progress context. In the BART Guidelines, we said the following:

> In establishing the goal of natural conditions, Congress made BART applicable to

[18] Memorandum from Gail Tonnesen, Regional Modeler, to North Dakota Regional Haze File, dated September 1, 2011, regarding "Modeling Single Source Visibility Impacts." This memorandum is included in Appendix B of the TSD for this action.

> sources which 'may be reasonably anticipated to cause or contribute to any impairment of visibility at any Class I area.' Using existing conditions as the baseline for single source visibility impact determinations would create the following paradox: the dirtier the existing air, the less likely it would be that any control is required. This is true because of the nonlinear nature of visibility impairment. In other words, as a Class I area becomes more polluted, any individual source's contribution to changes in impairment becomes geometrically less. Therefore the more polluted the Class I area would become, the less control would seem to be needed from an individual source. We agree that this kind of calculation would essentially raise the 'cause or contribute' applicability threshold to a level that would never allow enough emission control to significantly improve visibility. Such a reading would render the visibility provisions meaningless, as EPA and the States would be prevented from assuring 'reasonable progress' and fulfilling the statutorily-defined goals of the visibility program. Conversely, measuring improvement against clean conditions would ensure reasonable progress toward those clean conditions.

70 FR 39124.

In other words, it is our interpretation that North Dakota, if it wished to consider visibility improvement in single-source modeling of potential control options, could only reasonably do so by modeling those controls against natural background conditions. Thus, we reject the commenter's assertion. As we stated in our proposal, the statutory and regulatory goal is reasonable progress toward natural visibility conditions, not to preserve degraded conditions. 76 FR 58629. The State's and commenter's approach resulted in the rejection of very effective and inexpensive controls, and that approach could be used to preclude adoption of controls indefinitely. For the reasons expressed here and in our proposal, that is not reasonable.

Comment: Two commenters stated that EPA should consider the dollars per deciview ($/deciview) as a measure when making either BART or reasonable progress determinations. Both commenters suggested that EPA relied too heavily on cost effectiveness in evaluating control options. And both commenters claimed that EPA has [20913] endorsed the dollar per deciview approach, citing relevant BART and reasonable progress guidance.

Response: For BART, the BART Guidelines require that cost effectiveness be calculated in terms of annualized dollars per ton of pollutant removed, or $/ton. 70 FR 739167. The commenters are correct in that the BART Guidelines list the $/deciview ratio as an additional cost effectiveness metric that can be employed along with $/ton for use in a BART evaluation. However, the use of this metric further implies that additional thresholds or notions of acceptability, separate from the $/ton metric, would need to be developed for BART determinations. We have not used this metric for BART purposes because (1) It is unnecessary in judging the cost effectiveness of BART, (2) it complicates the BART analysis, and (3) it is difficult to judge. In particular, the $/deciview metric has not been widely used and is not well-understood as a comparative tool. In our experience, $/deciview values tend to be very large because the metric is based on impacts at one Class I area on one day and does not take into account the number of affected Class I areas or the number of days of improvement that result from controlling emissions. In addition, the use of the $/deciview suggests a level of precision in the CALPUFF model that may not be warranted. As a result, the $/deciview can be misleading. We conclude that it is sufficient to analyze the cost effectiveness of potential BART controls using $/ton, in conjunction with an assessment of the modeled visibility benefits of the BART control. We also note that North Dakota did not rely on the $/deciview metric in its evaluation of BART controls.

Within the context of reasonable progress, the *Guidance for Setting Reasonable Progress Goals Under the Regional Haze Program,* page 5-2, states that "[y]ou should evaluate both average and incremental costs." This is consistent with the approach under BART. As commenters note, the guidance then states that "simple cost effectiveness estimates based on a dollar-per-ton calculation may not be as meaningful as a dollar-per-deciview calculation, especially if the strategies reduce different groups of pollutants."

However, the guidance makes this statement on the basis that "different pollutants differently impact visibility impairment." That is, for example, a one ton reduction in SO_2 would have a greater visibility benefit than a one ton reduction of coarse mass. As only SO_2 and NO_x controls were evaluated for the reasonable progress point sources, and these pollutants have similar impacts on visibility (per the IMPROVE equation),[19] the use of the $/deciview is not particularly relevant or informative. In addition, we did not use the $/deciview metric for our evaluation of RP controls for largely the same reasons as stated above for BART controls. As we noted in our proposal, "it is important to recognize that dollars per deciview values will always be significantly higher, often by several orders of magnitude, than the more commonly used and understood dollars per ton values." 76 FR 58630. North Dakota's use of current degraded background in its modeling for potential single-source control options had the effect of greatly increasing the disparity between $/deciview and $/ton values because the modeling significantly underestimated the benefits of controls.

Comment: Commenters performed CALPUFF simulations using a revised CALPUFF version 6.4 that includes updates to the chemical and particle transformations and submitted these results to EPA during the comment period.

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[19] See Appendix A of our TSD for detailed explanation of the IMPROVE equation.

Response: We have already explained why we may reasonably rely on the modeling performed in accordance with the State's BART modeling protocol. We have additional reasons for disagreeing that the newer CALPUFF version 6.4 results should be used in this action to determine potential visibility impacts. The newer version of CALPUFF has not received the level of review required for use in regulatory actions subject to EPA approval and consideration in a BART decision making process. Based on our review of the available evidence, we do not consider CALPUF version 6.4 to have been shown to be sufficiently documented, technically valid, and reliable for use in a BART decision making process. In addition, the available evidence would not support approval of these models for current regulatory use. The newer versions of the model introduce additional chemical mechanisms that have not gone through the public review process required for approval by the Agency.

Comment: North Dakota's proposed RH SIP emission reductions are sufficient to meet the CAA's visibility objectives relative to the 2018 milestone. North Dakota's BART emission reductions properly and effectively reduce statewide haze production by more than the 23.3% fraction of the 60-year RHR timeline (by 2018). EPA improperly asserts that North Dakota cannot meet the 2018 URP. In fact, the infrequency of the winds blowing the major emission source plumes toward the Class I areas and the zero progress toward controlling Canadian and uncontrollable emissions (such as wildfires and windblown dust) are the cause of the inability for North Dakota to meet the 2018 milestone goal, not in-state source emissions. EPA should not penalize North Dakota and reject its RH SIP because North Dakota cannot control impacts from sources beyond its control. In fact, the RHR and the UARG settlement with EPA in 2006 state that, "EPA does not expect States to restrict emissions from domestic sources to offset the impacts of international transport of pollution."

Response: Contrary to the commenter's assertion, the Class I areas in North Dakota will not meet the URP in 2018, something North Dakota acknowledges. We are not penalizing North Dakota, and we are not seeking controls in North Dakota to offset impacts from outside the State. We explain elsewhere why we are disapproving North Dakota's NO_x BART determination for CCS 1 and 2 and its reasonable progress determination concerning AVS 1 and 2. We are acting to ensure that reasonable BART and reasonable progress controls are put in place. North Dakota may not use out-of-state emissions as a basis to ignore controls on in-state sources where such controls are clearly reasonable. We note that we are approving the majority of North Dakota's BART and reasonable progress determinations and that our FIP is modest in scope.

Comment: One commenter notes that EPA's proposed FIP states that "Appendix W outlines specific criteria for the use of alternate models and it does not appear that those criteria have been satisfied for the use of North Dakota's hybrid modeling." 76 FR

58624 and 58637. The commenter asserts that "EPA does not, however, identify any criteria North Dakota purportedly did not satisfy." The commenter then seeks to supply, in retrospect, evidence that the criteria for alternative models, as specified in Appendix W section 3.2, are in fact met.

Response: As specified in Appendix W, "[d]etermination of acceptability of a model is a Regional Office responsibility." 70 FR 68232. EPA Region 8 has not determined that North Dakota's hybrid modeling (aka "cumulative modeling using current degraded background") is acceptable for the purposes of assessing single-source visibility impacts under BART. In June 2007, EPA reviewed the "Modeling Protocol for Regional Haze Reasonable Progress Goals in North Dakota." Our [20914] review of the protocol at that time was within the context of establishing RPGs, and not within the context of assessing single-source impacts under BART. Instead, and as described above, North Dakota prepared a separate modeling protocol for the purposes of BART. We reiterate that, as the State's single-source BART modeling followed established modeling guidance and was developed in consultation with FLMs and EPA, we find that it provides a reasonable basis for making control technology determinations.

Comment: Commenter stated that EPA notes in the FIP that "North Dakota is the only WRAP State which opted to develop its own reasonable progress modeling methodology." Commenter stated that the NDDH modeling approach represents an adjustment, or a refinement (for pollutant transport and dispersion), of the cumulative reasonable progress modeling conducted by WRAP for western states. In particular, the NDDH modeling provides a much better resolution of source to receptor locations. Commenter stated EPA asserts that "[t]he settings North Dakota used in the CALPUFF model within the hybrid modeling system would not be considered technically sound if contained in a regulatory modeling protocol in future projects." However, NDDH's modifications to the model settings allows North Dakota's specific environment to be considered.

Response: North Dakota designed its cumulative modeling system specifically to include transported pollutants, in addition to emissions from individual BART sources. North Dakota then used the model results to evaluate BART source visibility impacts relative to the cumulative impact of all other emissions sources. The State's cumulative approach contradicts the model approach recommended by EPA in the BART Guidelines in which BART source impacts are evaluated relative to natural background visibility. As discussed in the response to comments above, EPA specifically considered and rejected cumulative analyses for BART sources in the BART Guidelines. The effect of North Dakota's cumulative modeling approach is to evaluate BART visibility impacts relative to current degraded visibility conditions, and as described in the BART Guidelines and in response to comments above, this would create the paradox that, the worse the current visibility, the less likely it would be that any control would be required. The commenter also describes the State's approach as similar to the cumulative reasonable progress modeling conducted by WRAP for the western states. WRAP's cumulative reasonable progress modeling was designed to evaluate progress in reducing cumulative visibility impacts from all emissions sources for the worst 20% visibility days. WRAP's cumulative modeling did not evaluate the impacts from individual BART sources, and therefore WRAP also performed single source modeling using the CALPUFF model to evaluate single source BART impacts on the best visibility days. Moreover, WRAP followed the BART Guidelines in comparing those BART visibility impacts to natural visibility conditions on the 20% best days. While it could be reasonable to perform modeling for BART sources using CALPUFF with background concentration data from the Community Multi-Scale Air Quality (CMAQ) model, as North Dakota has done, the BART source visibility impacts must still be evaluated relative to natural background visibility. The State's approach of comparing the BART source impacts to cumulative visibility impacts is essentially the same as comparing those results to current degraded visibility conditions, and, therefore, does not follow the guidelines established by EPA and followed by both WRAP and all other states. As noted in other responses, the reasons for our rejection of North Dakota's modeling approach in the BART context also apply to North Dakota's use of that approach to model the visibility benefits of single-source control options in the reasonable progress context.

Comment: Commenter states that the cumulative approach is exemplified in the refined visibility modeling conducted by WRAP for western states (which EPA has endorsed in Appendix A of the TSD to its FIP proposal).

Response: Our applicable response to a similar comment is provided elsewhere in this section. Such an approach is suitable for determining the cumulative benefit of an overall control strategy vis-à-vis the URP on the 20% worst days. It is not suitable for evaluating the benefits of potential control options at individual sources.

Comment: Commenter stated that EPA suggests that using single source modeling based on natural background conditions is appropriate for assessing visibility improvement from BART controls, because the goal of the regional haze program is to ultimately have natural background visibility conditions. NDDH provides a number of technical weaknesses of single source modeling with natural background. For example, North Dakota asserts the single source modeling overstates perceived visibility changes and ignores the impact of all other sources on background visibility.

Response: We address these assertions in our responses to other comments in this section.

Comment: One commenter stated that it is appropriate to consider both the degree of visibility improvement in a given Class I area as well as the cumulative effects of improving visibility across all of the Class I areas affected. The commenter contends that not considering the cumulative improvement across multiple Class I areas ignores impacts to all but the most impacted Class I area.

Response: In its SIP, North Dakota considered the visibility improvement at both TRNP and LWA. Therefore, the modeling analyses presented by North Dakota did not ignore the visibility improvement that would be achieved at areas other than the most impacted Class I area. In our proposal, for convenience, we generally only cited the visibility improvement at Theodore Roosevelt, the most impacted Class I area in the baseline modeling. However, our evaluation of the visibility benefits was made in consideration of all of the single-source modeling results presented in North Dakota's SIP.

Comment: One commenter stated that they shared our concern that North Dakota did not adequately consider the visibility benefits of the control strategies it evaluated. Specifically, the commenter pointed out that for three EGUs, North Dakota used incorrect techniques to assess (and underestimate) visibility improvements. That is, instead of evaluating a candidate BART strategy by determining the visibility improvement that would result from that particular strategy versus a "standard" baseline (e.g., the proposed SO_2 control options), the only analyses of visibility improvements were of the incremental differences between competing BART options.

Response: We agree that the visibility improvement of a control technology should be assessed relative to a pre-control baseline. As we have noted elsewhere in our response to comments, this approach is recommended in the BART Guidelines. 70 FR 39170. However, where North Dakota failed to provide this information, we were able to rely on the incremental visibility improvement over lower control options. Our evaluation of the visibility benefits for the three EGUs in question took into account that the lower visibility improvement presented by North Dakota was simply an artifact of the methodology.

Comment: One commenter stated that North Dakota should have treated TRNP [20915] as single Class I area in their modeling analyses.

Response: We concur that TRNP should have been treated as a single Class I area in the modeling analyses. However, we have no evidence that doing so would have led to control technology determinations different than those made by North Dakota or EPA.

Comment: One commenter suggested that EPA could have addressed modeling issues that it identified in its proposal by conducting its own modeling analyses, as it did regarding BART determinations in other EPA regional offices.

Response: As stated elsewhere in our responses to comments in this section, we find that North Dakota's single-source modeling provides a reasonable basis for making control technology determinations. Therefore, we did not find it necessary to conduct our own modeling analyses.

Comment: From a visibility impairment standpoint, it appears to be more beneficial to reduce NO_x than to reduce SO_2 in North Dakota's cool climate. However, by placing more emphasis upon cost per-ton ($/ton) of pollutants removed than on visibility improvement, the advantages of reducing NO_x versus SO_2 are overlooked if both are measured with the same $/ton yardstick. For this reason, we recommend that the primary emphasis should be placed upon the dollars per deciview of improvement. EPA has stated in its Guidance for Setting Reasonable Progress Goals Under the Regional Haze Program (June 1, 2007), "in assessing additional emissions reduction strategies for source categories or individual, large scale sources, simple cost effectiveness based on a dollar-per-ton calculation may not be as meaningful as a dollar per deciview calculation." The same logic applies to BART. Nevertheless, the commenter notes that both North Dakota and EPA have based their BART determinations on cost-per-ton of pollutant removed, and the commenter included information to show that the EPA BART proposals are internally consistent and reasonable.

Response: As noted elsewhere, evidence we have reviewed suggests that the relative benefits are similar. In any event, we have not ignored visibility benefits in our assessments. It is not necessary to use dollars per deciview to reasonably consider the regulatory factors and arrive at reasonable control determinations. As we have explained in responses to other comments in this section, there can be significant issues with the use of dollars per deciview values.

Comment: One commenter suggested that the modeling issues raised by EPA, including the use of a degraded background, should be addressed as part of North Dakota's 2013 "mid-course correction" and that more emphasis should be placed upon the cumulative visibility benefits that could be derived from the BART program.

Response: The requirements for periodic reports describing progress towards the RPGs are contained in the RHR (40 CFR 51.308(g)). The RHR does not explicitly require that updated visibility modeling be included as an element of the periodic progress report. Nonetheless, to the extent that North Dakota chooses to submit updated modeling to meet other periodic progress reporting requirements, we will address it at that time.

D. Comments on Costs

1. General

Comment: Commenter stated that EPA cannot replace the State's site-specific cost estimates solely for the purpose of ensuring consistency across states. EPA also cannot reject cost items because EPA deems them atypical. Doing so undermines the statute, which provides that BART is a state determination.

Response: As we explain in our response to a previous comment, we have authority to assess the reasonableness of a state's analysis of costs. We are not relegated to a ministerial role. We have not replaced cost estimates solely for the purpose of ensuring consistency across states. When a source puts forward costs estimates that are atypical, it is reasonable for us to scrutinize such estimates more closely to determine whether they are reasonable or inflated. Also, given that the assessment of costs is necessarily a comparative analysis, it is reasonable to insist that certain standardized and accepted costing practices be followed absent unique circumstances. Thus, our BART guidelines state, "In order to maintain and improve consistency, cost estimates should be based on the OAQPS Control Cost Manual, where possible." 70 FR 39166.

Comment: Commenter stated that EPA misapplies cost effectiveness to measure emissions reductions, because the purpose of BART is visibility improvement. Citing the BART Guidelines, commenter stated that more weight should be placed on the incremental rather than the average cost effectiveness.

Response: In our review and analyses, we have considered cost effectiveness values in conjunction with estimates of visibility improvement. Our analysis methods are consistent with those called for by the BART guidelines. We have considered both average and incremental cost effectiveness. The BART guidelines do not require that greater weight be placed on incremental cost effectiveness and advise the use of caution not to misuse the cost effectiveness values. 70 FR 3916739168.

Comment: Commenter stated that EPA cannot replace the statutory requirement that states weigh costs of compliance with a requirement that states select BART based on a uniform national cost effectiveness metric. Commenter further stated that EPA essentially elevated cost effectiveness to being a statutory factor for BART determinations in the BART Guidelines, and that this was incorrect based on CAA section 169(A).

Response: For power plants larger than 750 MW, the BART guidelines are mandatory and specify that the Control Cost Manual should be used to estimate costs where possible and that cost effectiveness in $/ton be considered. We note that it is too late to challenge the BART guidelines in this action. That said, the BART Guidelines do not, as the commenter contends, require states to select BART based on a "uniform national cost effectiveness metric" without consideration of the other relevant factors.

For BART sources other than power plants larger than 750 MW, North Dakota has specified in its SIP that the BART guidelines must be used as guidance.

Furthermore, any analysis of the costs of compliance must be reasonable, and the starting point is an accurate estimate of the costs of potential control options. From there, we must have some means to assess the reasonableness of the costs, and cost effectiveness in $/ton is a widely used and understood metric.

Comment: Commenter stated that, in the preamble to the RHR, EPA established a cost effectiveness value threshold of $1,350/ton for NO_x retrofit control technologies. Another commenter cited appendix Y, alleging that it states that NO_x control costs above $1,500/ton are not cost effective for BART. Commenter stated that EPA is therefore inaccurate in the FIP for citing NO_x control costs over $1,500 per ton as cost effective.

Response: EPA disagrees. While EPA described various dollar-per-ton costs as "cost-effective" in various preambles (e.g., 70 FR 39135-39136), EPA did not establish an upper cost effectiveness [20916] threshold for BART determinations. We note that North Dakota and other states have identified NO_x control costs well over $1,500 per ton of emissions reduced as being cost effective, and that the relevance of a particular dollar-per-ton figure for controls will depend on consideration of the remaining statutory factors.

2. Comments Regarding Our Reliance on the EPA Air Pollution Control Cost Manual

Comment: One commenter stated that the Control Cost Manual is in no way binding, and that any deviation from the manual by the State is no cause for SIP disapproval. The commenter also stated that cost analyses must take into consideration source-specific costs.

Response: In today's rule, we are disapproving the BART determination for one source, CCS. We note that the BART guidelines are mandatory for CCS because it is larger than 750 MW. The BART Guidelines state that "[i]n order to maintain and improve consistency, cost estimates should be based on the OAQPS Control Cost Manual, [now renamed "EPA Air Pollution Control Cost Manual, Sixth Edition, EPA/452/B-02-001, January 2002] where possible." 70 FR at 39166. In addition, the preamble to the BART Guidelines states that "[w]e believe that the Control Cost Manual provides a good reference tool for cost calculations, but if there are elements or sources that are not addressed by the Control Cost Manual or there are additional cost methods that could be used, we believe that these could serve as useful *supplemental information*." 70 FR 39127 (emphasis added). Finally, the BART Guidelines are clear that "cost analysis should also take into account any site-specific design or other conditions * * * that affect the cost of a particular BART technology option." 70 FR 39166. However, documentation of cost estimates is necessary, particularly for items that deviate from the Control Cost Manual: "You should include documentation for any additional information you used for the cost calculations, including any information supplied by vendors that affects your assumptions regarding purchased equipment costs, equipment life, replacement of major components, and any other element of the calculation that differs from the Control Cost Manual." Id. In sum, the BART Guidelines direct states to use the Control Cost Manual where possible, but also allow for the use of supplemental information and site-specific factors, as necessary, as long as the latter information is justified and documented.

The Control Cost Manual contains two types of information: (1) A generic costing methodology, known as the overnight method and (2) study level capital cost estimates for certain general types of pollution control equipment, such as SCR. The overnight method has been used for decades for regulatory control technology cost analyses.[20] While we agree that the strict application of the study level analysis is not required in all cases, we maintain that following the overnight method ensures equitable BART determinations across states and across sources. Cost effectiveness is determined by comparing annual cost per ton of pollutant removed for the source of interest to the range of cost effectiveness values for other

[20] See, for example, the NSR Manual, Appendix B, which lays out the overnight method currently required in the Control Cost Manual.

similar facilities calculated in the same way. If a given cost effectiveness value falls within the range of costs borne by others, it is per se cost effective unless unusual circumstances exist at the source. 70 FR 39168. Thus, cost effectiveness is a relative determination, based on costs borne by other similar facilities. To compare costs among units, a level playing field must be established by following the same cost rules in each determination.[21] Thus, in evaluating BART cost effectiveness, it is important that a consistent set of rules be used. Otherwise, one runs the risk of comparing two approaches that cannot be validly compared when making the cost effectiveness determination. This concept of comparability is

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[21] See discussion of this issue in Letter from John Bunyak and Sandra V. Silva, Fish & Wildlife Service, to Mary Uhl, New Mexico Environmental Department, August 17, 2010, p. 5, footnote 9 (November 7, 2007, statement from EPA Region 8 to the North Dakota Department of Health: " * * * in order to maintain and improve consistency, cost estimates should be based on the OAQPS Cost Control Manual. Therefore, these analyses should be revised to adhere to the Cost Manual methodology."), p. 6 (quoting a May 10, 2010 EPA letter to North Dakota Department of Health: "These accounting items [owner's cost] are unauthorized under the Cost Control Manual, create an unlevel playing field for comparison with other BACT analyses and alone account for an increase in capital costs from the Cost Control Manual by a factor of 1.6."). See discussion in: Letter from Andrew M. Gaydosh, Assistant Regional Administrator, EPA Region 8, to Terry O'Clair, Director, Division of Air Quality, North Dakota Department of Health, Re: EPA's Comments on the North Dakota Department of Health's April 2010 Draft BACT Determination for NO_x for the Milton R. Young Station. May 10, 2010. pp. 14-16.

integral to the achievement of the national goal specified in CAA section 169A and its legislative history as discussed elsewhere in our response to comments – visibility impairment and improvement is not merely a state or local concern. It impacts visitors to our national parks and wilderness areas from all across the United States.

The cost estimates supplied by North Dakota were frequently based on cost estimating methods that deviate from the overnight method that is used for regulatory purposes. As described above, these costs are not suitable for the purpose of determining whether the costs of BART controls are reasonable relative to costs incurred at other facilities.

Comment: One commenter stated that EPA ignores the disclaimer in the Control Cost Manual that the manual does not address controls for EGUs. To support this position, the commenter provides the following quote from the Control Cost Manual:

> "Furthermore, this Manual does not directly address the controls needed to control air pollution at electrical generating units (EGUs) because of the differences in accounting for utility sources. Electrical utilities generally employ the EPRI Technical Assistance Guidance (TAG) as the basis for their cost estimation processes."[1]

The commenter also provides footnote 1 to this quote which reads as follows:

> "This does not mean that this Manual is an inappropriate resource for utilities. In

> fact, many power plant permit applications use the Manual to develop their costs. However, comparisons between utilities and across the industry generally employ a process called "levelized costing" that is different from the methodology used here. (*EPA Air Pollution Cost Control Manual, Sixth Edition* page 1-3)"

Response: We disagree with the commenter's conclusion regarding this quote from the Control Cost Manual. The quote is merely a factual observation; electric utilities, in their planning and cost estimating for their own purposes, use a different accounting method than required by the Control Cost Manual. The footnote clarifies that the Control Cost Manual is appropriate for utilities for regulatory purposes.

The utility industry uses a method known as "levelized costing" to conduct its internal comparisons.[22] The utility industry's levelized costing methods differ from the methods specified by the Control Cost Manual. Utilities use "levelized costing" to allow them to recover project costs over a period of several years and, as a result, realize a reasonable return on their investment. The Control Cost Manual uses an approach sometimes referred to as "overnight costing" that treats the costs [20917] of a project as if all the materials and labor are paid for within a very short

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[22] As explained in the next response, the Control Cost Manual allows the use of levelized costing, but it is different from the levelized costing that the utility industry prefers.

period of time. The Control Cost Manual approach is intended to allow a fair comparison of pollution control costs between similar applications for regulatory purposes.

Estimates prepared using the utility industry's levelized costing are not comparable to estimates prepared using the Control Cost Manual. Estimates using the utility industry's levelized method are generally higher than EPA cost effectiveness estimates since the utility industry's levelized method estimates are stated in future dollars and include costs not included in the EPA method, such as inflation and interest during construction. That is why the BART guidelines specify the use of the Control Cost Manual where possible and why it is reasonable for us to insist that the Control Cost Manual method be used to estimate costs. This is the method that has been used to determine the reasonableness of cost effectiveness values in regulatory settings for many, many years; it ensures the use of a common, well-understood metric. Without a like-to-like comparison, it is impossible to draw rational conclusions about the reasonableness of the costs of compliance for particular control options.

Comment: Commenter stated that EPA's rejection of levelized costs is inconsistent with the Control Cost Manual. Commenter also cites EPA's New Source Review (NSR) Manual to argue that levelized costs are acceptable and should not be disapproved.

Response: The issue here is one of semantics rather than a dispute over levelization. We agree levelization is allowed by the Control Cost Manual, and we levelized costs in preparing cost estimates for our proposal. However, the commenter levelized in nominal dollars, while EPA's consultant levelized in constant dollars consistent with the Control Cost Manual. The constant dollar approach is the correct approach. It levelizes O&M costs excluding inflation.

The Control Cost Manual approach equalizes all future O&M costs into equal annual payments in constant dollars over the life of the system, translated to year zero using the Equivalent Uniform Annual Cash Flow method or EUAC. See also NSR Manual, p. b.4. The dispute arises over the inclusion of inflation. The Control Cost Manual "recommends making cost comparisons on a current real dollar basis" * * * ." "The constant dollar approach described in the Control Cost Manual annualizes (in constant dollars) the cost of installation, maintenance, and operation of a pollution control system * * * " "The estimator can levelize annual O&M costs over the life of the project, consistent with the manual's constant dollar approach * * * " The commenter asserts that the NSR Manual directs the use of levelized cost in the PSD context, but we note this source also clarifies that the interest rate used to annualize the cost "does not consider inflation." NSR Manual, p. b.11.

Comment: One commenter stated that comparing the State's and EPA's cost methods is essentially comparing apples to oranges. The commenter stated that, because EPA uses a cost method which is uniform and relied upon nationwide, and North Dakota and the utilities' cost method "markedly deviates from EPA's cost method, reliance on the estimates produced by the State are unreasonable."

Response: We agree with the commenter that the costs developed by the State are in many cases not directly comparable to those prepared by EPA. In particular, costs developed using the overnight cost method for (environmental) regulatory purposes are not directly comparable to those developed using the utility cost method. Both approaches are correct for their respective purposes, but each must be used within the appropriate context. We also agree that consistency of methods is necessary to ensure that costs are assessed equitably. In our proposal, where we compared our costs with those supplied by North Dakota, we identified where different cost methods and assumptions were used. While we don't always agree with every detail of the State's cost estimates, we explain in other responses the bases for our conclusions that the State's control determinations are reasonable or unreasonable.

Comment: Commenter also listed several reasons why it believes the Control Cost Manual does not provide accurate estimates of current SNCR costs.

Response: Our reliance on the Control Cost Manual is addressed above. As stated, the BART Guidelines direct states to use the Control Cost Manual where possible, but to also allow for supplemental information and take into account site-specific factors as necessary, as long as the latter information is justified and documented. Accordingly, where appropriately justified and documented, we have incorporated site-specific costs into our SNCR cost estimates. We also note that our SNCR cost effectiveness values compare well with the range cited by the vendor community of $1,500 to 2,500 per ton of NO_x removed.[23]

E. Comments on BART Determinations

1. General Comments

Comment: Commenter stated that EPA's proposed incorporation of a "margin of compliance" into its BART determinations is contrary to the CAA, and is not supported by EPA's own regulations and guidance. Commenter specifically cited EPA's proposed increase of the MRYS Units 1 and 2 NO_x emission limits from .05 lb/MMBtu to .07 lb/MMBtu, stating that this was a weakening not allowed by the CAA and reliant on factors that were not articulated in the CAA. Commenter used this rationale in stating that EPA must establish BART emission rates of .05 lb/MMBtu for MRYS Units 1 and 2 and LOS Unit 2, and a BART emission rate of .108 lb/MMBtu for CCS Units 1 and 2. Another commenter stated that as a general note, in almost every instance North Dakota, and by extension EPA, has converted the purportedly annual emission rate used in the BART analyses to a

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[23] Institute of Clean Air Companies, White Paper Selective Non-Catalytic Reduction (SNCR) for Controlling NO_x Emissions, February 2008, p. 4.

30-day emission limit by increasing it by a seemingly arbitrary percentage increase. This has ranged from a low percentage up to at least 40%. There is no support in the record for these increases, and it is not always clear that the original levels are not feasible as 30 day limits. While the commenter agreed that there can be additional variability in 30-day averages as compared to annual, EPA must adequately support any changes it makes to the emission levels analyzed.

Response: In keeping with the BART Guidelines, we evaluated cost effectiveness on an annual basis. Specifically, we calculated cost effectiveness as the total annualized costs of control divided by annual emissions reductions. When discussing cost effectiveness in our proposal, we gave both the emissions reductions and emission rates (lb/MMBtu) on an annual basis. By contrast, the BART Guidelines indicate that EGU BART emission limits should be specified as 30-day rolling average limits. It is commonly understood that shorter averaging periods result in higher variability in emissions due to load variation, startup, shutdown, and other factors. However, BART emission limits must be met on a continuous basis. Accordingly, we have not generally required 30-day rolling average emission limits equal to the annual emission rates used for calculating cost effectiveness. We find it [20918] is reasonable to allow a margin for compliance for the 30-day rolling average limits. In our experience, 30-day rolling average emission rates are approximately 5-15% higher than the annual emission rate. Therefore, we disagree with the commenter's assertion that North Dakota and EPA arbitrarily adjusted the annual emission rates when setting 30-day rolling average emission limits.

Comment: Commenter stated that EPA is requiring the use of unit-by-unit emission limits, though the State is within its rights to allow plant-wide averaging (citing 70 FR 39172).

Response: We agree with the commenter that unit-by-unit emission limits are not strictly required. However, it is within the discretion of North Dakota to establish unit-by-unit emission limits. Where we are approving North Dakota's BART determinations, we are accepting the basis for emission limits that they selected. In the case of Coal Creek, which is included under our FIP, we have clarified in our final action that Unit 1 and Unit 2 emissions may be averaged provided that the average does not exceed the limit.

2. CCS Units 1 and 2

   a. EPA's Use of the Control Cost Manual for CCS

Comment: Commenter (GRE) stated that EPA guidelines as provided to states in identifying regional haze control requirements and as provided in EPA's Control Cost Manual are best suited for evaluating average or typical installations. Commenter stated that because CCS 1 and 2 are uniquely designed and employ DryFining™ technology, any accurate analysis of add-on NO_x controls must be site-specific and not rely on general guidelines which might apply to a normal facility.

Response: As required by North Dakota, GRE provided a BART analysis for CCS to the State in 2007. That analysis included an analysis of potential NO_x controls, including SNCR. For several significant elements of its analysis of SNCR, GRE relied on EPA's Control Cost Manual.[24] This was consistent with EPA's BART Guidelines, which are mandatory for CCS and which provide that cost estimates should be based on the Control Cost Manual where possible. 70 FR 39166. GRE now essentially criticizes its own earlier analysis, claiming that it was done only at a screening level. However, to the extent GRE believed that unique characteristics at CCS required more site-specific information or more in-depth analysis, GRE could have and should have performed that analysis in 2007.

Nonetheless, we have evaluated GRE's new analysis. For reasons we explain below, we have serious concerns about the validity and accuracy of GRE's new analysis and we find it is reasonable for us to continue to rely on cost estimates based on EPA's Control Cost Manual, as described in our proposal. See 76 FR 58620. Every facility has unique elements;

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[24] GRE also included estimates for certain elements based on site-specific information. As discussed in other responses, some of these elements should not be included in the cost estimates for CCS.

however, we do not agree that the elements at CCS are so unique that use of the Control Cost Manual is inappropriate. Also, we note that DryFining™ was not installed until after the baseline period and was installed voluntarily, not to meet any regulatory requirement. We are not required to revisit the baseline controls or reconsider cost estimates based on voluntarily installed controls. On the contrary, there are significant issues with such an approach; it would tend to reward sources that install lesser controls in advance of a BART determination in an effort to avoid more stringent controls.

Comment: Commenter stated that the removal efficiency for CCS 1 would not be 50% as anticipated from the EPA Pollution Control Cost Manual and as used in GRE's original BART analysis, but would rather be 30% and 20% for Units 1 and 2 respectively. The commenter asserted that these emission estimates clearly change the basis for any cost effective determination. The commenter references Appendix B to GRE's November 2011 Refined Analysis "cost and performance review" by URS, which provides control efficiency data as a function of inlet NO_x concentrations for 55 existing SNCR installations.

Response: We disagree with this comment. We proposed a control efficiency of 49% for CCS 1 and 2 based on the combination of both enhanced combustion controls and post combustion controls. We have reviewed GRE's refined analysis, and we are not convinced that our 49% assumption is unreasonable.

To the contrary, this level of NO_x reduction still appears achievable.

The URS report that GRE references to support its claim of reduced control efficiency values provides a plot in which NO_x control efficiency is plotted as a function of inlet NO_x concentrations. The URS plot does not provide the boiler sizes which would be necessary for a comparison to the data in the Control Cost Manual, or for comparison to the control efficiency we used in the proposed FIP. Table 3.1, "Control Cost Summary," in GRE's Refined Analysis shows control efficiencies of 25% and 20% for Units 1 and 2 respectively, which differ from GRE's assessment of a 50% control efficiency in its original August 2007 BART analysis and its July 2011 corrected analysis.[25] [26] GRE's earlier 50% control efficiency was a reduction from the 0.22 lb/MMBtu baseline (which included existing LNB with a level of SOFA) to an emission limit of 0.11 with the addition of only SNCR controls (no additional or enhanced combustion controls). While we would not expect CCS could achieve a 50% control efficiency from the installation of SNCR alone, we do find our estimated 49% control efficiency reasonable based on the installation of both SNCR

[25] North Dakota RH SIP, Appendix C.2, Great River Energy, Coal Creek Stations, Units 1 and 2, BART Analysis, Revised December 12, 2007, Table 4-2, p. 26.

[26] Great River Energy Letter, July 15, 2011, Docket EPA-R08-OAR-2010-0406-0079, Table A-1a, pdf p. 7.

and enhanced combustion controls (SOFA plus LNB or LNC3).[27]

We proposed a NO_x BART FIP limit for CCS 1 and 2 of 0.12 lb/MMBtu that would apply to each unit singly on 30-day rolling average basis. We based this limit on our proposed finding that SNCR plus SOFA plus LNB was BART. While we continue to find that SNCR plus SOFA plus LNB is BART, we are changing the emission limit to 0.13 lb/MMBtu averaged over both units on a 30-day rolling average basis. Evidence submitted by commenters and our own additional analysis in evaluating comments has led us to conclude that this represents a more reasonable limit to apply on a 30-day rolling average basis.

This limit represents a control efficiency of 47.8% based on the average annual baseline emission rate of 0.22 lb/MMBtu (2003-2004) provided in the State's BART determination. This value is slightly lower than the 49% control efficiency we assumed in our proposal, a value that was based on the State's analysis. Beginning in 2010, CCS 2 voluntarily started employing LNC3, the more stringent level of combustion controls that the State evaluated in its [20919]

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[27] LNC3 is an EPA acronym for low NO_x coal-and-air nozzles with close-coupled and separated overfire air which is one configuration among several that are considered SOFA. GRE used the acronyms LNC3 for the controls installed on Unit 1 and LNC3+ for the additional controls installed on Unit 2. For the purposes of our action, we are treating both units identically and refer only to LNC3.

BART determination. Annual average Clean Air Markets data for this unit reflects a NO_x emission rate of 0.153 lb/MMBtu. We estimate that SNCR would achieve an additional 25% reduction, equivalent to an emission rate of 0.115 lb/MMBtu. This compares to a value of 0.108 lb/MMBtu that the State originally estimated.

GRE asserted in comments that SNCR will only achieve a 20% reduction beyond LNC3. We find that 25% is a conservative and reasonable estimate. We considered several sources of information in arriving at this value. First, the Control Cost Manual states that in typical field applications, SNCR provides a 30% to 50% NO_x reduction. The manual provides a scatter plot with NO_x reduction efficiency plotted as a function of boiler size in MMBtu/hr.[28] The plot supports GRE's assertion that control efficiency could be lower than 50%, and could approach 30%, for larger boilers such as those at CCS. Second, Fuel Tech (one of the most recognized SNCR technology suppliers) estimates a range of 25% to 50% NO_x reduction with application of SNCR.[29] Lastly, ICAC has published information that supports a control efficiency of 20 to 30% for SNCR above LNB/combustion modifications.[30]

[28] U.S. EPA, EPA Air Pollution Control Cost Manual, EPA/452/B-02-001, 6th Ed., January 2002, Section 4.2, Chapter 1, p. 1-3.

[29] http://www.ftek.com/en-US/products/apc/noxout/.

[30] Institute of Clean Air Companies, White Paper Selective Non-Catalytic Reduction (SNCR) for Controlling NO_x Emissions, February 2008, p. 9.

Given this range of control efficiencies, we have settled on a control efficiency that is lower than the lowest value given by the Control Cost Manual, at the low end of the range estimated by Fuel Tech, and in the middle of the range estimated by ICAC.

To arrive at a final BART emission limit, we adjusted the projected annual average of 0.115 lb/MMBtu upward by 10% and then rounded to the nearest hundredth to arrive at 0.13 lb/MMBtu. In our experience, a 5 to 15% upward adjustment is appropriate when converting an annual average emission rate to a limit that will apply on a 30-day rolling average to account for the fact that shorter averaging periods result in higher variability in emissions due to load variation, startup, shutdown, and other factors.

As discussed in another response above, we do not agree with GRE that it is appropriate to lower the baseline emission rate based on GRE's voluntary installation of combustion controls on Unit 2 in 2010, well after the State established the historic baseline of 2003-2004 for BART planning. Use of such lower baseline rate would inappropriately skew the 5-factor BART analysis by reducing the emissions reductions from combinations of control options and increasing the cost effectiveness values.

b. CCS Emission Limits

Comment: Commenter stated that 30-day rolling limits are intended to be inclusive of unit startup and shutdown as well as variability in load. Consequently, associated BART limits must be higher than stated annual averages used for estimating cost effectiveness.

Response: As described in the proposed FIP, in proposing a BART emission limit of 0.12 lb/MMBtu, we adjusted the annual design rate of 0.108 lb/MMBtu upwards to allow for a sufficient margin of compliance for a 30-day rolling average limit that would apply at all times, including during startup, shutdown, and malfunction. While we proposed a BART limit of 0.12 lb/MMBtu, we invited comment on whether we should impose a different emission limit of 0.14 lb/MMBtu on a 30-day rolling average. After considering all comments, we have settled on a limit of 0.13 lb/MMBtu on a 30-day rolling average. We explain the basis for this limit in this section as well as in section III above.

c. CCS Modeling

Comment: Commenter stated that pollutant interaction has an impact on modeled visibility impairment and, as such, GRE believes that modeling changes to NO_x emission rates alone will not provide visibility modeling results that are representative of actual emission controls. Commenter asserted that this may overstate visibility improvement as compared to modeling NO_x, SO_2 and $PM_{2.5}$ together. However, for the purpose of illustrating the relative visibility impacts of SNCR and LNC3, the commenter presented an analysis of the incremental modeled impacts.

Response: Our review of North Dakota's and GRE's CALPUFF input files reveals that SO_2, NO_x, and particulate matter (PM) emission changes were in fact modeled together. All of the NO_x control options were modeled along with the SO_2 emission reductions that would be achieved from either a new scrubber or modifications to the existing scrubber. However, in order to determine the distinct visibility improvement from the NO_x control options, it is necessary to compare the modeled impacts to a pre-control scenario. This is in fact the approach prescribed by the BART Guidelines which state that you should "[a]ssess the visibility improvement based on the modeled change in visibility impacts for the pre-control and post-control emission scenarios." 70 FR 39170. As noted in our proposal, because North Dakota did not provide visibility benefits relative to a pre-control baseline, "it [was] not possible to describe the incremental visibility benefits of SNCR, or other NO_x control options, over the selected SO_2 BART control (scrubber modifications at 95% control)." 76 FR 58623. As a result, we were only able to specify the incremental visibility benefit between NO_x control options. In our evaluation of BART for NO_x at CCS, we weighed the visibility factor in consideration of the fact that the improvement was incremental to lower NO_x controls and not relative to a pre-control baseline. We are not able to assess the visibility benefit information the commenter provided in Table

3.3.1 of the comments due to the lack of documentation and detailed explanation of the information presented.

d. CCS Coal Ash

Comment: GRE references Appendix C to its Refined Analysis "Fly Ash Storage and Ammonia Slip Mitigation Technology Evaluation." GRE claims that its previous estimates of fly ash sales and disposal costs were "screening level values" and the Appendix C report provides a more comprehensive assessment of ash implications associated with SNCR installation. GRE states that the report illustrates that any ash impact costs add to the total cost of SNCR and make it less cost effective.

Response: Based on further analysis, we are not convinced that the use of SNCR will impact GRE's ash sales. We explain this more fully in the responses below. Also, regarding specific sales price and costs numbers, we are not convinced that GRE's Appendix C report, included with its comments, provides a more realistic picture of these values. We provide more detailed information in other responses.

Comment: GRE stated that mandating SNCR will leave GRE in a vulnerable position where it would expect to incur significantly higher costs from lost ash sales and increased landfilling. Commenter stated that GRE would expect to annually incur between $4,435,000 and $8,988,000 in additional ash costs. Commenter's contractor, Golder Associates, provided a revised analysis that included three potential scenarios of SNCR's impact to fly ash sales (GRE Appendix C): A. Sales are not affected; B. Worst case scenario – no [20920] ash sales; and C. 30% reduction in ash sales. Commenter asserted that scenario A is extremely unlikely, scenario B is a likely outcome, and scenario C is optimistic.

Response: In the proposed FIP, EPA agreed that use of SNCR might result in lost ash sales and the need to landfill fly ash due to ammonia contamination. These additional costs were included in our cost analysis supporting the FIP. However, we also invited comment on the assumption that use of SNCR would result in lost fly ash sales and on the availability of ammonia mitigation techniques. 76 FR 58620. We received responsive comments on both sides of the issue.

In the proposed FIP, EPA included costs of $2,023,000 for "additional ash disposal" and $2,023,000 for "lost ash sales" (76 FR 58621). EPA arrived at these values based on information that GRE itself supplied in July 2011. Based on an analysis performed by a consultant, GRE now asserts that the information GRE supplied in June and July 2011, regarding the sales price for fly ash and the costs for fly ash disposal, was not accurate. GRE supplied this information initially in June 2011 when it discovered that the information that it supplied to the State regarding these values in 2007 was inaccurate.

As part of our consideration of GRE's comments, and comments submitted by others disputing the notion that SNCR use would affect fly ash sales, we have investigated and analyzed this issue further. As part of our effort, we have contracted with EC/R, an engineering consulting firm, which in turn engaged Dr. James Staudt of Andover Technology Partners (ATP), who has expertise regarding the issue of ammonia in fly ash.[31]

Dr. Staudt recently presented a paper at the AWMA, EPA, EPRI, DOE Combined Power Plant Air Pollution Control "Mega" Symposium, August 30-September 2, 2010, Baltimore, Maryland, which reviewed the performance benefits in terms of ammonia slip, reagent consumption, and fly ash ammonia that is possible through optimization of SNCR operation using the information from continuous and real-time monitoring of ammonia slip.[32] As explained more fully below, current technology has made it possible to control ammonia slip from SNCR to levels similar to what is achievable with SCR, in the range of 2 ppm or less. It is widely accepted that ammonia at this level

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[31] Information regarding EC/R and Dr. Staudt's credentials is available in the docket.

[32] Staudt, J., Hoover, B., Trautner, P., McCool, S., and Frey, J., "Optimization of Constellation Energy's SNCR System at Crane Units 1 and 2 Using Continuous Ammonia Measurement," AWMA, EPA, EPRI, DOE Combined Power Plant Air Pollution Control "Mega" Symposium, August 30-September 2, 2010, Baltimore, MD.

does not impact the potential sales and use of fly ash in concrete.

One type of continuous ammonia slip analyzer works on the principle of tunable diode laser spectroscopy and provides continuous, real-time indications of ammonia slip in the duct. This type of analyzer facilitates optimum operation of the SNCR system and minimizes ammonia slip.[33] In other words, GRE would not incur costs for lost sales of fly ash or additional ash disposal if it employed such a system at CCS.[34]

For these reasons, we conclude that charges for lost fly ash sales should not be applied to the SNCR system cost analysis and that SNCR can be successfully deployed at the CCS plant at a cost effectiveness level well below the estimate in our proposal of \$2,500/ton of NO_x removed.[35]

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[33] Id.

[34] EC/R also received input directly from Fuel Tech that its SNCR systems are fully capable of being operated so as to avoid detrimental ammonia levels in the fly ash.

[35] Even should some portion of the CCS fly ash be affected by greater levels of ammonia, which we find unlikely, we conclude that ammonia slip mitigation (ASM) technology or another technology could be utilized to address or mitigate ammonia in the fly ash. Dr. Ron Sahu, in comments on our proposal, mentions three possible systems that could be used, and our consultants are aware of no technical reasons that ASM technology would not be effective to mitigate ammonia on fly ash from lignite.

Comment: Commenter stated the addition of SNCR will have a negative impact on the marketability, value, and perception of CCR's fly ash. The commenter further stated that increased levels of ammonia in the fly ash with SNCR create offensive odors, are potentially dangerous to human health, and can pose an explosion risk. Commenter cited EPA's Control Cost Manual to bolster this position. Commenter stated that ammonia slip of only 5 ppm, generally accepted as the minimum that can be achieved with SNCR, can render fly ash unmarketable.

Response: EPRI performed a study in 2007 that examined the effects of ammonia slip from SCR systems and reached the conclusion that "The survey overwhelmingly indicated that ammonia contamination is not impacting the ability of plants to sell ash."[36] Therefore, if an SNCR system were to achieve similar ammonia slip levels as SCR systems, then an adverse impact on fly ash marketability would not be expected.

Commenter's assertion that 5 ppm is the minimum that can be achieved with SNCR is not consistent with experience with recently installed, state-of-the-art, SNCR systems. As noted above, recently installed SNCR systems are capable of ammonia slip levels in the range of 2 ppm, and experience at the CP Crane

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[36] http://my.epri.com/portal/servier.pt?Abstract_id=000000000001014269.

Station in Baltimore, Maryland demonstrates that ammonia slip can be maintained below 2 ppm while also ensuring that high ammonia slip excursions during load changes and other transients are avoided.[37]

In some cases the testimonials[38] provided by GRE regarding the adverse effects of ammonia are highly questionable. As an example, one of the testimonials from a Mr. Boggs incorrectly cautions about the explosiveness of ammonia –

> "I would point out that with the storage dome at Coal Creek, the ammonia levels that could accumulate would be extremely hazardous. A little know (sic) fact is that ammonia is an explosive gas at certain levels when it accumulates with air present".

On the other hand, according to the North Dakota State University,

> "Anhydrous ammonia is generally not considered to be a flammable hazardous product because its temperature of ignition is greater than 1,560 degrees F and the

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[37] Staudt, J., Hoover, B., Trautner, P., McCool, S., and Frey, J., "Optimization of Constellation Energy's SNCR System at Crane Units 1 and 2 Using Continuous Ammonia Measurement," AWMA, EPA, EPRI, DOE Combined Power Plant Air Pollution Control "Mega" Symposium, August 30-September 2, 2010, Baltimore, MD.

[38] EPA-R08-OAR-2010-0406-00777, Letter from GRE to NDDH, February 9, 2010.

ammonia/air mixture must be 16 percent to 25 percent ammonia vapor for ignition."[39]

Although, in principle, ammonia can be combustible under special conditions, these are conditions that are highly unlikely to result from ammonia in fly ash – even if fly ash ammonia concentrations were to reach several hundred ppm. In fact, to our knowledge, there has never been a fire or explosion resulting from ammonia in fly ash.

In summary, GRE's comments and testimonials generally overstate the real concerns regarding ammonia that may result in the fly ash of a plant equipped with SNCR.

Comment: Commenter stated that the social, economic and environmental benefits from re-using ash are not outweighed by costs nor are they outweighed by the imperceptible improvements to visibility.

Response: As stated above, EPA anticipates that application of SNCR at [20921] CCS would not decrease the amount of ash re-use. Our FIP is based on a reasonable consideration of the five BART factors: Costs of compliance, the energy and non-air quality environmental impacts of compliance, any existing pollution control technology in use at the source, the remaining useful life of the source, and the degree of improvement in visibility which may reasonably be

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[39] http://www.ag.ndsu.edu/pubs/ageng/safety/ae1149-1.htm.

anticipated to result from the use of such technology. We understand that GRE may have reached a different result based on its consideration of the statutory factors and other factors; that does not mean our determination is unreasonable.

Comment: Commenter asserted that changes to the quantity of fly ash marketed and sold will have a direct impact on fly ash management costs, as the revenue currently used to offset fly ash management will be lost. The lost fly ash sales revenue is based on the 2010 average price per ton FOB of $41.00; with 30% of the sale price going to GRE as revenue.

Response: As stated above, we do not agree that fly ash sales would be impacted. If there were any lost revenue, the lost revenue to GRE is the only cost that should be considered, not the full FOB price which includes revenues to others. This cost was $5/ton prior to December 2011[40] as presented by GRE in its comments. Were it still relevant, we would consider this a reasonable price to use. In addition, we would consider $5/ton to be a reasonable cost to GRE for ash disposal, resulting in a total cost to GRE of $10/ton.[41] URS increased the ash sales price to $12.30 in the refined analysis based on GRE's 2012

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[40] Docket EPA-R08-OAR-2010-0406-02011, GRE comments, pdf p. 27.

[41] The American Coal Ash Association indicates that where ash is disposed near the power plant, a cost of $5/ton is reasonably expected.

ash sales contract price. We are not convinced that such an increase would be appropriate. GRE did not provide any detail on the basis for the increased price. Considering this is a 2012 contract price, it may even be based on projected information. It was reasonable for us to rely on the best estimates at the time of our proposal. We note that GRE itself supplied these estimates.

Comment: Commenter stated that EPA's Control Cost Manual (2002) does not allow GRE to include in the BART analysis the value of previously purchased assets that would be rendered useless by the elimination or reduction of fly ash sales. GRE claims $31 million has been invested on ash storage, transportation and distribution infrastructure along with their strategic partner Headwaters Resources. Of the $31 million, GRE has contributed $7 million.

Response: Given the availability of means to control ammonia levels in the fly ash, we do not agree that previously purchased storage, transportation, and distribution infrastructure would be rendered useless. However, the commenter is correct that the Control Cost Manual does not consider the costs of existing infrastructure that would be rendered useless as a result of installing new or retrofit controls. The Control Cost Manual is designed to provide methods for estimating the specific costs of installation and operation of control technologies to allow consistent comparison of such costs across multiple sources; thus, the "stranded" costs for existing infrastructure are not accounted for in the cost estimation methodology found in the Control Cost Manual.

Comment: Commenter asserted that even with a cost effective ASM technology installed, there will be times when the residual ammonia levels in the ash are too high to treat. Ammonia injection rates will vary during periods of startup and shutdown, in addition to variable load operation, in order to maintain compliance with the BART limits. The commenter stated that variable ammonia injection rates and associated changes in ash concentrations will result in frequent testing and periodic rejection of ash requiring on-site disposal. The commenter further stated that variable ammoniated ash levels will put GRE's generated ash in a very vulnerable position with respect to competitors in the fly ash marketplace, reducing ash sales and increasing on-site disposal.

Response: Testimonials provided by GRE cited older SNCR systems, such as Eastlake Station in Eastlake, Ohio, as causing problems for fly ash marketability. (The testimonials also reaffirmed that fly ash from boilers with SCR systems remained marketable.) The Eastlake SNCR system was installed several years ago, and current state-of-the-art SNCR systems have been demonstrated to control ammonia slip to avoid high ammonia slip transients, as described by Staudt, *et al.*[42] Ammonia slip can be consistently maintained at low levels in the range of 2 ppm or less over a wide range of loads for load following units, and this was demonstrated at the two units at CP Crane Station near Baltimore. The control system was optimized expressly to minimize the effects of ammonia on plant fly ash. This was made possible by utilizing permanently installed ammonia monitoring devices. Both units needed to maintain slip at low levels while making several rapid load changes a day. CP Crane Station has continued to control the SNCR system in this manner. As described in the referenced paper, the accuracy of the continuous ammonia instruments were shown to be comparable to wet chemistry measurements at these low levels of ammonia slip and the instruments have had good reliability.

Another aspect of ammonia slip and impact on fly ash marketability is that the alkalinity of the fly ash will impact how much ammonia becomes attracted to the fly ash. Fly ash from bituminous coals, with more sulfur trioxide, will tend to attract more ammonia than fly ash with a high alkalinity, such as fly ash from North Dakota lignite. As a result, ammonia deposition on fly ash at CCS is likely to be less of an

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[42] Staudt, J., Hoover, B., Trautner, P., McCool, S., and Frey, J., "Optimization of Constellation Energy's SNCR System at Crane Units 1 and 2 Using Continuous Ammonia Measurement". AWMA, EPA, EPRI, DOE Combined Power Plant Air Pollution Control "Mega" Symposium, August 30-September 2, 2010, Baltimore, MD.

issue than it would be on a bituminous coal unit, such as Eastlake, and higher ammonia slip levels may be tolerable before fly ash marketability is affected.[43]

Comment: Commenter stated that, to GRE's knowledge, no lignite-fired unit is currently operating SNCR and ASM technology, and the vendor would not guarantee any level of performance for a lignite-fired unit.

Response: Evidence indicates that modern SNCR systems can achieve ammonia levels of 2 ppm or below, which would avoid the need for use of ASM technology.

Our review of EPA Title IV data for 2010 found that there are three tangentially fired coal-fired boilers that burn lignite coal and control emissions to under 0.14 lb/MMBtu with SNCR. These include Big Brown 1 and Monticello 1 and 2. According to the Fly Ash Resource Center, both the Big Brown Plant and the Monticello Plant market their fly ash through Boral Materials.[44] The Monticello fly ash was designated an approved material by the Arizona Department of Transportation (July 2011[45]) and Georgia

[43] This is supported by the Fly Ash Resource Center as stated on its Web site, "Ashes that are basic in nature with very low sulfur content adsorbs much less ammonia than high sulfur Eastern bituminous coal ashes." http://www.rmajko.com/quality control.htm.

[44] http://www.rmajko.com/suppliers1.html.

[45] http://www.azdot.gov/highways/materials/pdf/materials_source_listflyash.pdf.

Department of [20922] Transportation (January 2012[46]). According to Boral's Web site, the Big Brown ash has been designated an approved material by several state departments of transportation.[47] Both of these plants are selling their fly ash and are not experiencing adverse impacts with ammonia in the ash.

This is further evidence that GRE's assumption, that the CCS plant would be unable to market its fly ash, is unjustified. Also, as indicated above, if it were necessary to employ ammonia mitigation to the fly ash, we think at least one of the available systems could be employed at CCS.

Comment: Commenter stated that the BART analysis does not take into account the additional regional economic impacts resulting from the reduction of CCS ash sales. GRE uses the freight on board (FOB) price of the ash to estimate a loss to the local and regional economy from the elimination of ash sales of as much as $28.70/ton or $11,910,500 per year.

Response: As we have already discussed, we do not agree that ash sales would be reduced with the implementation of SNCR. Thus, there should be no regional economic impacts from lost fly ash sales. However, were this comment still relevant, we note two points. First, the BART Guidelines, which are

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[46] http://www.dot.state.ga.us/doingbusiness/materials/qpl/documents/qpl30.pdf.

[47] http://www.boralna.com.

mandatory for CCS, prescribe a method for estimating the specific costs of installation and operation of control technologies to allow consistent comparison of such costs across multiple sources. This method does not include consideration of regional economic impacts. If such impacts were to be considered, different methodologies and different notions of cost effectiveness would have to be developed. While we are sensitive to broader economic impacts, they are not part of our focused analysis of the BART factors in making a BART determination.

Second, if we were to consider such impacts, there is considerable uncertainty in the estimate GRE provided, which attempts to conduct a complex economic assessment based on FOB price alone. For example, the estimate does not consider the offsetting economic impact of replacement materials, such as alternative concrete admixtures, which would be used by concrete manufacturers as an alternative to CCS's ash.

Comment: Commenter stated that loss of ash sales at CCS would negatively impact the regional and national economy, as well as the regional and national infrastructure. The commenter stated that the beneficial use of fly ash is directly responsible for a large number of jobs throughout the country. The commenter highlighted the importance of fly ash as a component of road and bridge construction across the country, and cited a report by the American Road and Transportation Builders Association. According to GRE, the research in the report concluded that the elimination of fly ash as a construction material would increase the average annual cost of building roads, runways, and bridges in the United States by nearly $5.23 billion. This total includes $2.5 billion in materials price increases, $930 million in additional repair work and $1.8 billion in bridge work. The additional costs would total $104.6 billion over 20 years.

Response: For the reasons expressed in our response to the previous comment and in our other responses, we do not consider this comment relevant to our decisions. We have concluded that CCS's ash sales will remain feasible, and find that the impacts cited by GRE are impacts that would apply to the entire fly ash industry and not just CCS. Furthermore, there is not sufficient evidence that elimination of CCS's ash sales would result in any of the impacts described above.

Comment: Commenter stated that the use of fly ash as a replacement for cement has environmental benefits. Commenter asserted that as a result of the increased use of fly ash, less land is disturbed for quarrying raw materials, less land is taken out of production for landfills, and less carbon dioxide (CO_2) is emitted into the atmosphere to make cement. Commenter argued that there will be a 1 to 1 ton increase in CO_2 emissions from using more Portland cement in place of ash.

Response: As stated in previous responses, we do not agree that the use of SNCR will cause GRE to experience a reduction in fly ash sales. Furthermore, GRE presents no evidence to support its claims about CO_2 emissions or reduced quarrying. CO_2 emissions result from many factors, and additional quarrying might be avoided through use of alternative sources of fly ash. As did the State, we have already considered the potential need to landfill additional fly ash in our five factor analysis, but do not consider that a reason to reject SNCR as BART.

Comment: Commenter stated that the landfill cost estimate includes costs for the life of the disposal facility including engineering, design, and permitting; construction: and operations and maintenance, including closure and post-closure care.

Response: As we stated in previous responses, we are not convinced that the use of SNCR will impact GRE's ash sales; thus, requiring additional on-site landfill facilities should not be necessary. Furthermore, we have noted in prior responses that we find a disposal cost of $5/ton is reasonable in the improbable event that some ash would need to be disposed.

Comment: Commenter stated that the ash management costs used in this analysis assumes that future ash disposal facilities will be designed and constructed to meet RCRA subtitle D standards. Commenter asserted that this cost would increase considerably if EPA tightens standards as a result of the uniform national disposal standards currently being considered.

Response: As already discussed, we do not agree that SNCR will lead to increased landfilling. Were this comment still relevant, we note that we evaluate costs based on the best information available concerning current costs. We do not know what the final coal combustion residuals regulations will require with respect to RCRA subtitle D and we are not required to include speculative costs in our estimates.

e. CCS Visibility Improvements Are Minimal

Comment: Commenter stated that the refined analysis demonstrates that the installation of SNCR will not result in perceptible visibility improvements in North Dakota's Class I areas, and it is not justifiable for GRE to incur the added cost of SNCR without any appreciable improvement in visibility. To support these claims, the commenter stated that from GRE's BART analysis, it can be estimated that the incremental deciview improvements associated with the installation of SNCR would range from 0.109 to 0.207, which are well below what EPA has established as a perceptible level to the human eye (0.5 deciviews).

Response: There is considerable uncertainty in the deciview improvements calculated by GRE. GRE provides an analysis of the incremental modeled impacts and cost per deciview in Table 3.3.1 of GRE's November 2011 Refined Analysis, but provides no further explanation of the table or the values contained therein. A January 19, 2012 NDDH letter to CCS also raises concerns about certain aspects of the table pertaining to baseline emission rates and deciview improvement values. In addition, it appears that GRE has calculated these values based on new [20923] assumptions, and EPA raises concerns about some of these assumptions (e.g., control efficiency of SNCR) in other comment responses within this document.

Even if the results were correct, as noted elsewhere in our response to comments, the RHR is clear that perceptibility of visibility improvement is not a test for the suitability of BART controls. Also, as noted elsewhere in our response to comments, we have not used the dollar-per-deciview metric and find that it is reasonable to evaluate control options on the basis of the cost effectiveness in dollar-per-ton removed in conjunction with the modeled visibility improvement.

Concerning our consideration of visibility improvement in the CCS BART determination, the BART Guidelines (40 CFR part 51, appendix Y) state that deciview improvements must be weighted among the five factors and the Guidelines provide flexibility in determining the weight and significance to be assigned to each factor. Thus, achieving a visibility improvement greater than the perceptible level of 0.5 deciviews is not a prerequisite for selecting a particular control option as BART at CCS.

Comment: Commenter stated that combined utility NO_x emissions in North Dakota represent approximately only 6% of total NO_x emissions, and therefore, it is understandable that proposed and additional BART NO_x reductions from North Dakota utilities do not provide more visibility improvements in the Class I areas.

Response: We disagree with the commenter's assertion that the potential visibility improvements from NO_x controls on North Dakota EGUs would be small. The commenter's estimate of the contribution from utilities to NO_x emissions in North Dakota appears to be incorrect. Emission inventories developed by the WRAP for the 2000-2004 planning period show that EGUs contributed 78,995 tons out of a total of 229,460 tons of NO_x for all source categories combined.[48] Therefore, utilities account for some 34.4% of the total NO_x emissions in North Dakota, and more than any other source category.

Furthermore, the RHR states that BART determinations are based on circumstances such as the distance of the source from a Class I area, the type and amount of pollutant at issue, and the availability and cost of controls (70 FR 39116). Thus, sources that are closer to Class I areas and emit the types of pollutants that contribute to regional haze are more likely to be subject to BART requirements, regardless

[48] Source: http://www.wrapair.org/forums/ssjf/pivot.html.

of their percent contribution to the statewide NO_x emission rate.

Comment: Commenter (GRE) stated that ammonia is a listed state toxic in North Dakota, and is viewed as a contributor to regional haze because it can bond with SO_2 and NO_x to form ammonium sulfate and ammonium nitrate aerosols. Commenter further stated that additional ammonia slip from the proposed SNCR for CCS may offset the relatively minor NO_x reduction proposed by EPA.

Response: GRE does not provide the anticipated ammonia emissions for comparison to the proposed NO_x reductions and states that this issue is outside the scope of its analysis. In the RHR, EPA states that there are scientific data illustrating that ammonia in the atmosphere can be a precursor to the formation of particles such as ammonium sulfate and ammonium nitrate; however, it is less clear whether a reduction in ammonia emissions in a given location would result in a reduction in particles in the atmosphere and a concomitant improvement in visibility (70 FR 39114). The evaluation of whether ammonia slip would offset the proposed NO_x reductions to some degree cannot be calculated due to the lack of information provided by GRE, as well as the inherent uncertainty in estimating the effects of ammonia emissions on regional visibility.

Furthermore, as stated in our previous responses, ammonia slip, due to the incomplete reaction of the NO_x reducing agent, can be limited to low levels through proper design of the SNCR system. Design of the SNCR system can be optimized by taking into account the temperature, NO_x concentration, residence time, and reagent distribution. Our recent analysis indicates that ammonia slip levels can be reduced to below 2 ppm with the introduction of the latest monitoring technology. Therefore, we disagree that any potential ammonia release from SNCR at CCS may offset the proposed NO_x reductions.

Comment: Commenter stated that NO_x contributes to ammonium nitrate formation, which is predominantly a winter "haze" contributor, and for the purposes of valuing the welfare effects of recreational visibility, it is important to consider that the North Dakota national parks are generally not in high use during the winter season. Commenter expressed concern over paying an extreme price per deciview resulting in imperceptible improvements for a time of year when the parks are generally not used.

Response: We addressed this comment in our responses to modeling comments in section V.C.

f. Comments on Alternative NO_x Emission Limits

In our proposal, we asked for comments on a possible alternative NO_x BART limit for CCS 1 and 2, based on use of combustion controls alone, of 0.14 lb/MMBtu. This section presents the comment summaries and our responses related to this issue.

Comment: Commenter stated that because CCS cannot achieve the 30-day rolling average emission rate without installation of SNCR, it should not be considered as an appropriate BART emission level. Commenter stated that this is consistent with EPA's own determination that a presumptive BART emission level of 0.17 lb/MMBtu is cost-effective and will result in significant visibility improvement. Commenter stated that these comments and the associated Refined Analysis demonstrate that any additional NO_x reductions would neither be cost-effective nor would result in perceptible visibility improvement in Class I areas.

Response: EPA does not agree with the commenter's assertions. EPA disagrees with certain of GRE's assumptions in its Refined Analysis. Please refer to other comment responses throughout this document for details about each of these assumptions. We have reasonably considered the five BART factors and have arrived at a reasonable BART determination.

As to the presumptive limits, the BART Guidelines state that utility boilers should be required to meet the presumptive NO_x emission limits, unless it is determined that an alternative control level is justified based on consideration of the statutory factors. As noted elsewhere, our regulations require that a state or EPA must consider the five statutory BART factors in determining BART and cannot simply default to the presumptive limits. We have already explained why the State's consideration of the costs of compliance was fatally flawed and why we must disapprove the State's BART determination. In promulgating our FIP, we have reasonably considered the five factors and arrived at a reasonable BART determination that is more stringent than the presumptive BART limit.

Comment: Commenter stated that NO_x limits should be expressed on an annual rather than 30-day basis, to account for the full spectrum of operations such as variable load, and [20924] startups or shutdowns not accounted for in emission limits based on vendor guarantees. The commenter notes that an emission limit of 0.14 lb/MMBtu was achieved for a period of time, but it is not sustainable on a 30-day rolling average basis. Commenter cited attachment 1, GRE's operational history, as a rationale.

Response: The BART Guidelines require specification of a 30-day rolling average limit for EGUs; therefore, all averaging times in the proposed FIP have been stated on a 30-day rolling average basis, including necessary upward adjustments from annual emission rates to account for potential variations in emissions on a 30-day basis. For the reasons stated elsewhere, we have not changed our determination that SNCR plus SOFA plus LNB is BART, but we have changed the NO_x BART limit for CCS 1 and 2 to 0.13 lb/MMBtu on a 30-day rolling average basis.

Comment: Commenter argued that the NO_x emission limits proposed in the original BART evaluation for Units 1 and 2 did not consider that the units would experience significant load variability. Commenter stated that in September 2011, GRE increased the cycling range of CCS in response to market conditions, which caused significant load swinging and impacts to NO_x control performance. Commenter further stated that load variability is expected to continue as an operational scenario for Units 1 and 2 for the foreseeable future, and therefore any emission limit must account for this additional variability in emissions. The commenter asserted that the presumptive emission rate of 0.17 lb/MMBtu is achievable, including load variability.

Response: The 0.13 lb/MMBtu limit we have selected provides a reasonable margin for compliance, not only for load variability, but also for startup and shutdown conditions. The emission limit we have set also takes into consideration the control efficiency that can be achieved with SNCR. We have provided further discussion on this in previous responses.

Comment: Commenter stated that reducing NO_x to the absolute limits of LNC3 and DryFining™ leads to collateral damage to the CCS boilers. Specifically, GRE claims that installation of the second generation LNC3 technology in 2008 on Unit 2 contributed to circumferential cracking on the boiler tubes between the burner front and the over-fired air registers, as operators attempted to maintain low NO_x emission rates. GRE further stated that the 2010 implementation of DryFining™ technology with LNC3 accelerated tube leaks at CCS 2, causing unplanned outages. The commenter asserted that while it has been possible to operate at lower NO_x emission rates during ideal conditions, the risk of circumferential cracking increases significantly when operating at these lower rates. The commenter concluded that an emission rate between 0.14 and 0.17 lb/MMBtu for LNC3 and DryFining™ is not consistently achievable as a 30-day rolling emission limit; and the commenter firmly believes that 0.17 lb/MMBtu is the most stringent level.

Response: We have decided to finalize our proposal that SNCR + SOFA + LNB is BART. We note that using SNCR would alleviate GRE's concerns about circumferential cracking from use of LNC3 and DryFining™ while also helping to maintain NO_x emissions during periods of load variability. We provide additional responses pertaining to emission limits in this section.

Comment: Commenter stated that from a review of EPA modeling information from the Cross-State Air Pollution Rule (CSAPR) docket,[49] there are currently no tangentially-fired utility EGUs, in the CSAPR-affected states, with LNC3 combustion controls and SNCR post-combustion controls that operate at or below the presumptive BART limit of 0.17 lb/MMBtu for NO_x. The commenter further stated that none of the facilities included in the CSAPR database operate at or below the proposed FIP limit of 0.12 lb/MMBtu.

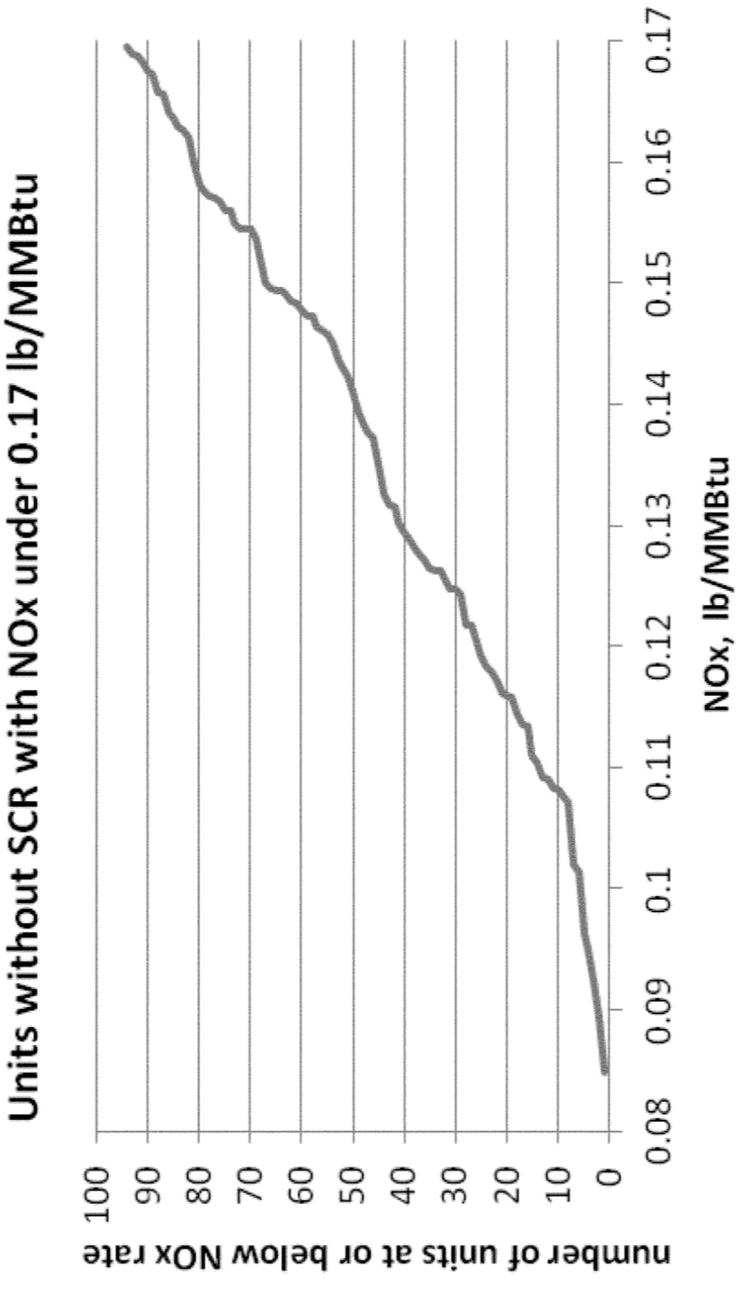
[49] See www.regulations.gov, docket EPA-HQ-OAR-2009-0491.

Response: The proposed 0.12 lb/MMBtu emission rate was based on the information that GRE itself supplied to North Dakota in 2007, and which North Dakota evaluated in its BART determination. Starting from baseline emission rates from 2000 to 2004 and the 50% SNCR control efficiency that GRE estimated, North Dakota arrived at an average annual emission rate of 0.108 lb/MMBtu. We adjusted this to 0.12 lb/MMBtu to arrive at a proposed 30-day rolling average emission limit.

Our analysis focuses on what is achievable using SNCR at CCS, based on the Control Cost Manual, vendor information (Fuel-Tech), the State's analysis, GRE's analysis, and our own analysis and expertise.

Analysis of emissions data found significant discrepancies in Figures 2.2 and 2.3 of GRE's November 2011 Refined Analysis. A review of EPA Title IV data for 2010 showed 94 coal-fired boilers that do not have SCR achieve annual emissions levels below 0.17 lb/MMBtu, with the median slightly under 0.14 lb/MMBtu (see Figure 1 below). Of these, ten of them are using SNCR in combination with combustion controls to achieve under 0.17 lb/MMBtu. See docket for a list of these facilities. Of these ten, three are supercritical tangentially-fired boilers that use lignite coal with emissions below 0.14 lb/MMBtu. These include Big Brown 1 and Monticello 1 and 2, as discussed earlier in our responses. In addition, the NEEDS Database v.4.10 for the Final Transport Rule in the CSAPR docket includes two tangentially-fired coal/steam units from North Carolina with LNC3 and SNCR that had emission rates of 0.159 lb/MMBtu and 0.164 lb/MMBtu.

[20925] Figure 1. Coal-Fired Boilers Operating Below 0.17 lb/MMBtu



As we explain elsewhere, we have decided to revise the BART limit from 0.12 lb/MMBtu to 0.13 lb/MMBtu on a 30-day rolling average.

Comment: Commenter stated that the 0.14 lb/MMBtu emission rate would only be achievable after installation of SNCR (and cannot be achieved by LNC3 alone), and SNCR is not cost-effective based on thresholds established by North Dakota and already approved by EPA.

Response: We are not aware of any cost effectiveness thresholds established by North Dakota and already approved by EPA. In making a BART determination, cost-effectiveness is one factor that must be taken into account, but the relevance of a particular dollar-per-ton figure for controls will depend on consideration of the remaining statutory factors. As already explained, we disagree with a number of GRE's assumptions underlying its cost calculations and its assertion that SNCR is not cost-effective.

As noted in prior responses, we no longer agree that the use of SNCR at CCS would lead to a loss of fly ash sales. Accordingly, EPA has revised its cost analysis on a per unit basis and has determined that SNCR could be installed and operated at CCS for $1,313/ton. This value assumes no costs for lost fly ash sales and no additional fly ash disposal costs. This cost includes combustion control costs and the combined control efficiencies for SNCR and combustion controls. Our research indicates that the cost of up-front ammonia slip control systems would likely be included in the control package from current SNCR suppliers where the need to control ammonia slip is identified, so we have not included a separate cost for such a control system in our revised cost estimate; evidence indicates that if there were any incremental cost associated with such a control system, it would not significantly affect the overall cost effectiveness of the controls.[50] We used a total capital investment for SNCR of $6.92 million ($10/kW[51]) that we derived from the company's July 15, 2011 submittal.[52] As explained more fully in a subsequent response, we find that URS's November 2011 analysis for GRE overestimates the capital costs for SNCR, among other things, by including a retrofit factor when none is warranted. Nonetheless, even if we use URS's inflated estimate of $11.80 million ($21/kW) for the total capital investment of SNCR, the resultant cost effectiveness value would be $1,524/ton.[53] Both the $1,313 per ton and $1,524 per ton values are well within the range of values that EPA and states other

[50] This is based in part on, "Measuring Ammonia Slip from Post Combustion NO_x Reduction Systems," James E. Staudt, Andover Technology Partners, ICAC Forum 2000.

[51] The $10/kW capital cost is within the range that industry sources find reasonable for typical SNCR utility installations. See Institute of Clean Air Companies, White Paper Selective Non-Catalytic Reduction (SNCR) for Controlling NO_x Emissions, February 2008, p. 7.

[52] We used the $3,627,729 direct capital cost provided by the company and adjusted this to 2009 dollars. We then used the cost factors in the Control Cost Manual.

[53] We have included our calculations in the docket.

than North Dakota have considered reasonable for BART, and that North Dakota itself considered reasonable for BART at other North Dakota sources. (76 FR 58623).

Comment: Commenter stated that only supercritical boilers have shown the capability to achieve less than 0.14 lb/MMBtu, using SNCR and LNBs. Commenter further stated that, because CCS does not have any supercritical boilers and there are no other examples of a tangential fired source with only LNBs, it is unrealistic to expect any CCS unit to attain an annual average of 0.14 lb/MMBtu, and even more unrealistic to obtain this average on a 30-day rolling basis, using LNB alone.

Response: Based on our evaluation of data from CCS 2, we have decided that combustion controls alone may not be able to achieve a 30-day rolling average limit of 0.14 lb/MMBtu at CCS on a consistent basis. However, we have decided to finalize our determination that SNCR plus SOFA plus LNB is BART and are promulgating a limit of 0.13 lb/MMBtu on a 30-day rolling average basis.

We note that GRE claimed in its refined analysis that data on supercritical units does not provide an indication of SNCR performance at CCS because CCS does not have supercritical units. Supercritical units typically operate at higher furnace temperatures than subcritical units. The higher furnace temperature makes NO_x reduction with SNCR more difficult due to the competing urea oxidation reaction that causes NO_x reduction to drop off at high temperatures. As a result, one would expect SNCR performance to [20926] generally be better at a subcritical unit than a supercritical unit – all other factors being equal.

g. Cost Effectiveness of SNCR and SCR at CCS

Comment: Commenter stated that, when combined, the new analyses provided by URS and Golder Associates confirm that SNCR is not cost-effective, consistent with EPA's presumptive NO_x analysis. These analyses essentially reaffirm GRE's initial determination that DryFiningTM and LNC3 is BART for CCS.

Response: Our prior responses address the presumptive emission limits and alleged cost effectiveness thresholds. We disagree that GRE's consultants' analyses confirm that SNCR is not cost effective or reaffirm GRE's initial BART recommendation. As we have noted, our analysis indicates that SNCR plus LNC3 is more cost effective than we estimated in our proposal.

Comment: Commenter stated that only a site specific evaluation by a competent SNCR supplier (URS) should be used to estimate emission reductions and associated costs. The URS refined analysis is provided in Appendix B of the GRE document. URS is a preeminent engineering consultant in SNCR technology, having designed several dozen SNCR pollution control systems throughout the world. This experience qualifies URS to make site-specific recommendations on SNCR design.

Response: EPA agrees that an evaluation by a competent SNCR supplier may be beneficial but notes that GRE has only now brought its "refined analysis" forward. GRE found it sufficient to supply several cost estimates to the State without such assistance. Regardless, URS is not an SNCR technology supplier. While URS is an engineering firm, it is not a supplier or developer of SNCR technology. As indicated in the experience list provided by URS, URS's role in these SNCR projects was primarily as constructor, performing a feasibility study, engineering, or procurement. In no cases was URS actually the process supplier – the company that actually designed the process and made the performance predictions and guarantees. See docket. Depending upon the project shown in the list provided by URS, its role may have been associated with managing project construction activities, engineering and location of equipment such as piping, tanks, etc., and in some cases simply "feasibility studies," but in none of the cases it cites did URS actually design the SNCR process and develop performance guarantees.

While location of tanks, routing of process piping and other engineering or construction activities are important aspects of a project, they do not determine the process performance. Critical aspects of SNCR process design, which determine performance (NO_x reduction, reagent use and ammonia slip), are design of and location of injectors in the furnace, specification of reagent type, flowrates and control logic. Process design is performed by companies such as Fuel Tech, having supplied many utility SNCR systems, or other companies. For example, some of the installations cited by URS in its experience list, such as TVA Johnsonville and PEPCO were supplied by Fuel Tech or Advanced Combustion Technology. As indicated in the table provided by URS, URS apparently had a role in the engineering of these projects (location of storage tanks, piping between components, etc.), but did not develop the process design or the performance estimates for the TVA or PEPCO installations. Other installations cited by URS (new boilers at AES Warrior Run and the two Air Products installations) were actually designed and supplied by the circulating fluid bed boiler suppliers, with performance and guarantees developed by the boiler supplier. The balance of the installations cited by URS were either feasibility studies, where no real process guarantees were made, or were actually supplied by other companies (Applied Utility Systems, ESA, or others). In fact, the study that URS has conducted for GRE on CCS is essentially a feasibility study. Aside from URS's experience, the analysis URS conducted does not support that the CCS units are so unique that Control Cost Manual estimates of SNCR performance and costs are irrelevant.

Thus, while URS has the expertise to provide useful input on the cost associated with installing some of the associated equipment, it is not in the business of providing SNCR process designs and performance guarantees – and it apparently did not do this on any of the projects on its experience list.

GRE argues that the CCS units are unique and thus require evaluation by an SNCR process supplier in lieu of an analysis based on the Control Cost Manual. However, GRE has not provided any information from companies that actually design SNCR systems and have experience providing performance guarantees, such as Fuel Tech or another company that is an experienced SNCR supplier. Thus, GRE's claims about SNCR performance are not supported.

The control efficiency of SNCR is the main issue raised by URS because it has a significant impact on the overall cost effectiveness of SNCR, as further explained later in our responses. URS also provides a cost estimate which is used to support GRE's own cost analysis. While GRE comments that "only a site specific evaluation, by a competent SNCR supplier (URS), should be used to estimate emission reductions and associated costs," the evaluation provided by URS is based on data from other plants. URS extrapolates the SNCR control efficiency using CCS data from a plot of control efficiency versus inlet NO_x concentrations for 55 existing SNCR installations. This differs from the Control Cost Manual, which plots control efficiency as a function of boiler size. Neither is a definitive "site specific" measure of estimating control efficiency. Furthermore, there are many other factors besides inlet NO_x concentration that affect the efficiency of an SNCR system. Thus, GRE has provided little support for reducing the SNCR control efficiency by 20 to 30 percentage points from the efficiency used in the proposed FIP and from what they themselves originally estimated (*i.e.,* from 50% down to 30% or 20%).

Since GRE has not provided any information from companies that actually design SNCR systems and have experience providing performance guarantees, GRE's claims, that its prior representations about SNCR performance should be disregarded, are not supported.

Comment: Commenter states that EPA's analysis contains faults that, when corrected, lead to the conclusion that SCR, not SNCR, is BART for the CCS units. The faults include, first, that the EPA analysis of $4,116/ton is, on its own, cost effective and close to the cost effectiveness value North Dakota and EPA accepted at Stanton Station Unit 1 of $3,778/ton. Second, EPA retains the 80% control efficiency for SCR from the State's BART determination when, elsewhere in the proposal, EPA acknowledges that SCR is capable of 90% control. The commenter adjusted the cost effectiveness value to $3,595 based on 90% control efficiency which, the commenter states, is cost effective and below the Stanton Station Unit 1 cost effectiveness previously mentioned. Third, EPA retained costs related to loss of sales from fly ash disposal in the SCR cost analysis, which is perhaps in error as there is no reason a well-designed SCR, particularly in the low dust or tail end configuration, would impact ash sales. SCRs can meet 2 ppm ammonia slip, and at that level the ammonia in the ash is typically acceptable for all [20927] uses. Additionally, mitigation of ammonia in ash is feasible, and is probably a less costly option if ammonia is, improbably, an issue.

Response: We disagree with the comment regarding the control efficiency of SCR at CCS. We have determined that the 0.043 lb/MMBtu emission rate that North Dakota used in its cost analysis based on the 80% control efficiency was acceptable and probably the best performance achievable with SCR technology taking into consideration the existing combustion controls. Based on our own investigation, as discussed in our responses to GRE's comments discussed above, we agree with the commenter on the issue of fly ash and have revised our cost analysis. We have removed the lost fly ash sales and fly ash disposal costs. We further agree that ammonia levels in the ash will not be problematic and are not including ammonia mitigation costs in our analysis. Our revised analysis relies on the $280/kW installed capital cost that we discussed in our proposal. We used the $280/kW capital cost in lieu of the $110/kW figure that is derived from GRE's capital cost analysis. As we stated in our proposal, $110/kW is unreasonably low compared to actual industry experience. Based on these changes, we calculate a cost effectiveness value for LDSCR + ASOFA + LNB at CCS of $5,603/ton of NO_x removed. We find that this cost is excessive in light of the predicted visibility improvement.

Thus, we are not changing our determination that SNCR+ASOFA+LNB is NO_x BART at CCS 1 and 2.

Comment: Commenter stated that the furnace boxes for CCS 1 and 2 are unique, as required by the high moisture content of Fort Union lignite. Commenter stated that the firebox is larger than other lower-moisture coal-fired units, resulting in a higher cost of NO_x combustion controls. Specifically, the commenter stated that the greater air flow distance through the furnace requires increased size and type of wall nozzles and increased staging complexity; and an advanced air combustion system added to a larger firebox requires additional wall openings and redesign to wall water tubes, further increasing costs.

Response: All electric utility boilers are built to the owner's specifications and are, therefore, unique. However, the information presented by the commenter has not convinced us that the CCS boilers are so unique that our costing assumptions or our overall cost estimates are unreasonable. The fuel burned at CCS is very low BTU fuel, which contributes to the large furnace size. Therefore, it is possible that a combustion retrofit for CCS might be somewhat higher in cost than for a similar retrofit for a boiler of similar output firing a higher Btu coal.

Examination of Title IV data shows several lignite fired boilers with significantly lower emissions than at CCS – some using only combustion controls and some using combustion controls in combination with SNCR.

The application of SNCR on low-BTU fuel utility boilers goes back to the late 1980's when it was successfully applied to German brown coal boilers.[54] The larger furnace volume of a lignite or other low-Btu furnace actually provides more time for the SNCR reaction to occur, which should be beneficial for mixing and the SNCR reaction. The advantage will likely be improved reagent utilization.

Comment: Commenter stated that the larger registers installed at CCS 2 further reduce NO_x emissions as they allow for increased primary air which is available after installation of DryFining™, and that larger registers are tentatively anticipated to be installed at CCS 1 in 2014.

Response: We evaluate potential control options based on baseline conditions, not on ongoing revisions to a facility after the baseline period. It is not reasonable to consider controls installed after the baseline period in determining BART. Such an approach would tend to lead to higher cost effectiveness values for more effective controls and encourage sources to voluntarily install lesser controls to avoid installing more effective BART controls later.

Comment: Commenter stated that URS reviewed and updated both capital and operating costs

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[54] Hofmann, J.W., von Bergmann, J., Bokenbrink, D., Hein, K. "NO_x Control in a Brown Coal-Fired Utility Boiler." Presented at the EPRI/EPA Symposium on Stationary Combustion NO_x Control, San Francisco, CA, March 8, 1989.

for SNCR, based on their expertise and site specific investigation. These values were relatively consistent with values presented to EPA in June and July 2011, but are somewhat higher than the screening values presented in the original BART analysis.

Response: The higher cost-effectiveness ($/ton) of SNCR in GRE's November 2011 submittal can be primarily attributed to the lower control efficiency value assigned to the technology. The July 2011 study estimates a control efficiency of 50% for SNCR, which yields a cost effectiveness value of $3,198/ton for both Units 1 and Units 2 (one estimate). The November 2011 study estimates an SNCR control efficiency of 25% for Unit 1 and 20% for Unit 2, which yields a cost effectiveness value of $7,629/ton and $10,506/ton for Units 1 and 2 respectively.

It should be noted that the November study actually estimates lower capital and annual costs of control, each of which would independently lower the cost effectiveness value. The total capital investment for SNCR estimated in the July study was $12.72 million, compared to $12.18 million and $11.80 million for Units 1 and 2, respectively, in the November study. The annualized capital plus operating costs in the July study were estimated at $8.91 million, compared to $8.79 million and $8.12 million for Units 1 and 2 in the November study. One of the main reasons that costs are higher in the July study is maintenance costs; the annual maintenance costs in the July study are $1,907,375 compared to approximately $180,000 for each Unit in the November study.

The baseline emission rate is another factor which would result in higher cost effectiveness values in the November study. The baseline emission rate in the July study was estimated at 0.22 lb/MMBtu, compared to 0.20 lb/MMBtu and 0.153 lb/MMBtu for Units 1 and 2 in the November study. A lower emission rate would result in less emissions controlled and a higher cost effectiveness value.

The lower SNCR control efficiency in the November study results in less NO_x controlled (*i.e.,* 1,152 tons per year (tpy) for Unit 1 and 772 tpy for Unit 2 in the November study versus 2,786 tpy NO_x controlled in the July study), and a higher overall cost effectiveness value. The reduced SNCR control efficiency outweighs the changes to the cost of control, which would otherwise result in lower cost effectiveness values.[55]

[55] Our analysis differs in that we considered SNCR combined with combustion controls.

[20928] TABLE 1 – COMPARISON BETWEEN COST EFFECTIVENESS FACTORS IN GRE'S JULY AND NOVEMBER 2011 COST ESTIMATES FOR CCS

Study Description	Baseline emission rate (lb/MMBtu)	Control efficiency	Emission reduction (ton/yr)	Installed capital cost (MM$/yr)	Annual O&M cost (MM$/yr)	Pollution control cost ($/ton)
SNCR, July Study, Both Units	0.22	50	2,786	12.72	8.91	3,198
SNCR, November Study, Unit 1	0.2	25	1,152.8	12.18	8.79	7,629
SNCR, November Study, Unit 2	0.153	20	772.5	11.8	8.12	10,506

We do not agree with the capital and operating costs estimated by GRE. First, URS has inappropriately applied a retrofit factor when calculating capital costs for the SNCR system. The Control Cost Manual states:

> The costing algorithms in this report are based on retrofit applications of SNCR to existing coal-fired, dry bottom, wall-fired and tangential, balanced draft boilers. There is little difference between the cost of SNCR retrofit of an existing boiler and SNCR installation on a new boiler.[56] Therefore, the cost estimating procedure is suitable for retrofit or new boiler applications of SNCR on all types of coal-fired electric utilities and large industrial boilers.[57]

Therefore, retrofit costs are inherent in the costs provided by the Control Cost Manual method and there is no need to introduce a retrofit factor. In using a retrofit factor of 1.6, URS overestimated capital costs by 60%.[58]

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[56] Rini, M.J., J.A. Nicholson, and M.B. Cohen. Evaluating the SNCR Process for Tangentially-Fired Boilers. Presented at the 1993 Joint Symposium on Stationary Combustion NO_x Control, Bal Harbor, Florida. May 24-27, 1993.

[57] Control Cost Manual, Section 4.2, p. 1-4.

[58] It appears that URS overestimated capital costs in other ways as well. Consistent with the BART Guidelines, and as outlined in our proposal and in this action, we have applied the factors permitted by EPA's Control Cost Manual to GRE's estimate of direct capital equipment costs for SNCR to arrive at a

(Continued on following page)

Another concern we have is that URS's estimate of reagent usage is high. The following is an examination of the 0.20 lb/MMBtu inlet level with 25% reduction case in URS's Table 4.[59] Using a boiler rating of 5900 MMBtu/hr,[60] an initial NO_x level of 0.20 lb/MMBtu, and a normal stoichiometric ratio (NSR) of 1.0 (30 lb urea/46 lb NO_2),[61] the hourly usage of reagent is: 5900 MMBtu/hr * 0.20 lbNO_2/MMBtu * (30 lb urea/46 lb NO_2) = 770 lb/hr.

This is roughly half of what URS calculated as the urea usage. In all of the cases URS estimated, the result is high. Since URS appears to have overestimated the reagent cost, it is likely that URS overestimated the water cost as well.

In this case, with urea at $500/ton delivered, the reagent portion of cost would be:

$500/ton * (1 ton/2000 lb)* 770lb/hr = $192/hr.

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reasonable estimate of the total capital investment. We do not agree with URS's estimate of total capital investment because it relies on factors that are inconsistent with the Control Cost Manual.

[59] URS did not analyze a case with the parameters we have determined are most reasonable; we are providing the reagent cost review of one of URS's cases to highlight our concerns with the methodology. Considering an inlet emission rate of 0.15 lb/MMBtu and a 25% reduction, the parameters we find are reasonable, the reagent cost would be $1,304/ton using a similar analysis.

[60] EPA and the North Dakota SIP assume 6,112 MMBtu/hr, but URS assumes 5,900 MMBtu/hr. The difference will not affect the conclusion that URS's reagent costs are high.

The tons removed per hour would equal:

(5900 MMBtu/hr)*(0.20 lb NO_2/MMBtu)*(0.25 reduction)*(1 ton/2000 lb) = 0.148 ton/hr.

The reagent portion of cost is 192/0.148 = $1,300/ton of NO_x removed.

This $/ton for reagent would be the same assuming the same cost per ton of urea and the same chemical utilization (25%, or 25% reduction at an NSR = 1.0).

The errors in the URS estimate are carried through to GRE's estimates.

Comment: Commenter stated that with the installation of LNC3, LNC3+, and DryFining™, CCS's NO_x emissions are greatly reduced with respect to "baseline" values previously provided; and it is necessary to update the baseline emissions for Units 1 and 2 for this technology evaluation in order to reflect current conditions and unit performance. Commenter stated that the revised baseline emissions for Units 1 and 2 should be adjusted to 0.201 lb/MMBtu and 0.153 lb/MMBtu, respectively. The commenter stated that the use of DryFining™ technology has already been implemented for use at both units at a cost of $270 million, and GRE has made a significant investment to achieve multi-pollutant emission reductions and visibility improvements in the region.

Response: As stated in our previous comments, we reject GRE's revised baseline. We evaluate potential control options based on baseline conditions, not on ongoing voluntary revisions to a facility after the baseline period. It is not reasonable to consider voluntary controls installed after the baseline period in determining BART. Such an approach would tend to lead to higher cost effectiveness values for more effective controls and encourage sources to voluntarily install lesser controls to avoid more effective BART controls later.

Comment: The refined economic impacts analysis provided by GRE confirms GRE's original conclusion that SNCR is not a cost effective NO_x control option.

Response: We disagree with the cost effectiveness analysis provided by GRE in the refined analysis. We disagree with the control efficiency used for SNCR in combination with SOFA plus LNB used in the refined analysis, the assumed baseline and controlled emission rates, and the assumed reduction in ash sales. These issues are further discussed in the comment responses specific to each issue.

h. CCS General Comments

Comment: The commenter stated that at the time of this submittal, GRE has already installed LNC3 combustion controls at Unit 2. In 2011 dollars, this was at a cost of over $6 million and has already resulted in NO_x reductions. The same system is tentatively scheduled to be installed on Unit 1 during the 2014 outage.

Response: As stated in our previous comments, we reject GRE's use of a revised baseline.

3. Stanton Station Unit 1

Comment: Commenter states that the BART limits for the Stanton Station are contrary to BART requirements. Commenter states that both SO_2 and NO_x emission rates would decrease if only Powder River Basin (PRB) coal were allowed to be burned, because the burning of North Dakota lignite coal creates higher emissions of both pollutants. Commenter also states that EPA's cited 7th Circuit Court of Appeal decision (76 FR 58589) would not apply to such a requirement because that decision only applies to the redesign of a source.

Response: We do not interpret the CAA or the regional haze regulations as [20929] requiring states to consider limiting the type of coal burned as a BART control technology. We note that we did not cite the referenced 7th Circuit decision in support of our proposal to approve the BART limits for Stanton Station.

Comment: One commenter states that EPA is proposing to approve SNCR + OFA + LNB as NO_x controls for Stanton Station Unit 1. While the commenter supports the use of further NO_x controls at this facility, the commenter asks EPA to further evaluate the cost estimates for SCR at this facility. According to the commenter, the cost estimates for SCR that EPA relied on in its proposal appear to include, at a minimum, costs associated with allowance for funds used during construction (AFUDC), which is not appropriate under the BART Guidelines and Control Cost Manual. Further, the underlying calculations in Stanton Station's BART submission to North Dakota do not clearly support the resulting cost.

Response: We relied on cost estimates submitted by North Dakota in our evaluation of the cost effectiveness of NO_x control options for Stanton Station Unit 1. In turn, North Dakota relied on costs taken from GRE's BART analysis as found in Appendix C.2 to the SIP. GRE asserts that these costs were derived "using the procedures found in the EPA Air Pollution Control Cost Manual."[62] However, as suggested by the commenter, there are irregularities in how GRE applied the SCR cost methods in the Control Cost Manual. In particular, GRE included a line item for AFUDC in the amount of $8,232,000. However, closer examination reveals that this line item represents the cost of replacement power associated with a purported 10 week outage for installation of the SCR, and does not represent allowance for funds used during construction. Regardless, elimination of this line item would only lower the cost effectiveness values for SCR when burning lignite and PRB coal from $6,475/ton to $6,118/ton and $8,163/ton to $7,713/ton, respectively. In addition, the total capital investment stated by GRE for SCR of $55,279,000

[62] Coal Creek Station Units 1 and 2 Best Available Retrofit Technology Analysis, Revised December 12, 2007, p. 8.

equates to $294/kilowatt (kW). We find this cost consistent with the installed SCR retrofit costs, ranging from $79/kW to $316/kW (2010 dollars), cited in recent industry studies.[63] We expect that the cost at Stanton Station Unit 1 would be at the higher end of this range given its relatively low generation capacity of 188 MW. Accordingly, while we agree that there are questions regarding the underlying calculations, it is our opinion that further evaluating costs would not change the outcome of the BART determination.

4. Leland Olds Station Unit 1

Comment: Commenter stated that SCR, not SNCR, is BART at LOS 1. Commenter further stated that EPA assumed that Basin Electric overestimated the costs for SCR at this unit, but did not re-estimate the costs. Commenter analyzed the costs based on the revised cost for SCR at Unit 2, and considers its lower cost estimate "well within the range of values determined to be cost effective in similar regulatory proceedings."

Response: We have included in the docket for our final action an SCR cost estimate for LOS 1 that was based on methods similar to those we used for our SNCR cost analyses for MRYS 1 and 2 and LOS

[63] Revised BART Cost Effectiveness Analysis for Tail-End Selective Catalytic Reduction at the Basin Electric Power Cooperative, Leland Olds Station Unit 2, Final Report, March 2011, docket EPA-R08-OAR-2010-0406-0076, p. 8.

2. The analysis was not an exhaustive effort but was used as a check of the analysis provided by North Dakota. Our analysis found the cost of SCR + SOFA would be approximately $5,132/ton of NO_x emissions removed with an incremental cost effectiveness between the SCR and SNCR control options of $8,845/ton of NO_x emissions removed. The cost estimates for SCR at LOS 1 that National Parks Conservation Association (NPCA) and the NPS provided in their comments reflect cost effectiveness values greater than $4,000/ton of NO_x emissions removed. While these various estimates are lower than those the State relied on, they are still high enough that we are not prepared to change our conclusion that the State's BART determination of SNCR + Basic SOFA for LOS 1 was reasonable.

Comment: Commenter stated that there is no discussion why SNCR + Boosted SOFA was rejected as BART.

Response: In response to this comment, we reviewed the benefits of SNCR + Boosted SOFA over SNCR + Basic SOFA. We determined that the two combustion control options achieve very similar results and that the incremental cost of the Boosted SOFA option at $7,826/ton is excessive compared to the 92 tons of additional NO_x reductions, which we anticipate would provide a low visibility benefit.

F. *General Comments on SO_2 and PM Pollution Controls*

Comment: One commenter stated that North Dakota's BART analyses that EPA proposes to approve fail to include the most stringent level of control that is achievable using scrubber technology since scrubbers can achieve 99% control efficiency. Commenters also stated that, with regard to SO_2, EPA should require both the lb/MMBtu limit and the percent control efficiency limit to be met in order to meet BART, rather than require that either limit be met as EPA proposed. One commenter stated that if only the percent reduction limit is set, emissions will increase with the sulfur content of the fuel unless sulfur content is also limited. One commenter requested EPA set a numeric limit rather than percent reductions.

Response: We agree that the RHR requires states to consider the most stringent level of control. We also agree that, in most applications, wet or dry scrubbers can achieve greater emission reductions than those required by North Dakota. However, there is very limited data on the performance of wet or dry scrubbers at units firing lignite, such as those in North Dakota. In a 2007 BACT determination for two new lignite-fired boilers at Oak Grove Station in Texas, the Texas Commission on Environmental Quality established an SO_2 emission limit of 0.192 lb/MMBtu on a 30-day rolling average. Based on this, we find that the emission limits established by North

Dakota are not unreasonable. Also, we would like to emphasize that three of the North Dakota units have existing controls for SO_2 and that the emission reductions that can be achieved with upgrades to these existing controls may not be as great as those that can be achieved by a new scrubber installation. Finally, on the point of allowing either a lb/MMBtu or a percent control efficiency limit, we typically prefer a single limit. However, the BART guidelines list the presumptive levels in units of lb/MMBtu or a percent reduction, and we cannot say that the State's approach is inconsistent with the guidelines. The State chose to take advantage of this point and specifically found that it was not appropriate to establish limits on a lb/MMBtu and percent reduction basis. This was in part to allow for the potential that higher sulfur coals might be burned in the future, in which case the State believed that the percent reduction basis would extend greater flexibility. Based on these factors and our consideration of all the circumstances involved, we find that the SO_2 emission limits established by North Dakota are not unreasonable and we are approving them.

Comment: Commenters stated that North Dakota did not consider upgrading ESPs to decrease PM emissions, as is required by the BART Guidelines.

[20930] *Response:* As noted in our proposal, the ESPs already reduce emissions by 99% or greater. Where new wet or dry scrubbers or modifications to existing scrubbers will be installed, additional PM emission reductions, particularly of sulfuric acid mist,

will be achieved. Moreover, as noted in North Dakota's SIP, the visibility improvement that can be achieved by further reducing PM is minor. For example, North Dakota's BART determination for M.R. Young Unit 2 shows that the highest visibility impact from PM in the baseline was 0.0165 deciviews (LWA, 2001). SIP, Appendix B.4, p. 26. Similarly, North Dakota's BART determination for Stanton Station Unit 1 shows that reducing PM from 0.1 lb/MMBtu to 0.015 lb/MMBtu would only improve visibility by 0.021deciviews (TRNP-SU, 2002). SIP, Appendix B.3, p. 9. Accordingly, we find that North Dakota reasonably eliminated ESP upgrades from consideration.

Comment: One commenter stated that the control efficiency for baghouses was underestimated.

Response: We agree that the control efficiency for baghouses was underestimated. However, this has no practical bearing on our evaluation of North Dakota's BART control determinations for PM as, consistent with the BART Guidelines, North Dakota was not required to consider the replacement of existing PM control devices. Stanton Station is the only facility where North Dakota is requiring new PM controls, but this is only in association with the spray dryer absorber needed to control SO_2.

Comment: Commenters stated that a PM continuous emission monitoring system (CEMS) must be installed, operated and used to demonstrate continuous compliance with the PM emission limits on units that are subject to BART.

Response: PM CEMS would provide the most robust means of demonstrating continuous compliance with the PM emission limits. However, we disagree that their use is required. We find that the monitoring requirements in the RH SIP are adequate to demonstrate continuous compliance with the PM emission limits.

Comment: BART should be evaluated for both course particulate matter (PM_{10}) and $PM_{2.5}$, but was only evaluated for PM_{10}. EPA should therefore impose a BART limit on total $PM_{2.5}$.

Response: In our BART Guidelines, for the purposes of identifying visibility impairing pollutants, we allowed states to use emissions of PM_{10} as an indicator for $PM_{2.5}$, as the components of $PM_{2.5}$ are a subset of PM_{10}. 70 FR 39160. For the same reasons, we find that it is reasonable for North Dakota to have explicitly evaluated BART only for PM_{10}. We also note that North Dakota did evaluate BART for condensable PM which comprises a large portion of the $PM_{2.5}$.

Comment: Commenter stated that North Dakota incorrectly set a limit for PM at .07 lbs/MMBtu. Commenter stated that the actual emissions from most units averaged .03 lbs/MMBtu to .05 lbs/MMBtu, and there is therefore no support for limits higher than .03 lbs/MMBtu. Additionally, the commenter asserted that these limits should be set on a unit-by-unit basis.

Response: As noted in prior responses to comments, the visibility improvement that could be achieved with new or upgraded PM controls is negligible. That response also holds true within the context of setting tighter emission limits. Therefore, we find that PM emission limits set by North Dakota are not unreasonable.

Comment: Commenter stated that EPA deviates from the BART guidelines in failing to establish a clear time period (hourly, 24-hour, 30-day or annual) over which the proposed PM limits would apply. Commenter further stated that North Dakota's BART determinations are unenforceable because there are no proposed monitoring, recordkeeping and reporting requirements that would ensure compliance with the filterable PM limits. Commenter stated that this was contrary to the CAA, because BART is defined as based on continuous emission reductions, which cannot be ensured.

Response: We disagree with the commenter. First, we seek to clarify that while emission limits must be enforceable as a practical matter, the BART Guidelines clearly state that CEMs are not required in every instance. 70 FR 39172. Moreover, the BART Guidelines recognize that monitoring requirements are in many instances governed by other regulations, such as compliance assurance monitoring. North Dakota established monitoring, recordkeeping and reporting requirements for PM emission limits in permits to construct which are included in Appendix D of the SIP. The monitoring requirements for PM include emission testing using EPA-approved test methods, such as Method 5B and Method 17. As specified in each permit to construct, these tests must consist of three test runs, with each test run at least 120 minutes in duration. The monitoring requirements also require the use of a Continuous Assurance Monitoring (CAM) Plan developed in accordance with NDAC 33-15-14-06.10. The CAM Plan will include other provisions necessary to show compliance. We find that these monitoring provisions are adequate to ensure continuous emission reductions as required under BART.

G. Comments on Reasonable Progress and North Dakota's Long-Term Strategy

Comment: Minnkota states that EPA's proposed FIP does not follow EPA guidelines for RP determinations. The commenter cites, without a page number, the Burns & McDonnell report attached to the comments.

Response: EPA is unable to identify any support in the Burns & McDonnell report for the statement. Standing alone, the comment is insufficiently specific to warrant a response. Below, EPA responds to comments that EPA's disapproval of the State's RP determination for AVS is inconsistent with EPA guidelines.

Comment: Minnkota states that EPA's actions disapproving the State's RPGs and imposing RP controls on MRYS lack a basis.

Response: EPA disagrees with this comment. First, as stated in the proposal, the disapproval of the

State's RPGs is based on the State's failure to demonstrate that the RPGs the State selected are reasonable, based on the four statutory factors. In particular, the State's use of a degraded background in modeling for visibility benefits was unreasonable, as was the State's failure to select RP controls for AVS. Second, the commenter appears to misinterpret the statements made regarding MRYS Units 1 and 2 as proposing to impose RP controls on those units. In any case, the reference to controls on MRYS Units 1 and 2 is no longer relevant, because we have decided to approve North Dakota's NO_x BART determination for MRYS Units 1 and 2.

Comment: Minnkota states that EPA's action in disapproving the State's LTS is unreasonable and simplistic.

Response: EPA disagrees with this comment. The LTS is a compilation of the State-specific controls relied upon by the State for achieving its RPGs. We are disapproving the State's RPGs along with certain NO_x BART and RP determinations and promulgating a FIP to impose RPGs that are consistent with our FIP NO_x BART and RP determinations. To the extent that the State's LTS relies on these NO_x BART and RP determinations, we must also disapprove those portions of the LTS. Specifically, our partial disapproval of the State's LTS consists of two parts: (1) Disapproval of the LTS with regard to permit limits and monitoring, recordkeeping, and reporting [20931] requirements in the State's submittal that correspond to the NO_x BART determinations we are disapproving; and (2) disapproval of the LTS with regard to the NO_x reasonable progress determination for AVS Units 1 and 2, and with regard to the corresponding monitoring, recordkeeping, and reporting requirements. The monitoring, recordkeeping, and reporting requirements for Antelope Valley are necessary to ensure that the emissions limitations and control measures to meet RPGs are enforceable. See 40 CFR 51.308(d)(3)(v)(F). In addition, these requirements are generally necessary to ensure the BART limits are enforceable. See CAA 110(a)(2). As these requirements are necessary adjuncts to the BART and RP limits, our disapproval of the State's requirements necessarily flows from our disapproval of the NO_x BART determinations for CCS Units 1 and 2 and the disapproval of the State's NO_x RP determination for AVS Units 1 and 2.

Comment: NDDH states that EPA incorrectly rejected NDDH's RP modeling methodology. NDDH believes that the methodology properly took into account effects of international sources, as provided for in the RHR. Furthermore, the hybrid methodology was, in NDDH's view, necessary to accurately simulate transport from large point sources.

Response: Our response to this comment is provided with our responses to modeling comments in section V.C.

Comment: NDDH states that its cumulative modeling methodology more accurately reflects the visibility improvements from controls at point sources.

Response: Our response to this comment is provided with our responses to modeling comments in section V.C.

Comment: NDDH notes that EPA supported the development of the WRAP cumulative modeling, which NDDH states involved considerable time and resources. NDDH argues that it is inappropriate to diminish this extensive effort by using what NDDH views as a less sophisticated and inconsistent single-source approach.

Response: EPA disagrees with this comment. As discussed elsewhere, single-source modeling is not "less sophisticated" or "inconsistent." EPA supported development of WRAP CMAQ modeling in order to assist states in developing their RPGs. This support does not endorse the use of cumulative modeling to determine single-source impacts, a faulty approach for the reasons discussed above. As discussed below in responses to comments later in this section, NDDH's comment conflates the requirements for RPGs with the requirements for evaluating RP controls for single sources.

Comment: NDDH states that, on a dollar-per-ton-removed basis, LNB + SNCR appears to be reasonable for AVS. However, NDDH argues that its dollar-per-deciview evaluation of visibility benefits from installing LNB + SNCR at AVS shows that the cost is excessive.

Response: EPA disagrees with this comment, to the extent that it can be understood to argue against EPA's determination to impose LNB at AVS to meet reasonable progress requirements. The dollar-per-deciview cost that NDDH relies upon is faulty because, as discussed elsewhere, it relies on modeling using current degraded background that greatly underestimates the visibility improvement of single-source controls when compared to accepted methodology. It therefore provides no basis for determining that the cost of LNB + SNCR is excessive, or that the cost of LNB alone is excessive. Elsewhere, we have also discussed some of the difficulties with using dollar-per-deciview cost effectiveness values, and how care must be taken not to misinterpret such values. EPA does note that NDDH describes the dollar-per-ton cost of LNB + SNCR as reasonable. Using North Dakota's costs, LNB + SNCR has a cost-effectiveness value of $2,268 per ton removed at Unit 1 and $2,556 per ton removed at Unit 2. By comparison, LNB alone, using North Dakota's costs, has a cost-effectiveness value of $586 per ton removed at Unit 1 and $661 per ton removed at Unit 2. This indicates that LNB has a very reasonable cost effectiveness value on a dollar-per-ton-removed basis, the metric that is most widely used and understood in making control technology determinations.

Comment: NDDH references its CALPUFF modeling of visibility improvement at AVS from installation of LNB. NDDH states that this modeling was intended to show greater visibility improvement from installation of LNB on the two units at Antelope Valley as compared to installation of SCR at Leland Olds Station. NDDH argues that CALPUFF overpredicts visibility improvements and does not comply with 51.308(d)(1) and EPA's guidance.

Response: For reasons expressed elsewhere in this action, we disagree with North Dakota's argument that CALPUFF overpredicts visibility improvements. Our response to the argument that use of CALPUFF does not comply with 51.308(d)(1) and EPA guidance is provided with other responses in this section. While NDDH may have provided the CALPUFF modeling for another purpose, we find it informative. The CAA does not limit EPA in its action on a SIP submittal to considering materials only for the purpose for which the materials were originally intended. Instead, EPA may consider all relevant materials, including the CALPUFF modeling of visibility improvement from installation of LNB at AVS.

Comment: NDDH notes that even if all sources of SO_2 and NO_x in North Dakota were eliminated, North Dakota could not achieve the URP. North Dakota states that additional controls for AVS make almost no difference, and that additional controls on sources outside of North Dakota are necessary to achieve the URP.

Response: As we stated in our proposal, we agree that North Dakota could not achieve the URP in the first planning period even if all North Dakota sources were eliminated. We do not agree that this means that North Dakota can accordingly do nothing in the first planning period to address reasonable progress beyond addressing the BART requirements or that the State can reject otherwise reasonable control measures. EPA assumes that NDDH bases its statement regarding "almost no difference" on the modeling using current degraded background conditions. The CALPUFF modeling for AVS (separately provided by NDDH) predicts a visibility benefit at TRNP of 0.754 deciviews from installation of LNB, which EPA does not regard as "almost no difference." Regardless of whether controls on sources outside of North Dakota are necessary in order to achieve natural visibility conditions by 2064, North Dakota is required to provide a reasoned analysis of RP controls on sources within the State. With respect to AVS, the State did not do so.

Comment: North Dakota states that, based on the definition of "most impaired days" and "least impaired days" in 51.301, and the requirement in 51.308(d)(1) that the RPGs provide for improvement in visibility for the most impaired days over the planning period and ensure no degradation in visibility for the least impaired days over the planning period, any RP visibility analysis must be a cumulative analysis and must address the most impaired days. NDDH states that it consistently modeled BART and RP sources. NDDH argues that, under the RHR and EPA guidance, progress with respect to the URP must be assessed using cumulative modeling based on the controls imposed on multiple sources. It would be [20932] inconsistent with this approach, NDDH asserts, to use single-source modeling to determine improvements for the controls on an individual source.

Response: NDDH conflates (as it does in the next comment and elsewhere, and as do other commenters) the reasonable progress requirements for RPGs and for determination of controls for a single source. The RPGs must provide for improvement in visibility for the most impaired days over the planning period and ensure no degradation in visibility for the least impaired days over the planning period. In evaluating whether the overall RPGs provide for improvement in visibility for the most impaired days, it is not only appropriate, but necessary, to employ current degraded background in cumulative visibility modeling. This allows a comparison of the impact of the State's proposed overall set of regional haze controls against the baseline "most impaired days."

We disagree, however, that it is appropriate to analyze and reject potential control measures at specific sources based on modeling using current degraded background conditions. Distinct from the requirement to show that the overall RPGs provide for improvement on the most impaired days, it was incumbent on North Dakota to show that the URP is not a reasonable goal for this planning period and that its RPGs and rejection of reasonable progress controls was reasonable. Just because a state has met the requirement to show improvement on the most impaired days does not mean it has met this separate requirement. Our regulations require that this showing be based on the four statutory reasonable progress factors: The costs of compliance, the time necessary for compliance, the energy and non-air quality environmental impacts of compliance, and the remaining useful life of any potentially affected sources. 40 CFR 51.308(d)(1)(ii). We must determine whether the State's showing based on the four factors is reasonable. 40 CFR 51.308(d)(1)(iii).

Here, it is worth noting the process North Dakota used to evaluate potential reasonable progress controls. North Dakota employed certain screening tools to identify sources in North Dakota that potentially affect visibility in Class I areas. It focused mainly on point sources, starting with the list of sources subject to Title V permitting requirements. It further pared this list by focusing on the ratio of emissions to distance to the nearest Class I area, known as Q/D. A Q/D value of 10 was chosen as a threshold. North Dakota chose this value based on FLM guidance and the State's interpretation of statements in EPA's BART guidelines as to sources that could reasonably be exempted from the BART review process; *i.e.,* for a state with a BART contribution threshold of 0.5 deciviews, sources emitting less than 500 tons per year located more than 50 kilometers from a Class I area or emitting less than 1000 tons per year located more than 100 kilometers from a Class I area.[64] We

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[64] The ratios of these values equal a Q/D of 10.

note that North Dakota selected 0.5 deciviews as its contribution threshold for determining which sources are subject to BART.

North Dakota eliminated any source with a Q/D less than 10 from further consideration for reasonable progress controls. Then, North Dakota eliminated several sources with a Q/D over 10 that, as a result of events after the 2000 to 2004 baseline period, had reduced emissions sufficiently so that the sources' Q/D became less than 10. After this paring, seven units remained. We note that four of the remaining seven units are EGUs, and three of them are comparable in size and emissions to some of the largest BART sources in North Dakota.

For these seven remaining units only, North Dakota considered the four statutory reasonable progress factors in evaluating potential control technologies for reducing SO_2 and NO_x emissions. However, when it eliminated all reasonable progress controls for these pollutants for these units, North Dakota relied almost exclusively on its cumulative modeling, using current degraded background to conclude that the cost on a dollar per deciview basis was excessive.[65]

As noted in a prior response, we conclude that it was not reasonable for North Dakota to model visibility improvement for potential individual source

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[65] Further detail regarding North Dakota's analysis can be found in our proposal. 76 FR 58624-58628.

reasonable progress controls using current degraded background. As explained, we conclude that the State's approach is inconsistent with the CAA. We also note that the State's use of current degraded background to analyze single-source controls is facially inconsistent with the Q/D threshold it used to determine which sources should be retained for a detailed evaluation of reasonable progress controls. As noted, the State selected a Q/D of 10 based in part on EPA BART guidance on sources that could be considered to contribute to visibility impairment. That guidance relied on a contribution threshold of 0.5 deciviews, which was premised on CALPUFF modeling using natural background. By modeling single-source impacts and benefits using current degraded background, North Dakota employed a completely different metric that rendered meaningless its Q/D threshold and subsequent analysis of the four factors.[66]

Comment: NDDH notes that EPA's guidance, "Additional Regional Haze Questions," dated August 24, 2006, states that the RP demonstration involves a test of a strategy and how much progress is made through that strategy. NDDH also notes that the guidance states that RP modeling is tied to a strategy and is not a source-specific demonstration like the BART assessment. NDDH asserts that EPA's rejection of the North Dakota cumulative modeling for

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[66] We note that AVS 1 and 2 had Q/D values exceeding 100, and Coyote had a Q/D value of 248, all far above the threshold Q/D value.

single source visibility benefits arbitrarily ignores this guidance.

Response: We find that this comment, like the previous comment, conflates two separate aspects of reasonable progress: (1) The manner in which the overall strategy is modeled for purposes of comparison to the URP, and (2) the determination of controls for potentially affected sources and source categories. In the latter context, we conclude that our interpretation is reasonable and that the State's consideration of visibility improvement based on current degraded visibility was unreasonable.

First, we have refined our guidance and our views on reasonable progress since the cited document was issued. In 2007, we issued formal reasonable progress guidance, which clearly contemplates that controls may be evaluated on a source-specific basis.[67] It is difficult to imagine how the reasonableness of a control strategy involving large stationary sources could be determined without considering the reasonableness of controls for the specific stationary sources. Second, the comment ignores the fact that North Dakota itself conducted a source-specific analysis of potential control options using the four factors.[68] It was only when it considered the additional

[67] We note that guidance is not binding on EPA and does not supersede relevant statutory and regulatory requirements.

[68] We note that other states – for example, Colorado – have also considered reasonable progress control options on a source-specific basis and that we intend to do so in our FIP for Montana for regional haze.

factor – visibility – that North Dakota switched to a cumulative analysis. Third, the commenter ignores the cited guidance's repeated admonition that reasonable controls based on the four [20933] statutory factors (which don't include visibility improvement) must be included in the plan. Thus, for example, the guidance states:

> "However, the statutory factors must be applied before determining whether given emission reduction measures are reasonable. In particular, the State should adopt a rate of progress greater than the glidepath if this is found to be reasonable according to the statutory factors."

Guidance at 9. Similarly, the guidance states:

> "If after applying the four statutory reasonable progress factors, the rate of visibility improvement is still less than the uniform glide path, States may adopt the calculated RPGs, provided that they explain in the SIP how achieving the uniform glide path is not reasonable based on the application of the factors. States must demonstrate why the slower rate is reasonable * * * "

Guidance at 8-9.

Comment: Basin Electric states that EPA has no statutory authority to compel installation of LNB at AVS. Basin Electric argues that the regional haze program applies only to sources in existence before 1977, and that sources constructed after that date are subject only to the PSD permitting program. Basin

Electric concludes that EPA cannot impose retrofit requirements on a source such as Antelope Valley that has already been subject to the PSD permitting program.

Response: EPA disagrees with this comment. First, the requirements established in the RHR provide no basis for the commenter's argument, as reasonable progress requirements are clearly not limited to sources in existence before 1977. In particular, section 51.308(d)(1)(i)(A) requires consideration of the four statutory factors for "potentially affected sources," a term not limited to sources in existence before 1977, and also requires a demonstration showing how the four statutory factors were taken into consideration. Section 51.308(d)(1)(iii) requires the Administrator to evaluate this demonstration, explicit authority for the action we are finalizing. Finally, section 51.308(d)(3) requires that a state, in developing its LTS to achieve the RPGs, consider "major and minor stationary sources," a term again not limited to sources in existence before 1977.

Nor does the CAA itself provide any basis for the commenter's argument. The comment is in error in suggesting that the existence of requirements regarding visibility under the PSD permitting program necessarily implies that section 169A of the CAA cannot apply to sources subject to the PSD permitting program. As a general matter, it is well understood that the CAA frequently imposes overlapping requirements on sources. Nothing in Subpart I of Part C of Title I of the CAA, which provides for the PSD permitting program, indicates that sources subject to the PSD permitting program are somehow excluded from the requirements of Subpart II. Similarly, nothing in EPA's rules giving the minimum requirements for a state's PSD permit program at 40 CFR 51.166 or the federal PSD permit program at 52.21 supports the notion that sources subject to the PSD permit program are excluded from the requirements of Subpart II.

Furthermore, any reasonable reading of CAA section 169A reveals that Congress did not limit the requirements to achieve reasonable progress to BART and PSD sources. Congress required EPA to promulgate regulations to:

> "require each applicable implementation plan for a State in which any area listed by the Administrator under subsection (a)(2) of this section is located * * * to contain such emission limits, schedules of compliance and other measures as may be necessary to make reasonable progress toward meeting the national goal specified in subsection (a) of this section, including [BART]."

There is nothing in this language to suggest that Congress intended to exempt sources constructed after 1977, or to exempt sources subject to the PSD permitting program.

The commenter argues that CAA section 169A(g)(1) supports its view, claiming that "Section 169A(g)(1) defines the criteria to be employed in determining reasonable progress, but limits the application of that criteria to 'any existing source.'" The commenter interprets this term to mean sources constructed before 1977, but does not explain how reasonable progress toward the national goal of remedying existing impairment of visibility could continue to be made under the commenter's interpretation. Instead, the statute and our rules contemplate a periodic, continuing assessment of reasonable progress, including assessment of the four statutory factors for existing sources at the time of assessment. Thus, our regional haze regulations reflect a different interpretation – instead of "any existing source," section 51.308(d)(1)(i)(A) refers to "potentially affected sources." As discussed above, there is no suggestion that we intended to limit this to only mean sources constructed after 1977, and it is too late for the commenter to challenge our regional haze regulations now. Thus, the commenter's parsing of the statutory language and the legislative history is irrelevant. Furthermore, EPA's reports to Congress and other sources cited by the commenter do not reflect our interpretation of the RHR and therefore have no regulatory weight.

Comment: Basin Electric states that, under the RHR, if a state proposes an RPG that doesn't meet the URP, all the state has to do is explain why meeting the URP isn't reasonable.

Response: This comment understates the requirements of the RHR. If a state establishes an RPG that does not meet the URP, the state must demonstrate, on the basis of the four RP factors, that

(1) meeting the URP isn't reasonable; and (2) the RPG adopted by the state is reasonable. The commenter's statement ignores the requirement to consider the four RP factors and to show that the RPG is reasonable. EPA therefore disagrees with the statement.

Comment: Basin Electric argues that no state has full control over its RPGs, because visibility improvements depend largely on reductions from other states.

Response: Even if visibility impacts to an in-state Class I area are largely due to sources in other states, each state is nonetheless obliged to make RP determinations for in-state sources based on a reasonable analysis of the four statutory factors. In this case, NDDH's reliance on current degraded background modeling as an additional factor was unreasonable. Thus, Basin Electric's argument gives no basis for EPA to change its disapproval of the State's RPGs or the NO_x RP determination for AVS.

Comment: Basin Electric states that visibility improvement cannot be ignored in the RP four-factor analysis.

Response: As we have noted, the four RP factors are the costs of compliance, the time necessary for compliance, the energy and non-air quality environmental impacts of compliance, and the remaining useful life of any potentially affected sources. As we have also noted, when visibility benefits are considered in the analysis of potential single-source controls, such consideration must be reasonable. In this case, NDDH unreasonably relied on modeling using current degraded background to reject RP controls for AVS. Finally, in imposing LNB to meet reasonable progress requirements, EPA has considered visibility improvement, which, as shown by the CALPUFF modeling provided by NDDH, is 0.754 deciviews at TRNP for installation of LNB at AVS.

Comment: Basin Electric states that EPA's disapproval of North Dakota's RP determination for AVS is based solely on EPA's rejection of the State's use of a degraded background in modeling.

[20934] *Response:* The basis for our disapproval is fully explained in our proposal. 76 FR 58627, 58629-58630. We did not rely solely on the State's use of improper modeling. We note that, despite the State's flawed use of current degraded background modeling, we nonetheless approved several of the State's other reasonable progress determinations based on our consideration of the statutory reasonable progress factors.

Comment: Basin Electric argues that the dollar per deciview benefit of LNB + SNCR at AVS, computed using North Dakota's modeling, is much higher than that some FLMs have found acceptable. Basin Electric states that EPA does not object to the use of dollar per deciview in making an RP determination. Instead, EPA objects only to the modeling itself.

Response: EPA guidance indicates that it may be reasonable to evaluate the dollar per deciview value in appropriate circumstances. However, EPA has not established a threshold, required or recommended, below which such value is considered reasonable and above which it is considered unreasonable. Nor have we endorsed or accepted any values the FLMs may have found acceptable. Under our regulations, we determine whether a state's rejection of reasonable progress controls is reasonable based on the reasonable progress factors. We have explained in response to other comments why North Dakota's modeling using current degraded background and dollar per deciview values based on that modeling are not reasonable. In addition, EPA is imposing only LNB, not LNB + SNCR, at AVS. Thus, the dollar per deciview benefit of LNB + SNCR is not directly relevant. We provide further detail regarding use of dollars per deciview values in our response to prior comments.

Comment: Basin Electric states that EPA has no basis to disregard the State's cumulative modeling of visibility improvements at AVS. Basin Electric argues that the reasoning for using degraded background conditions in BART modeling applies equally to RP modeling, because the horizon for RP sources is 2018 (similar to the five-year horizon for BART).

Response: As noted elsewhere, the reasoning for using current degraded background conditions in BART modeling is faulty. That reasoning therefore gives no basis for using current degraded background conditions in RP modeling.

Comment: Basin Electric states that EPA admits that there is no requirement that states, when performing RP analysis, follow the modeling procedures set out in the BART guidelines. Basin Electric states that EPA does not cite any statute or rule that the North Dakota RP modeling violates.

Response: As we have noted, our regulations require consideration of four factors in reasonable progress determinations; visibility improvement is not one of the specified factors. As we have indicated, when a state considers visibility improvement as an additional factor in evaluating single-source control options, that consideration must be reasonable in light of the explicit goals established by Congress in CAA section 169A.

Comment: Basin Electric states that EPA is in error in asserting that North Dakota modeled BART sources one way and RP sources another way. Basin Electric argues that even if EPA is correct, there is no authority that requires the State to model BART and RP sources the same way.

Response: We disagree with the commenter. North Dakota relied on CALPUFF modeling using natural background for almost all BART sources. The only exceptions were MRYS 1 and 2 and LOS 2, and then only for NO_x. We explained in our proposal why North Dakota's alternative modeling for these BART units for NO_x was unreasonable. Despite the similarity of several of the reasonable progress units to the BART units, North Dakota modeled visibility improvement for potential control options on individual reasonable progress sources using current degraded background. We have explained in our other responses and in our proposal why this was unreasonable.

Comment: Basin Electric argues that states have the responsibility to set RPGs and evaluate RP controls. Basin Electric states that nothing prohibits the State from using degraded background conditions.

Response: For the reasons already expressed, we disagree with the import of this comment. We agree that the states have the responsibility to set RPGs and evaluate RP controls in the first instance, but EPA must determine if a state's determinations for RPGs and for controls satisfy the requirements of the RHR and are reasonable. In the case of AVS 1 and 2, the State's determination was unreasonable.

Comment: Basin Electric argues that, in considering the CALPUFF modeling results for AVS, EPA should use the 90th percentile values, not the 98th percentile values, and should use the three year average, not the worst-case year.

Response: For the same reasons expressed in our responses to similar comments related to BART in section V.C, we disagree.

Comment: Basin Electric argues that the case for using 90th percentile values is stronger for RP, as RP is determined based on improvement for the most impaired days, which is defined as the average impairment for the 20% of days with the highest impairment. Basin Electric states that use of the 98th percentile is inconsistent with this provision.

Response: EPA disagrees with this comment, which conflates and misstates requirements of the RHR. Reasonable progress is not "determined" based on improvement for the most impaired days; instead, improvement for the most impaired days is one, and not the only, requirement for reasonable progress. Separately, states are required to evaluate, considering the four statutory RP factors, controls for potentially affected sources. In this separate determination, when a state considers visibility benefits as an additional factor, a state's assessment and analysis of visibility benefits must be reasonable. Use of the 90th percentile, which seriously understates visibility benefits, is unreasonable, and cannot be justified by reference to the separate requirement regarding the most impaired days.

Comment: Basin Electric notes that EPA evaluated the cost of controls for AVS Units 1 and 2 separately, but evaluated the visibility benefits combined. Basin Electric argues that this is an invalid, apples-to-oranges comparison.

Response: Given that AVS 1 and 2 are the same size and are co-located, and reductions would be similar from each, we do not agree that it is invalid to consider the combined visibility benefits. There is no requirement, when considering visibility benefits as an additional factor, to separately model co-located and similar units. Furthermore, dollar-per-ton values would not change significantly if costs were evaluated for the two units combined. Finally, EPA notes that, even if the visibility benefits were evenly divided between the two units, EPA would still consider LNB appropriate at each unit, based on the four statutory factors and the additional factor of visibility benefits.

Comment: Basin Electric references additional modeling, provided by Basin Electric, that shows that the visibility benefits (using 90th percentile, three-year average, and a receptor-by-receptor approach) for LNB at AVS Units 1 and 2 combined is 0.07 deciviews. Divided between the units equally, this would be [20935] 0.035 deciviews. Basin Electric argues that these improvements do not support imposing LNB, especially when the dollars per deciview improvement is considered.

Response: As discussed elsewhere, we find it reasonable to use the 98th percentile, worst-of-three-year modeled benefit over all receptors. The use of the 90th percentile, the three-year average, and the receptor-by-receptor approach understates the visibility benefits of controls. As a result, the dollar-per-deciview value computed using that approach, found in Table 8 of Basin Electric's comments and from which Basin Electric derives the 0.07 deciview figure, is not reasonable or persuasive.

Comment: Basin Electric argues that EPA's justification for disapproving North Dakota's RPGs is insufficient. Basin Electric asserts that, even if EPA is correctly determining BART and RP limits for the individual facilities, EPA must provide some additional basis for disapproving the RPGs, such as: (1) North Dakota is not providing for improvement for the worst 20% days; or (2) North Dakota is not ensuring no further degradation for the best 20% days. Basin Electric also notes that EPA did not assess how far short (presumably quantitatively) North Dakota's selected goals fall from reasonable progress.

Response: EPA disagrees with this comment. The bases suggested by Basin Electric as necessary for disapproval (improvement for the worst 20% days and no further degradation for the best 20% days) are requirements of the RHR, but they are not the only requirements. As noted in the proposal, if a state's RPGs do not meet the URP, the state must demonstrate that the RPGs are reasonable, based on consideration of the four statutory factors, and that meeting the URP is unreasonable. The State's failure to satisfy this requirement (and not the requirements noted by the commenter) is the basis for the disapproval of the State's RPGs. In particular, the State's use of current degraded background in modeling for visibility benefits was unreasonable, as was the State's failure to select reasonable RP controls for AVS Units 1 and 2. It is unnecessary to quantify how far short North Dakota's selected goals fall from the RPGs proposed by EPA in order to determine that the State's analysis was unreasonable. Nonetheless, EPA notes that the proposed NO_x RP limit, based on installation of LNB, for AVS Units 1 and 2 will result in combined emissions reductions of over 7,000 tons per year of NO_x, with a visibility benefit of 0.754 deciviews at TRNP. Due to time and resource constraints, we lacked the capability to re-do the WRAP modeling to precisely re-calculate the RPGs.

Comment: Basin Electric states that the values for cost effectiveness of LNB at AVS Units 1 and 2 do not reflect up-to-date costs, which would be higher. However, Basin Electric specifically disclaims that up-to-date costs, standing alone, would provide a sufficient reason to reject LNB.

Response: In its FIP, EPA is relying in part on costs provided by North Dakota in its RH SIP to meet the requirements of the RHR. In promulgating the FIP, it is not necessary to regenerate the costs for AVS 1 and 2. Nonetheless, EPA agrees that regenerated costs for LNB at AVS Units 1 and 2 would likely support EPA's determination. LNB is a widely used, inexpensive control option to reduce NO_x emissions.

Comment: Citing 40 CFR 51.308(d), Basin Electric states that EPA does not propose a true FIP for RPGs, because RPGs are defined by rule as a rate of visibility improvement. Basin Electric alleges that rerunning the WRAP CMAQ modeling with the controls imposed to quantify the rate of improvement would cost a modest amount of money, and states that this amount of money should be contrasted with the cost of controls that will, according to Basin Electric, result in negligible visibility improvements.

Response: As discussed elsewhere, the visibility improvements from AVS alone will not be negligible, as shown by the CALPUFF modeling provided by North Dakota, and even the CALPUFF modeling provided by Basin Electric with its comments. We assume Basin Electric bases its statement about negligible visibility improvements on the modeling using current degraded background relied on by North Dakota, which, as discussed elsewhere, we are disregarding. As discussed in the notice of proposed action, we would have preferred to quantify the rate of improvement, but time and resource constraints prevented this. Re-running the WRAP CMAQ modeling would not change our conclusion about the reasonableness of LNB at AVS 1 and 2.

Comment: Basin Electric states that, without modeling, there is no basis for EPA to state that our FIP would increase the rate of visibility improvement on the 20% worst days. Basin Electric asserts that emissions reductions from the FIP sources are miniscule compared with the total reductions assumed in the WRAP CMAQ modeling for RPGs. Basin Electric notes that that modeling showed an overall 0.6 deciview improvement at TRNP and a 0.5 deciview improvement at LWA.

Response: It is logical to infer that the considerable emissions reductions at CCS and AVS will increase the visibility improvement on the 20% worst days. We acknowledged in our proposal that this improvement would not be sufficient to achieve the URP (76 FR 58632) and agree that the improvement will likely be small given that the starting point for the cited modeling is current degraded conditions. But the same could be said for BART sources, yet North Dakota has acknowledged that such sources contribute to visibility impairment in the Class I areas in North Dakota.

Comment: Basin Electric states that the disapproval of North Dakota's RPGs and our FIP have no meaningful effect.

Response: As we stated in our proposal, the RPGs are not enforceable values. To that extent, they do not impose requirements on anyone. However, we are required to disapprove the RPGs because they do not reflect reasonable controls at CCS and AVS, and we are required to impose a FIP in lieu of the State's unapprovable RPGs. Our reasonable progress controls at AVS and our BART controls at CCS do impose enforceable requirements.

Comment: Basin Electric asserts that, because EPA has no basis for our disapprovals and FIPs at individual facilities, EPA also has no basis for our FIP for RPGs.

Response: See our responses to prior comments. We have explained the bases for our disapprovals.

Comment: NPCA comments that it is unreasonable for EPA to give Basin Electric until July 31, 2018 to install LNB at Antelope Valley because that date is not "as expeditious as possible." NPCA states that the deadline should be January 26, 2013, which NPCA believes represents a reasonable amount of time to install the combustion controls.

Response: EPA disagrees with this comment. First, unlike for BART sources, the RHR and the CAA do not explicitly require that limits for RP sources be met as expeditiously as practicable. Furthermore, the commenter misstates the deadline: The proposed FIP requires Basin Electric to meet the proposed NO_x emissions limit at Antelope Valley "as expeditiously as practicable, but in any event no later than July 31, 2018." Thus, Basin Electric is under an obligation to install the combustion controls as expeditiously as practicable. The cutoff date of July 31, 2018 ensures that the RP limit for Antelope Valley is met by the end of the planning period, thereby also ensuring that the proposed RPGs are met.

Comment: NPCA states that EPA should reevaluate the cost estimate for [20936] SCR + reheat at AVS. NPCA argues that North Dakota's cost estimate is flawed in the same way as for LOS 2 and MRYS 2. EPA proposed to disapprove the costs for Leland Olds Unit 2; NPCA argues that EPA therefore cannot rely on the same costs in determining RP controls for Antelope Valley.

Response: While EPA agrees that the cost estimates for SCR at LOS 2 and MRYS 2 are flawed, the costs for AVS nonetheless present a sufficient basis for EPA's RP determination. EPA accepts, and NPCA does not question, the costs for LNB alone. Even if the cost estimate for SCR + reheat was redone, it would likely remain considerably more costly than LNB. LNB is very cost-effective and achieves reductions of about 78% of SNCR + LNB and 64% of SCR with reheat. Given the extreme cost-effectiveness of LNB and reductions of at least 64% of more expensive controls, and taking into account the four statutory factors as well as visibility benefits of LNB, EPA has determined that it is reasonable to impose LNB at Antelope Valley in this planning period. Of course, the imposition of LNB at AVS does not rule out the imposition of post-combustion controls in the next planning period.

Comment: NPCA states that North Dakota's cost estimates for SCR + reheat and ASOFA + SCR + reheat at Coyote Station are flawed. NPCA argues that EPA should redo the RP analysis for Coyote, and that a revised RP four-factor analysis would show that SCR + reheat is reasonable. In addition, NPCA notes that the facility is fairly close to TRNP, the State cannot meet the URP, and SCR + reheat would reduce emissions by over 10,000 tpy.

The NPS states similar concerns with North Dakota's use of inappropriate dollar per deciview estimates as a basis for determining that no additional controls were appropriate under RP for Coyote Station. NPS notes that EPA has recognized that the methods North Dakota used to reach that conclusion, both for estimating costs and visibility improvement, are invalid. NPS infers that North Dakota has not met its responsibility to conduct a valid RP analysis and that EPA must therefore assume that responsibility. An NPS analysis indicates SCR at Coyote would be more cost effective than at any other North Dakota EGU. NPS concludes that EPA must impose an RP emissions limit for Coyote of 0.07 lb/MMBtu (the same as for MRYS 1 and 2, and LOS 2).

Response: EPA has now decided that the rejection of SCR at Coyote is appropriate regardless of the State's cost analysis, based on the court's upholding of North Dakota's determination in the BACT proceeding for MRYS that SCR is technically infeasible. Like MRYS, Coyote is a cyclone unit burning North Dakota lignite. Thus, based on current evidence, we cannot conclude that North Dakota's rejection of SCR at Coyote was unreasonable.

Comment: NPCA states that the record shows that a wet scrubber would be cost effective at Coyote Station, and believes that the actual cost effectiveness may be better. NPCA computes that a 99% efficient wet scrubber would remove about 13,000 tons per year of SO_2. The cost overestimates made by other facilities indicate that EPA should revisit this cost analysis.

Response: EPA disagrees with this comment. First, NPCA did not identify any cost overestimates related to wet scrubbers. The issues EPA identified in its proposal related to costs of SCR, which provides no basis for inferring cost overestimates for wet scrubbers. As far as the record, Table 9.8 in North Dakota's RH SIP submittal shows a cost effectiveness value of

\$2,593 per ton of SO_2 removed at a control efficiency of 95%. As stated in our proposal, while this value is within the range of cost effectiveness values that North Dakota, other states, and we have considered reasonable in the BART context, it is not so low that we are prepared to disapprove the State's conclusion in the reasonable progress context. In addition, Coyote Station currently employs a spray dryer to control SO_2 emissions at a control efficiency of approximately 66%. The existence of this control supports our approval of the State's determination. Analogous to our policy in the BART context, we do not expect sources to install entirely new SO_2 controls where they are already achieving reductions greater than 50%.

Comment: NPCA notes EPA's response to a petition from the Dakota Resource Council regarding violations of PSD Class I SO_2 increments, in which EPA stated that a SIP call would not achieve any better result than other pending actions, including regional haze actions. NPCA argues that, based on this response, EPA should require SO_2 controls at Coyote Station to reduce consumed Class I SO_2 increment.

Response: EPA disagrees with this comment. As discussed extensively in our response to a prior comment, PSD permit program requirements in Subpart I, Part C of title I of the CAA are separate from visibility protection requirements in Subpart II of Part C. Therefore, Class I SO_2 increments are not relevant to our action on North Dakota's RH SIP submittal to meet the requirements of CAA section 169A and the RHR. Nonetheless. EPA notes that SO_2 emissions will be substantially reduced by our action on the North Dakota RH SIP, as detailed in Table 21 of our notice proposing action.

Comment: NPCA argues that limestone injection at Heskett Station is a cost effective and reasonable RP control that would achieve SO_2 reductions of 1614 tons per year. However, NPCA notes that the agreement between North Dakota and the facility only requires reductions of 573 tons per year of SO_2. NPCA concludes that EPA should require Heskett to achieve an SO_2 limit that reflects the capabilities of limestone injection.

Response: EPA considers the State's determination to impose the stated reductions in the permit included in SIP Supplement No. 1 to be reasonable and to satisfy reasonable progress requirements in this initial planning period. Further reductions may be appropriate in a subsequent planning period.

Comment: NPCA argues that staged combustion is a cost effective control for NO_x at Heskett Station at $1,700/ton. Even though the emission reduction is only 215 tons per year, NPCA argues that EPA must consider all potential sources that can contribute to achieving RPGs, including NO_x reductions from Heskett Station.

Response: EPA disagrees with this comment. In the first instance, it is the responsibility of the State to consider the four statutory factors for potentially affected sources. EPA's task is to determine if the State's analysis of controls satisfies the requirements of the RHR and is reasonable. In this case, the State did consider the four statutory factors, as well as an additional factor – visibility improvement based on modeling using current degraded background. While EPA does not consider the State's use of modeling based on current degraded background reasonable, EPA nonetheless considers the result of the State's analysis in this instance to be reasonable, based on the relatively low emissions reductions and the costs of controls.

Comment: NPCA states that several NO_x control options for Tioga Gas Plant are cost effective, with the lowest at $521/ton. Although the emissions reductions are lower, NPCA argues that EPA should consider all potential sources that can contribute to achieving RPGs. In addition, NPCA notes that the facility is only 35 km from LWA and is also near TRNP.

Response: EPA disagrees with this comment for the same reasons discussed in response to the prior comment.

[20937] *Comment:* NPCA states that EPA should re-run the WRAP CMAQ modeling with emissions that reflect the BART and RP controls that EPA proposes to approve or impose through a FIP. NPCA argues that EPA and the State should track actual visibility improvements versus projected visibility

improvements, and that this would assist in estimating visibility improvements from other measures.

Response: As stated in our notice of proposed action, we could not re-run the WRAP modeling due to time and resource constraints. We expect the State to quantify the visibility improvement in its next RH SIP revision.

Comment: The NPS stated that North Dakota did not meet its responsibility to perform a valid RP analysis, as the State's cost analysis and modeling for RP sources were flawed. Although the NPS stated that this was a general issue, the comment specifically noted flaws in the State's cost analysis for Coyote Station. The NPS argued that EPA must redo the analysis, and cannot propose to approve any RP determinations.

Response: EPA disagrees with the conclusion of this comment. Although EPA agrees that the State's cost analysis for SCR at Coyote Station was flawed, and that the State's modeling of visibility benefits of controls on RP sources using degraded background conditions was flawed, there is a sufficient basis for EPA's actions. As noted in a prior response, EPA has now decided that the rejection of SCR at Coyote is appropriate regardless of the State's cost analysis, based on the court's upholding of North Dakota's determination in the BACT proceeding for MRYS that SCR is technically infeasible. Like MRYS, Coyote is a cyclone unit burning North Dakota lignite.

As noted, with respect to other reasonable progress units, we have disregarded the State's visibility analysis in our review of the State's reasonable progress determinations and instead focused on the four reasonable progress factors. Except for AVS 1 and 2, we have determined that the State's reasonable progress determinations were not unreasonable.

Comment: The NPS stated that the RP analysis of SCR for Coyote Station was cursory. The NPS noted that, under the 0.50 lb/MMBtu annual rate agreed to by the State, Coyote Station would still have the highest controlled emissions rate of any EGU in North Dakota and would be the 13th largest emitter of NO_x among all EGUs, using 2010 rates in the Clean Air Markets Division database. NPS argues that, as a result, SCR should have been given more consideration.

Response: First, EPA disagrees with some of the NPS computations. Based on 2010 Clean Air Markets Division data, Coyote Station was the 124th largest emitter of NO_x among EGUs at 13,691 tons. At the rate of 0.50 lb/ MMBtu agreed to by the State, the emissions (with the same heat input) would have been 8,800 tons, which would have made Coyote Station the 183rd largest emitter of NO_x for that year. This represents a reduction of over 4,800 tons per year. In any case, the relative rank of a facility among other facilities nationwide in overall emissions is not a necessary component of the RP analysis.

We have already explained why we are not disapproving the State's rejection of SCR at Coyote.

Comment: The NPS noted that the RP analysis for Coyote Station did not consider upgrades to the existing dry scrubber.

Response: In making an RP determination, the State must consider a reasonable range of controls. For SO_2, the State considered a new wet scrubber. While EPA agrees that upgrades to the existing dry scrubber should have been considered, starting with feasibility, EPA is not prepared to determine, on the basis of this consideration, that the State was unreasonable in addressing RP requirements for Coyote Station through imposing the 0.50 lb/MMBtu NO_x limit and not imposing an SO_2 limit. EPA does expect the State to revisit the range of controls in the next planning period.

Comment: NPS provided cost estimates for installation of SCR at Coyote Station, showing a cost effectiveness value of $1,600 per ton removed and an incremental cost effectiveness value of $2,300 per ton removed. NPS stated that these costs are lower than those for SCR at LOS 2 and MRYS 1 and 2. NPS argued that, for consistency, EPA must impose SCR at Coyote Station.

Response: The basis for our decision regarding the State's rejection of SCR at Coyote is explained in prior responses.

H. Comments on Health and Ecosystem Benefits, and Other Pollutants

Comment: Several commenters stated that haze pollution significantly impacts human health and ecosystem health, in addition to obscuring scenic vistas. Specifically, commenters asserted that haze pollution contributes to heart attacks, asthma attacks, chronic bronchitis and respiratory illness, increased hospital admissions, lost work days and even premature death. One commenter noted the specific haze pollutants NO_x, SO_2 and PM, which the commenter stated are all harmful to the human body.

Some commenters cited a 2009 Clean Air Task Force report in stating that coal-fired power plants in North Dakota put 207 people at risk of premature death, 321 people at risk of a heart attack, and 3,500 at risk of an asthma attack each year. Several commenters encouraged EPA to finalize the regional haze proposal citing their own health problems, most notably individuals with asthma or respiratory problems, seniors, and parents of asthmatic children. One commenter stated the rate of asthma in North Dakota children is increasing rapidly.

Some commenters stated that haze pollution negatively impacts ecosystem health. Commenters expressed concern for the effects of haze pollution on wildlife, farm animals, plants including crops, and water bodies. Several commenters generally expressed their disapproval of coal as an energy source because it is dirty, with some insisting that North Dakota invest in cleaner energy.

Response: We appreciate the commenters' concerns regarding the negative health impacts of emissions from the coal-fired power plants in North Dakota. We agree that the same $PM_{2.5}$ emissions that cause visibility impairment can be inhaled deep into lungs, which can cause respiratory problems, decreased lung function, aggravated asthma, bronchitis, and premature death. We also agree that the same NO_x emissions that cause visibility impairment also contribute to the formation of ground-level ozone, which has been linked with respiratory problems, aggravated asthma, and even permanent lung damage. We agree that these pollutants can have negative impacts on plants and ecosystems, damaging plants, trees and other vegetation, and reducing forest growth and crop yields, which could have a negative effect on species diversity in ecosystems. However, for purposes of this action, we are not authorized to consider these impacts in evaluating the State's RH SIP and promulgating our FIP, and we have not done so.

Comment: Some commenters stated that regional haze is not a health-based standard.

Response: We agree that regional haze is not a health-based standard.

I. Miscellaneous Comments

Comment: Several commenters stated that the large economic costs of installing pollution controls stated by electricity providers failed to consider [20938] the significant offsets of those costs. One commenter stated that TRNP is an economic engine, further stating that the park logged over 580,000 recreational visits, was responsible for 500 jobs and $27.4 million in expenditures in 2009 alone. Another commenter stated that, while the installation of pollution controls costs money, it also stimulates the economy by providing jobs in construction and installation. Others stated a willingness to pay the expected increase in their utility costs, with one commenter stating that North Dakota's electricity is amongst the least expensive in the U.S.

Response: We agree with the comments. Although we did not consider the potential positive benefits to the local and national economies in making our decision today, we do expect that improved visibility would have a positive impact on tourism-dependent local economies. Also, retrofitting CCS with SNCR is a large construction project that we expect to take 5 years to complete. This project, along with the other pollution control upgrades proposed in the SIP, will require well-paid, skilled labor which can potentially be drawn from the local area, which is expected to benefit the economy.

Comment: Multiple commenters stated that North Dakota is one of only 12 states in the U.S. who meet all NAAQS.

Response: While the relative air quality in North Dakota is considered good compared to many other states, as further discussed elsewhere in our responses, our actions pertaining to the RHR are governed by the national visibility goal established by Congress in the CAA. The goal is to return the visibility conditions in Class I areas back to natural conditions. And visibility in Class I areas in North Dakota is impaired by pollution from industrial sources within the state. There is no direct correlation between natural visibility conditions and the current NAAQS.

Comment: Several commenters stated that the American Lung Association ranked Mercer County, North Dakota, home to several coal-fired power plants, as one of the 25 cleanest counties in the U.S., and ranked Billings County, North Dakota, home to TRNP, the third cleanest county in the United States.

Response: The commenters are referring to the 2010 State of the Air Report, which assigns letter grades for counties with air quality monitors for ozone and particulate pollution.[69] The report, issued every year by the American Lung Association, did

[69] The American Lung Association State of the Air report is available at www.stateoftheair.org.

give the mentioned counties an "A" grade in 2010 for ground level ozone. The State of the Air Report does not, however, address regional haze. The RHR relies on a combination of monitoring data to assess current visibility conditions and modeling of predicted visibility impacts at federal Class I areas (primarily national parks and wilderness areas), which is a different methodology than direct measurement of ozone and particulate pollution, which is the approach relied on by the American Lung Association. Current visibility impacts at TRNP and LWA are over double the impacts estimated for natural conditions, and North Dakota's Class I areas are not projected to meet the URP in the initial planning period.

Comment: Commenter cited the NPS's Web page for TRNP, which states that the park has better air quality than every other U.S. national park aside from Denali National Park in Alaska.

Response: In our action, we are responding to the national visibility goal established by Congress in the CAA. The goal is to return to natural visibility conditions. TRNP is not meeting the URP for returning the park to natural visibility conditions. The NPS' Web page for TRNP does state that air quality is relatively good, but it also discusses the fact that pollution sometimes causes haze and may affect other sensitive resources in the park. For current information on TRNP's air quality visit http://www.nps.gov/thro/naturescience/airquality.htm.

Comment: Commenter insisted that CCS and LOS should be retired, as they are respectively rated the 3rd and 19th most polluting coal plants in the U.S. (Citing sourcewatch.org.)

Response: While we respect the commenter's opinion, a regulatory process has been established under the CAA and our regulations for considering pollution controls to address visibility impairment, and our action follows that process.

Comment: Many commenters generally stated that the costs of EPA's proposed rule are high when compared to benefits. They stated that NDDH's SIP costs much less to implement than does EPA's plan, and produces similar benefits. High costs were cited both with respect to capital costs of the controls as well as increased costs (retail price per kilowatt hour) to consumers particularly fixed and lower-income consumers. Negative economic impacts to agriculture and oil and gas industries were cited, noting that the success of these industries is dependent on low-cost and reliable electric power. Several commenters specifically mentioned a cost of $700 million to install EPA's proposed controls and the potential for lost jobs. Some commenters expressed a willingness to pay the potential increase in their electric bills because they supported EPA's action.

Response: While we disagree with a number of the commenters' assertions, these comments are largely no longer relevant because we have decided to approve North Dakota's NO_x BART determinations for MRYS 1 and 2 and LOS 2 on grounds explained elsewhere. To the degree that some of these comments extend to our FIP for CCS and AVS, EPA's evaluation of capital and annual expenses associated with implementation of the FIP shows such expenses to be justified by the degree of improvement in visibility in relationship to the cost of implementation.

We take our duty to estimate the cost of controls very seriously, and make every attempt to make a thoughtful and well informed determination. However, we do not consider a potential increase in electricity rates to be the most appropriate type of analysis for considering the costs of compliance in a BART determination. Nevertheless, our analysis indicates that the annual costs to CCS and AVS associated with our FIP will be relatively modest considering the size of the plants, and impacts to rate payers should be much lower than anticipated by commenters.

Comment: Commenter cited EPA's Clean Air Markets database, which states that North Dakota ranked #12 in SO_2 emissions and #19 in NO_x emissions. The commenter also provided the SO_2 and NO_x rankings for the seven North Dakota EGUs discussed in the SIP.

Response: We appreciate the commenter providing the SO_2 and NO_x rankings for North Dakota and its EGUs. We do not disagree with the information provided and acknowledge the data suggest the North Dakota plants rank relatively high in the amount of

SO_2 and NO_x emissions compared to other states. However, we note that BART and RP determinations involve case-by-case determinations considering the relevant statutory factors, which do not include the relative emissions rankings.

Comment: Commenter requests that EPA set limits on ammonia slip where SNCR or SCR is required for BART.

Response: In Section 7.1.2 of the SIP, North Dakota concluded that ammonia is not a visibility impairing pollutant of concern as ammonia emissions (and associated regional haze impacts) from BART-eligible sources are negligible. We concur with this conclusion. [20939] Accordingly, there is no basis to set limits on ammonia slip to address concerns related to regional haze impacts. Nor is it necessary to set limits on ammonia slip to ensure compliance with NO_x emission limits because NO_x CEMS will be used.

J. Comments Requesting an Extension to the Public Comment Period

Comment: One commenter requested that the comment period be extended to December 21, 2011 and Governor Dalrymple and Senator Hoeven requested the time allotted for the public hearings be increased.

Response: The comment period for our proposal closed on November 21, 2011. We carefully considered the request for an extension to the comment period.

We took into consideration how an extension might affect our ability to consider comments received on the proposed action and still comply with our consent decree deadlines. We do note that our October 13 and 14, 2011, public hearing in Bismarck, North Dakota was well attended and provided an opportunity for people to comment on our proposal. Also regarding the public hearings, we agreed to Governor Dalrymple's and Senator Hoeven's requests to extend the length of the public hearing and to allow as much time as needed for state representatives to present their comments.

K. Comments Generally in Favor of Our Proposal

Comment: Overall, we received more than 24,000 comment letters in support of our rulemaking from members representing various organizations, concerned citizens, and tribal members. These comments were received at the Public Hearing in Bismarck, North Dakota, by internet, and through the mail. Each of these commenters was generally in favor of portions of our proposed decision for North Dakota regional haze. These comments included comments urging us to require the most effective pollution control technology, SCR, at LOS 2, and MRYS 1 and 2 and additional emission reductions from CCS 1 and 2 and AVS 1 and 2. Some of these comments also discussed the detrimental health effects of haze pollution and the economic impacts of these health effects. Some of these comments urged us to keep or lower our proposed numeric limits on

NO_x for MRYS and LOS 2 in our final decision. These letters also asked us to require other units at LOS, Heskett Station, and Stanton Station to modernize and reduce their air pollution impacts.

Response: We acknowledge the support of these commenters for our proposed action. We note that several of the control technology determinations and emissions limits supported by these commenters in the proposal have been changed in this final action based on the Minnkota BACT court decision and all of the information received during the comment period. Please see the docket associated with this action for additional detail. To the extent the comments asserted the need for more stringent controls, we address those comments in other responses.

L. Comments Generally Against Our Proposal

Comment: Various commenters generally stated they did not support the proposed rulemaking. Their reasons included: it will affect the town's economy, affect the coal power plant industry, electricity costs will increase, they have no direct health problems from actual emissions, direct and indirect jobs/businesses would be affected, North Dakota already meets air quality standards, that there will be no benefit to the community, that our decision relies on unproven technology, and that it will not result in noticeable visibility improvements.

We received three resolutions from cities in Minnesota, including Roseau, Big Falls, and Little

Fork, which opposed our rulemaking. These resolutions included comments about the proposed FIP for SCR technology at MRYS, including comments about the high cost, that the technology had not been shown to work at similar plants, and that there would be no humanly perceptible visibility improvements over the State's plan. The resolutions also noted that Minnkota had already incurred significant costs for installing SNCR and contracting for renewable sources, and that these expenditures were resulting in rate increases.

We received petitions and mass mailer letters from nine rural power cooperative associations and over 3,000 comments generated through a Web site established by an organization named Partners for Affordable Energy. Comments from these letters and emails included the following: that Congress left the primary responsibility for SIPs with states, that states have superior knowledge of local conditions and needs, and that EPA's plan would provide imperceptible visibility benefits at huge costs. The comments also urged EPA to allow North Dakota to make its own decisions regarding its clean air programs.

Response: We acknowledge these general comments that opposed our proposed action. We provide responses that address these issues elsewhere in this action. We have made changes from our proposal, as noted elsewhere in this action.

VI. Statutory and Executive Order Reviews

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

This action is not a "significant regulatory action" under the terms of Executive Order 12866 (58 FR 51735, October 4, 1993) and is therefore not subject to review under Executive Orders 12866 and 13563 (76 FR 3821, January 21, 2011). As discussed in detail in section C below, the FIP applies to only two facilities. It is therefore not a rule of general applicability.

B. Paperwork Reduction Act

This action does not impose an information collection burden under the provisions of the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.* Under the Paperwork Reduction Act, a "collection of information" is defined as a requirement for "answers to * * * identical reporting or recordkeeping requirements imposed on ten or more persons * * * ." 44 U.S.C. 3502(3)(A). Because the FIP applies to just two facilities, the Paperwork Reduction Act does not apply. *See* 5 CFR 1320(c).

Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information.

An agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid Office of Management and Budget (OMB) control number. The OMB control numbers for our regulations in 40 CFR are listed in 40 CFR Part 9.

C. Regulatory Flexibility Act

The Regulatory Flexibility Act (RFA) generally requires an agency to prepare [20940] a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act or any other statute unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small organizations, and small governmental jurisdictions.

For purposes of assessing the impacts of today's rule on small entities, small entity is defined as: (1) A small business as defined by the Small Business Administration's (SBA) regulations at 13 CFR 121.201;

(2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.

After considering the economic impacts of this action on small entities, I certify that this proposed action will not have a significant economic impact on a substantial number of small entities. The FIP that EPA is finalizing for purposes of the visibility prong of section 110(a)(2)(D)(i)(II) consists of the combination of the approval of the State's RH SIP submission and the Regional Haze FIP by EPA that adds additional controls to certain sources. The Regional Haze FIP that EPA is finalizing for purposes of the regional haze program consists of imposing federal controls to meet the BART requirement for NO_x emissions at one source in North Dakota, and imposing controls to meet the reasonable progress requirement for NO_x emissions at one additional source in North Dakota. The net result of these two simultaneous FIP actions is that EPA is proposing direct emission controls on selected units at only two sources. The sources in question are each large electric generating plants that are not owned by small entities, and therefore are not small entities. The partial approval of the SIP merely approves state law as meeting Federal requirements and imposes no additional requirements beyond those imposed by state law. *See Mid-Tex Electric Cooperative, Inc.* v. *FERC,* 773 F.2d 327 (D.C. Cir. 1985).

D. Unfunded Mandates Reform Act (UMRA)

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), Public Law 104-4, establishes requirements for Federal agencies to assess the effects of their regulatory actions on State, local, and Tribal governments and the private sector. Under section 202 of UMRA, EPA generally must prepare a written statement, including a cost-benefit analysis, for proposed and final rules with "Federal mandates" that may result in expenditures to State, local, and Tribal governments, in the aggregate, or to the private sector, of $100 million or more (adjusted for inflation) in any 1 year. Before promulgating an EPA rule for which a written statement is needed, section 205 of UMRA generally requires EPA to identify and consider a reasonable number of regulatory alternatives and to adopt the least costly, most cost-effective, or least burdensome alternative that achieves the objectives of the rule. The provisions of section 205 of UMRA do not apply when they are inconsistent with applicable law. Moreover, section 205 of UMRA allows EPA to adopt an alternative other than the least costly, most cost-effective, or least burdensome alternative if the Administrator publishes with the final rule an explanation why that alternative was not adopted. Before EPA establishes any regulatory requirements that may significantly or uniquely affect small governments, including Tribal governments, it must have developed under section 203 of UMRA a small government agency plan. The plan must provide for notifying potentially affected small governments, enabling officials of affected small governments to have meaningful and timely input in the development of EPA regulatory proposals with significant Federal intergovernmental mandates, and informing, educating, and advising small governments on compliance with the regulatory requirements.

Under Title II of UMRA, EPA has determined that this rule does not contain a Federal mandate that may result in expenditures that exceed the inflation-adjusted UMRA threshold of $100 million by State, local, or Tribal governments or the private sector in any 1 year. In addition, this rule does not contain a significant Federal intergovernmental mandate as described by section 203 of UMRA nor does it contain any regulatory requirements that might significantly or uniquely affect small governments.

E. Executive Order 13132: Federalism

Federalism (64 FR 43255, August 10, 1999) revokes and replaces Executive Orders 12612 (Federalism) and 12875 (Enhancing the Intergovernmental Partnership). Executive Order 13132 requires EPA to develop an accountable process to ensure "meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications." "Policies that have federalism implications" is defined in the Executive Order to include regulations that have "substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government." Under Executive Order 13132, EPA may not issue a regulation that has federalism implications, that imposes substantial direct compliance costs, and that is not required by statute, unless the Federal government provides the funds necessary to pay the direct compliance costs incurred by State and local governments, or EPA consults with State and local officials early in the process of developing the proposed regulation. EPA also may not issue a regulation that has federalism implications and that preempts State law unless the Agency consults with State and local officials early in the process of developing the proposed regulation.

This rule will not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132, because it merely addresses the State not fully meeting its obligation to prohibit emissions from interfering with other states' measures to protect visibility established in the CAA and not fully meeting its obligation to adopt a SIP that meets the regional haze requirements under the CAA. Thus, Executive Order 13132 does not apply to this action.

F. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments

Executive Order 13175, entitled *Consultation and Coordination with Indian Tribal Governments* (65 FR 67249, November 9, 2000), requires EPA to develop an accountable process to ensure "meaningful and timely input by tribal officials in the development of regulatory policies that have tribal implications." We believe this rule does not have tribal implications, as specified in Executive Order 13175, and will not have substantial direct effects on tribal governments. Thus, Executive Order 13175 does not apply to this rule.

G. Executive Order 13045: Protection of Children From Environmental Health Risks and Safety Risks

Executive Order 13045: *Protection of Children from Environmental Health* [20941] *Risks and Safety Risks* (62 FR 19885, April 23, 1997), applies to any rule that: (1) Is determined to be economically significant as defined under Executive Order 12866; and (2) concerns an environmental health or safety risk that we have reason to believe may have a disproportionate effect on children. EPA interprets EO 13045 as applying only to those regulatory actions that concern health or safety risks, such that the analysis required under section 5-501 of the EO has the potential to influence the regulation. This action is not subject to EO 13045 because it implements specific standards established by Congress in statutes. However, to the extent this rule will limit emissions of NO_x, the rule will have a beneficial effect on children's health by reducing air pollution.

H. Executive Order 13211: Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use

This action is not subject to Executive Order 13211 (66 FR 28355 (May 22, 2001)), because it is not a significant regulatory action under Executive Order 12866.

I. National Technology Transfer and Advancement Act

Section 12 of the National Technology Transfer and Advancement Act (NTTAA) of 1995 requires Federal agencies to evaluate existing technical standards when developing a new regulation. To comply with NTTAA, EPA must consider and use "voluntary consensus standards" (VCS) if available and applicable when developing programs and policies unless doing so would be inconsistent with applicable law or otherwise impractical.

The EPA believes that VCS are inapplicable to this action. Today's action does not require the public to perform activities conducive to the use of VCS.

J. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations

Executive Order 12898 (59 FR 7629, February 16, 1994), establishes federal executive policy on environmental justice. Its main provision directs federal agencies, to the greatest extent practicable and permitted by law, to make environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations in the United States.

We have determined that this rule will not have disproportionately high and adverse human health or environmental effects on minority or low-income populations because it increases the level of environmental protection for all affected populations without having any disproportionately high and adverse human health or environmental effects on any population, including any minority or low-income population. This rule limits emissions of NO_x from two facilities in North Dakota. The partial approval of the SIP merely approves state law as meeting Federal requirements and imposes no additional requirements beyond those imposed by state law.

K. Congressional Review Act

The Congressional Review Act, 5 U.S.C. 801 *et seq.,* as added by the Small Business Regulatory Enforcement Fairness Act of 1996, generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of the Congress and to the Comptroller General of the United States. EPA will submit a report containing this action and other required information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the United States prior to publication of the rule in the **Federal Register**. A major rule cannot take effect until 60 days after it is published in the **Federal Register**. This action is not a "major rule" as defined by 5 U.S.C. 804(2). This rule will be effective on May 7, 2012.

L. Judicial Review

Under section 307(b)(1) of the CAA, petitions for judicial review of this action must be filed in the United States Court of Appeals for the appropriate circuit by June 5, 2012. Pursuant to CAA section 307(d)(1)(B), this action is subject to the requirements of CAA section 307(d) as it promulgates a FIP under CAA section 110(c). Filing a petition for reconsideration by the Administrator of this final rule does not affect the finality of this action for the purposes of judicial review nor does it extend the time within which a petition for judicial review may be filed, and shall not postpone the effectiveness of such rule or action. This action may not be challenged later in proceedings to enforce its requirements. See CAA section 307(b)(2).

Approval and Promulgation of Implementation Plans; North Dakota; Regional Haze State Implementation Plan; Federal Implementation Plan for Interstate Transport of Pollution Affecting Visibility and Regional Haze. Final Rule. (EPA-R08-OAR-2010-0406)

List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Intergovernmental relations, Incorporation by reference, Nitrogen dioxides, Particulate matter, Reporting and recordkeeping requirements, Sulfur dioxide, Volatile organic compounds.

Dated: March 1, 2012.

Lisa P. Jackson,
Administrator.

40 CFR part 52 is amended as follows:

PART 52 – [AMENDED]

■ 1. The authority citation for part 52 continues to read as follows:

Authority: 42 U.S.C. 7401 *et seq*.

Subpart JJ – North Dakota

■ 2. Section 52.1820 is amended by:

■ a. Adding to the table in paragraph (c) an entry entitled "33-15-25 Regional Haze Requirements" at the end of the table.

■ b. Revising the table in paragraph (d).

■ c. Adding to the table in paragraph (e)entries "(23)," "(24)," and "(25)" in numerical order at the end of the table.

The revisions and additions read as follows:

§52.1820 Identification of plan.

* * * * *

(c) * * *

[20942] State citation	Title/subject	State effective date	EPA approval date and citation[1]	Explanations
* *	*	*	* *	*
33-15-25 Regional Haze Requirements				
33-15-25-01	Definitions	1/1/07	4/6/12, [Insert **Federal Register** page number where the document begins.].	
33-15-25-02	Best available retrofit technology	1/1/07	4/6/12, [Insert **Federal Register** page number where the document begins.].	
33-15-25-03	Guidelines for best available retrofit technology determinations under the regional haze rule.	1/1/07	4/6/12, [Insert **Federal Register** page number where the document begins.].	
33-15-25-04	Monitoring, recordkeeping, and reporting.	1/1/07	4/6/12, [Insert **Federal Register** page number where the document begins.].	

[1] In order to determine the EPA effective date for a specific provision listed in this table, consult the **Federal Register** notice cited in this column for the particular provision.

*   *   *   *   *   (d) * * *

Name of source	Nature of requirement	State effective date	EPA approval date and citation[3]	Explanations
Leland Olds Station Unit 1	SIP Chapter 8, Section 8.3, Continuous Emission Monitoring Requirements for Existing Stationary Sources, including amendments to Permits to Operate and Department Order.	5/6/77	10/17/77, 42 FR 55471.	
	Air pollution control permit to construct for best available retrofit technology (BART), PTC10004.	2/23/10	4/6/12, [Insert **Federal Register** page number where the document begins.].	
Leland Olds Station Unit 2	SIP Chapter 8, Section 8.3, Continuous Emission Monitoring Requirements for Existing Stationary Sources, including amendments to Permits to Operate and Department Order.	5/6/77	10/17/77, 42 FR 55471.	
	Air pollution control permit to construct for best available retrofit technology (BART), PTC10004.	2/23/10	4/6/12, [Insert **Federal Register** page number where the document begins.].	
Milton R. Young Station Unit 1	SIP Chapter 8, Section 8.3, Continuous Emission Monitoring Requirements for Existing Stationary Sources, including amendments to Permits to Operate and Department Order.	5/6/77	10/17/77, 42 FR 55471.	
	Air pollution control permit to construct for best available retrofit technology (BART), PTC10007.	2/23/10	4/6/12, [Insert **Federal Register** page number where the document begins.].	
Milton R. Young Station Unit 2	Air pollution control permit to construct for best available retrofit	2/23/10	4/6/12, [Insert **Federal Register** page number where	

[3] In order to determine the EPA effective date for a specific provision listed in this table, consult the **Federal Register** notice cited in this column for the particular provision.

	technology (BART), PTC10007.		the document begins.].	
Coal Creek Station Unit 1	Air pollution control permit to construct for best available retrofit technology (BART), PTC10007.	2/23/10	4/6/12, [Insert **Federal Register** page number where the document begins.].	Excluding the NO_x BART emissions limits for Unit 1 and corresponding monitoring, recordkeeping, and reporting requirements, which EPA disapproved.
[20943] Coal Creek Station Unit 2	Air pollution control permit to construct for best available retrofit technology (BART), PTC10005.	2/23/10	4/6/12, [Insert **Federal Register** page number where the document begins.].	Excluding the NO_x BART emissions limits for Unit 2 and corresponding monitoring, recordkeeping, and reporting requirements, which EPA disapproved.
Stanton Station Unit 1	SIP Chapter 8, Section 8.3, Continuous Emission Monitoring Requirements for Existing Stationary Sources, including amendments to Permits to Operate and Department Order.	5/6/77	10/17/77, 42 FR 55471.	
	Air pollution control permit to construct for best available retrofit technology (BART), PTC10006.	2/23/10	4/6/12, [Insert **Federal Register** page number where the document begins.].	

Heskett Station Unit 1	SIP Chapter 8, Section 8.3, Continuous Emission Monitoring Requirements for Existing Stationary Sources, including amendments to Permits to Operate and Department Order.	5/6/77	10/17/77, 42 FR 55471.
Heskett Station Unit 2	SIP Chapter 8, Section 8.3, Continuous Emission Monitoring Requirements for Existing Stationary Sources, including amendments to Permits to Operate and Department Order.	5/6/77	10/17/77, 42 FR 55471.
	Air Pollution Control Permit to Construct, PTC10028.	7/22/10	4/6/12, [Insert **Federal Register** page number where the document begins.].
Coyote Station Unit 1	Air Pollution Control Permit to Construct, PTC10008.	3/14/11	4/6/12, [Insert **Federal Register** page number where the document begins.].
American Crystal Sugar at Drayton.	SIP Chapter 8, Section 8.3, Continuous Emission Monitoring Requirements for Existing Stationary Sources, including amendments to Permits to Operate and Department Order.	5/6/77	10/17/77, 42 FR 55471.
Tesoro Mandan Refinery	SIP Chapter 8, Section 8.3.1, Continuous Opacity Monitoring for Fluid Bed Catalytic Cracking Units: Tesoro Refining and Marketing Co., Mandan Refinery.	2/27/07	5/27/08, 73 FR 30308.

*   *   *   *   *   (e) * * *

[20944] Name of nonregulatory SIP provision	Applicable geographic or nonattainment area	State submittal date/adopted date	EPA approval date and citation[3]	Explanations
*	*	*	* *	* *
(23) North Dakota State Implementation Plan for Regional Haze.	Statewide	Submitted: 3/3/10	4/6/12, [Insert **Federal Register** page number where the document begins.].	Excluding portions of the following: Sections 7.4, 9.5, 9.7, and 10.6, and Appendices B.2, and D.2, and all of Appendix A.4, because EPA disapproved the NO_x BART determination for Coal Creek Station Units 1 and 2, the reasonable progress determination for Antelope Valley Station Units 1 and 2 regarding NO_x controls, the reasonable progress goals, and parts of the long-term strategy, and because the provisions applicable to Coyote Station were superseded by a later submittal.
(24) North Dakota State Implementation Plan for Regional Haze Supplement No. 1.	Statewide	Submitted: 7/27/10	4/6/12, [Insert **Federal Register** page number where the document begins.].	
(25) North Dakota State Implementation Plan for Regional Haze Amendment No. 1.	Statewide	Submitted: 7/28/11	4/6/12, [Insert **Federal Register** page number where the document begins.].	Including only Section 10.6.1.2, Appendix A.4, and introductory elements that pertain to the NO_x requirements for Coyote Station; excluding all other portions of the submittal.

[3] In order to determine the EPA effective date for a specific provision listed in this table, consult the **Federal Register** notice cited in this column for the particular provision.

■ 3. Section 52.1825 is added as follows:

§ 52.1825 Federal Implementation Plan for Regional Haze.

(a) *Applicability.* This section applies to each owner and operator of the following coal-fired electric generating units (EGUs) in the State of North Dakota: Coal Creek Station, Units 1 and 2; Antelope Valley Station, Units 1 and 2.

(b) *Definitions.* Terms not defined below shall have the meaning given them in the Clean Air Act or EPA's regulations implementing the Clean Air Act. For purposes of this section:

(1) *Boiler operating day* means a 24-hour period between 12 midnight and the following midnight during which any fuel is combusted at any time in the EGU. It is not necessary for fuel to be combusted for the entire 24-hour period.

(2) *Continuous emission monitoring system or CEMS* means the equipment required by this section to sample, analyze, measure, and provide, by means of readings recorded at least once every 15 minutes (using an automated data acquisition and handling system (DAHS)), a permanent record of NO_x emissions, other pollutant emissions, diluent, or stack gas volumetric flow rate.

(3) NO_x means nitrogen oxides.

(4) *Owner/operator* means any person who owns or who operates, controls, or supervises an EGU identified in paragraph (a) of this section.

(5) *Unit* means any of the EGUs identified in paragraph (a) of this section.

(c) *Emissions limitations.* (1) The owners/operators subject to this section shall not emit or cause to be emitted NO_x in excess of the following limitations, in pounds per million British thermal units (lb/MMBtu), averaged over a rolling 30-day period:

Source name	NO_x Emission limit (lb/MMBtu)
Coal Creek Station, Units 1 and 2.	0.13, averaged across both units.
Antelope Valley Station, Unit 1.	0.17.
Antelope Valley Station, Unit 2.	0.17.

(2) These emission limitations shall apply at all times, including startups, shutdowns, emergencies, and malfunctions.

(d) *Compliance date.* The owners and operators of Coal Creek Station shall comply with the emissions limitation and other requirements of this section within five (5) years of the effective date of this rule, unless otherwise indicated in specific paragraphs. The owners and operators of Antelope Valley Station shall comply with the emissions limitations and other requirements of this section as expeditiously as practicable, but no later than July 31, 2018, unless otherwise indicated in specific paragraphs.

(e) *Compliance determination* – (1) *CEMS.* At all times after the compliance date specified in paragraph (d) of this section, the owner/operator of each unit shall maintain, calibrate, and operate a CEMS, in full compliance with the requirements found at 40 CFR part 75, to accurately measure NO_x, diluent, and stack gas volumetric flow rate from each unit. The CEMS shall be used to determine compliance with the [20945] emission limitations in paragraph (c) of this section for each unit.

(2) *Method.* (i) For any hour in which fuel is combusted in a unit, the owner/ operator of each unit shall calculate the hourly average NO_x concentration in lb/MMBtu at the CEMS in accordance with the requirements of 40 CFR part 75. At the end of each boiler operating day, the owner/operator shall calculate and record a new 30-day rolling average emission rate in lb/MMBtu from the arithmetic average of all valid hourly emission rates from the CEMS for the current boiler operating day and the previous 29 successive boiler operating days.

(ii) An hourly average NO_x emission rate in lb/MMBtu is valid only if the minimum number of data points, as specified in 40 CFR part 75, is acquired by both the NO_x pollutant concentration monitor and the diluent monitor (O_2 or CO_2).

(iii) Data reported to meet the requirements of this section shall not include data substituted using the missing data substitution procedures of subpart D of 40 CFR part 75, nor shall the data have been bias adjusted according to the procedures of 40 CFR part 75.

(f) *Recordkeeping*. Owner/operator shall maintain the following records for at least five years:

(1) All CEMS data, including the date, place, and time of sampling or measurement; parameters sampled or measured; and results.

(2) Records of quality assurance and quality control activities for emissions measuring systems including, but not limited to, any records required by 40 CFR part 75.

(3) Records of all major maintenance activities conducted on emission units, air pollution control equipment, and CEMS.

(4) Any other records required by 40 CFR part 75.

(g) *Reporting*. All reports under this section shall be submitted to the Director, Office of Enforcement, Compliance and Environmental Justice, U.S. Environmental Protection Agency, Region 8, Mail Code 8ENF-AT, 1595 Wynkoop Street, Denver, Colorado 80202-1129.

(1) Owner/operator shall submit quarterly excess emissions reports no later than the 30th day following the end of each calendar quarter. Excess emissions means emissions that exceed the emissions limits specified in paragraph (c) of this section. The reports shall include the magnitude, date(s), and

duration of each period of excess emissions, specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the unit, the nature and cause of any malfunction (if known), and the corrective action taken or preventative measures adopted.

(2) Owner/operator shall submit quarterly CEMS performance reports, to include dates and duration of each period during which the CEMS was inoperative (except for zero and span adjustments and calibration checks), reason(s) why the CEMS was inoperative and steps taken to prevent recurrence, any CEMS repairs or adjustments, and results of any CEMS performance tests required by 40 CFR part 75 (Relative Accuracy Test Audits, Relative Accuracy Audits, and Cylinder Gas Audits).

(3) When no excess emissions have occurred or the CEMS has not been inoperative, repaired, or adjusted during the reporting period, such information shall be stated in the report.

(h) *Notifications.* (1) Owner/operator shall submit notification of commencement of construction of any equipment which is being constructed to comply with the NO_x emission limits in paragraph (c) of this section.

(2) Owner/operator shall submit semiannual progress reports on construction of any such equipment.

(3) Owner/operator shall submit notification of initial startup of any such equipment.

(i) *Equipment operation.* At all times, owner/operator shall maintain each unit, including associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions.

(j) *Credible Evidence.* Nothing in this section shall preclude the use, including the exclusive use, of any credible evidence or information, relevant to whether a source would have been in compliance with requirements of this section if the appropriate performance or compliance test procedures or method had been performed.

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42 U.S.C. § 7410. State implementation plans for national primary and secondary ambient air quality standards

(a) Adoption of plan by State; submission to Administrator; content of plan; revision; new sources; indirect source review program; supplemental or intermittent control systems

(1) Each State shall, after reasonable notice and public hearings, adopt and submit to the Administrator, within 3 years (or such shorter period as the Administrator may prescribe) after the promulgation of a national primary ambient air quality standard (or any revision thereof) under section 7409 of this title for any air pollutant, a plan which provides for implementation, maintenance, and enforcement of such primary standard in each air quality control region (or portion thereof) within such State. In addition, such State shall adopt and submit to the Administrator (either as a part of a plan submitted under the preceding sentence or separately) within 3 years (or such shorter period as the Administrator may prescribe) after the promulgation of a national ambient air quality secondary standard (or revision thereof), a plan which provides for implementation, maintenance, and enforcement of such secondary standard in each air quality control region (or portion thereof) within such State. Unless a separate public hearing is provided, each State shall consider its plan implementing such secondary standard at the hearing required by the first sentence of this paragraph.

(2) Each implementation plan submitted by a State under this chapter shall be adopted by the State after reasonable notice and public hearing. Each such plan shall –

(A) include enforceable emission limitations and other control measures, means, or techniques (including economic incentives such as fees, marketable permits, and auctions of emissions rights), as well as schedules and timetables for compliance, as may be necessary or appropriate to meet the applicable requirements of this chapter;

(B) provide for establishment and operation of appropriate devices, methods, systems, and procedures necessary to –

(i) monitor, compile, and analyze data on ambient air quality, and

(ii) upon request, make such data available to the Administrator;

(C) include a program to provide for the enforcement of the measures described in subparagraph (A), and regulation of the modification and construction of any stationary source within the areas covered by the plan as necessary to assure that national ambient air quality standards are achieved, including a permit program as required in parts C and D of this subchapter;

(D) contain adequate provisions –

(i) prohibiting, consistent with the provisions of this subchapter, any source or other type of emissions activity within the State from emitting any air pollutant in amounts which will –

(I) contribute significantly to nonattainment in, or interfere with maintenance by, any other State with respect to any such national primary or secondary ambient air quality standard, or

(II) interfere with measures required to be included in the applicable implementation plan for any other State under part C of this subchapter to prevent significant deterioration of air quality or to protect visibility,

(ii) insuring compliance with the applicable requirements of sections 7426 and 7415 of this title (relating to interstate and international pollution abatement);

(E) provide (i) necessary assurances that the State (or, except where the Administrator deems inappropriate, the general purpose local government or governments, or a regional agency designated by the State or general purpose local governments for such purpose) will have adequate personnel, funding, and authority under State (and, as appropriate, local) law to carry out such implementation plan (and is not prohibited by any provision of Federal or State law from carrying out such implementation plan or portion thereof), (ii) requirements that the State comply with the requirements respecting State boards under section 7428 of this title, and (iii) necessary assurances that, where the State has relied on a local or regional government, agency, or instrumentality for the implementation of any plan provision, the State has responsibility for ensuring adequate implementation of such plan provision;

(F) require, as may be prescribed by the Administrator –

(i) the installation, maintenance, and replacement of equipment, and the implementation of other necessary steps, by owners or operators of stationary sources to monitor emissions from such sources,

(ii) periodic reports on the nature and amounts of emissions and emissions-related data from such sources, and

(iii) correlation of such reports by the State agency with any emission limitations or standards established pursuant to this chapter, which reports shall be available at reasonable times for public inspection;

(G) provide for authority comparable to that in section 7603 of this title and adequate contingency plans to implement such authority;

(H) provide for revision of such plan –

(i) from time to time as may be necessary to take account of revisions of such national primary or secondary ambient air quality standard or the availability of improved or more expeditious methods of attaining such standard, and

(ii) except as provided in paragraph (3)(C), whenever the Administrator finds on the basis of information available to the Administrator that the plan is substantially inadequate to attain the national ambient air quality standard which it implements or to otherwise comply with any additional requirements established under this chapter;

(I) in the case of a plan or plan revision for an area designated as a nonattainment area, meet the applicable requirements of part D of this subchapter (relating to nonattainment areas);

(J) meet the applicable requirements of section 7421 of this title (relating to consultation), section 7427 of this title (relating to public notification), and part C of this subchapter (relating to prevention of significant deterioration of air quality and visibility protection);

(K) provide for –

(i) the performance of such air quality modeling as the Administrator may prescribe for the purpose of predicting the effect on ambient air quality of any emissions of any air pollutant for which the Administrator has established a national ambient air quality standard, and

(ii) the submission, upon request, of data related to such air quality modeling to the Administrator;

(L) require the owner or operator of each major stationary source to pay to the permitting authority, as a condition of any permit required under this chapter, a fee sufficient to cover –

(i) the reasonable costs of reviewing and acting upon any application for such a permit, and

(ii) if the owner or operator receives a permit for such source, the reasonable costs of implementing and enforcing the terms and conditions of any such permit (not including any court costs or other costs associated with any enforcement action),

until such fee requirement is superseded with respect to such sources by the Administrator's approval of a fee program under subchapter V of this chapter; and

(M) provide for consultation and participation by local political subdivisions affected by the plan.

(3)(A) Repealed. Pub.L. 101-549, Title I, § 101(d)(1), Nov. 15, 1990, 104 Stat. 2409

(B) As soon as practicable, the Administrator shall, consistent with the purposes of this chapter and the Energy Supply and Environmental Coordination Act of 1974 [15 U.S.C.A. § 791 et seq.], review each State's applicable implementation plans and report to the State on whether such plans can be revised in relation to fuel burning stationary sources (or persons supplying fuel to such sources) without interfering with the attainment and maintenance of any national ambient air quality standard within the period permitted in this section. If the Administrator determines that any such plan can be revised, he shall notify the State that a plan revision may be submitted by the State. Any plan revision which is submitted by the State shall, after public notice and opportunity for public hearing, be approved by the Administrator if the revision relates only to fuel burning stationary sources (or persons supplying fuel to such sources), and the plan as revised complies with paragraph (2) of this subsection. The Administrator shall approve or disapprove any revision no later than three months after its submission.

(C) Neither the State, in the case of a plan (or portion thereof) approved under this subsection, nor the Administrator, in the case of a plan (or portion thereof) promulgated under subsection (c) of this section, shall be required to revise an applicable implementation plan because one or more exemptions under section 7418 of this title (relating to Federal facilities), enforcement orders under section 7413(d) of this title, suspensions under subsection (f) or (g) of this section (relating to temporary energy or economic authority), orders under section 7419 of this title (relating to primary nonferrous smelters), or extensions of compliance in decrees entered under section 7413(e) of this title (relating to iron- and steel-producing operations) have been granted, if such plan would have met the requirements of this section if no such exemptions, orders, or extensions had been granted.

(4) Repealed. Pub.L. 101-549, Title I, § 101(d)(2), Nov. 15, 1990, 104 Stat. 2409

(5)(A)(i) Any State may include in a State implementation plan, but the Administrator may not require as a condition of approval of such plan under this section, any indirect source review program. The Administrator may approve and enforce, as part of an applicable implementation plan, an indirect source review program which the State chooses to adopt and submit as part of its plan.

(ii) Except as provided in subparagraph (B), no plan promulgated by the Administrator shall include any indirect source review program for any air quality control region, or portion thereof.

(iii) Any State may revise an applicable implementation plan approved under this subsection to suspend or revoke any such program included in such plan, provided that such plan meets the requirements of this section.

(B) The Administrator shall have the authority to promulgate, implement and enforce regulations under subsection (c) of this section respecting indirect source review programs which apply only to federally assisted highways, airports, and other major federally assisted indirect sources and federally owned or operated indirect sources.

(C) For purposes of this paragraph, the term "indirect source" means a facility, building, structure, installation, real property, road, or highway which attracts, or may attract, mobile sources of pollution. Such term includes parking lots, parking garages, and other facilities subject to any measure for management of parking supply (within the meaning of subsection (c)(2)(D)(ii) of this section), including regulation of existing off-street parking but such term does not include new or existing on-street parking. Direct emissions sources or facilities at, within, or associated with, any indirect source shall not be deemed indirect sources for the purpose of this paragraph.

(D) For purposes of this paragraph the term "indirect source review program" means the facility-by-facility review of indirect sources of air pollution, including such measures as are necessary to assure, or assist in assuring, that a new or modified indirect source will not attract mobile sources of air pollution, the emissions from which would cause or contribute to air pollution concentrations –

> **(i)** exceeding any national primary ambient air quality standard for a mobile source-related air pollutant after the primary standard attainment date, or
>
> **(ii)** preventing maintenance of any such standard after such date.

(E) For purposes of this paragraph and paragraph (2)(B), the term "transportation control measure" does not include any measure which is an "indirect source review program".

(6) No State plan shall be treated as meeting the requirements of this section unless such plan provides that in the case of any source which uses a supplemental, or intermittent control system for purposes of meeting the requirements of an order under section 7413(d) of this title or section 7419 of this title (relating to primary nonferrous smelter orders), the owner or operator of such source may not temporarily reduce the pay of any employee by reason of the use of such supplemental or intermittent or other dispersion dependent control system.

(b) Extension of period for submission of plans

The Administrator may, wherever he determines necessary, extend the period for submission of any plan or portion thereof which implements a national secondary ambient air quality standard for a period not to exceed 18 months from the date otherwise required for submission of such plan.

(c) Preparation and publication by Administrator of proposed regulations setting forth implementation plan; transportation regulations study and report; parking surcharge; suspension authority; plan implementation

(1) The Administrator shall promulgate a Federal implementation plan at any time within 2 years after the Administrator –

> **(A)** finds that a State has failed to make a required submission or finds that the plan or plan revision submitted by the State does not satisfy the minimum criteria established under subsection (k)(1)(A) of this section, or
>
> **(B)** disapproves a State implementation plan submission in whole or in part,

unless the State corrects the deficiency, and the Administrator approves the plan or plan revision, before the Administrator promulgates such Federal implementation plan.

(2)(A) Repealed. Pub.L. 101-549, Title I, § 101(d)(3)(A), Nov. 15, 1990, 104 Stat. 2409

(B) No parking surcharge regulation may be required by the Administrator under paragraph (1) of this subsection as a part of an applicable implementation plan. All parking surcharge regulations previously required by the Administrator shall be void upon June 22, 1974. This subparagraph shall not prevent the Administrator from approving parking surcharges if they are adopted and submitted by a State as part of an applicable implementation plan. The Administrator may not condition approval of any implementation plan submitted by a State on such plan's including a parking surcharge regulation.

(C) Repealed. Pub.L. 101-549, Title I, § 101(d)(3)(B), Nov. 15, 1990, 104 Stat. 2409

(D) For purposes of this paragraph –

> **(i)** The term "parking surcharge regulation" means a regulation imposing or requiring the imposition of any tax, surcharge, fee, or other charge on parking spaces, or any other area used for the temporary storage of motor vehicles.
>
> **(ii)** The term "management of parking supply" shall include any requirement providing that any new facility containing a given number of parking spaces shall receive a permit or other prior approval, issuance of which is to be conditioned on air quality considerations.

(iii) The term "preferential bus/carpool lane" shall include any requirement for the setting aside of one or more lanes of a street or highway on a permanent or temporary basis for the exclusive use of buses or carpools, or both.

(E) No standard, plan, or requirement, relating to management of parking supply or preferential bus/carpool lanes shall be promulgated after June 22, 1974, by the Administrator pursuant to this section, unless such promulgation has been subjected to at least one public hearing which has been held in the area affected and for which reasonable notice has been given in such area. If substantial changes are made following public hearings, one or more additional hearings shall be held in such area after such notice.

(3) Upon application of the chief executive officer of any general purpose unit of local government, if the Administrator determines that such unit has adequate authority under State or local law, the Administrator may delegate to such unit the authority to implement and enforce within the jurisdiction of such unit any part of a plan promulgated under this subsection. Nothing in this paragraph shall prevent the Administrator from implementing or enforcing any applicable provision of a plan promulgated under this subsection.

(4) Repealed. Pub.L. 101-549, Title I, § 101(d)(3)(C), Nov. 15, 1990, 104 Stat. 2409

(5)(A) Any measure in an applicable implementation plan which requires a toll or other charge for the use of a bridge located entirely within one city shall be eliminated from such plan by the Administrator upon application by the Governor of the State, which application shall include a certification by the Governor that he will revise such plan in accordance with subparagraph (B).

(B) In the case of any applicable implementation plan with respect to which a measure has been eliminated under subparagraph (A), such plan shall, not later than one year after August 7, 1977, be revised to include comprehensive measures to:

(i) establish, expand, or improve public transportation measures to meet basic transportation needs, as expeditiously as is practicable; and

(ii) implement transportation control measures necessary to attain and maintain national ambient air quality standards, and such revised plan shall, for the purpose of implementing such comprehensive public transportation measures, include requirements to use (insofar as is necessary) Federal grants, State or local funds, or any combination of such grants and funds as may be consistent with the terms of the legislation providing such grants and funds. Such measures shall, as a substitute for the tolls or charges eliminated under subparagraph (A), provide for emissions reductions equivalent to the reductions which may reasonably be expected to be achieved through the use of the tolls or charges eliminated.

(C) Any revision of an implementation plan for purposes of meeting the requirements of subparagraph (B) shall be submitted in coordination with any plan revision required under part D of this subchapter.

(d), (e) Repealed. Pub.L. 101-549, Title I, § 101(d)(4), (5), Nov. 15, 1990, 104 Stat. 2409

(f) National or regional energy emergencies; determination by President

(1) Upon application by the owner or operator of a fuel burning stationary source, and after notice and opportunity for public hearing, the Governor of the State in which such source is located may petition the President to determine that a national or regional energy emergency exists of such severity that –

> **(A)** a temporary suspension of any part of the applicable implementation plan or of any requirement under section 7651j of this title (concerning excess emissions penalties or offsets) may be necessary, and
>
> **(B)** other means of responding to the energy emergency may be inadequate.

Such determination shall not be delegable by the President to any other person. If the President determines that a national or regional energy emergency of such severity exists, a temporary emergency suspension of any part of an applicable implementation plan or of any requirement under section 7651j of this title (concerning excess emissions penalties or offsets) adopted by the State may be issued by the

Governor of any State covered by the President's determination under the condition specified in paragraph (2) and may take effect immediately.

(2) A temporary emergency suspension under this subsection shall be issued to a source only if the Governor of such State finds that –

> **(A)** there exists in the vicinity of such source a temporary energy emergency involving high levels of unemployment or loss of necessary energy supplies for residential dwellings; and
>
> **(B)** such unemployment or loss can be totally or partially alleviated by such emergency suspension.

Not more than one such suspension may be issued for any source on the basis of the same set of circumstances or on the basis of the same emergency.

(3) A temporary emergency suspension issued by a Governor under this subsection shall remain in effect for a maximum of four months or such lesser period as may be specified in a disapproval order of the Administrator, if any. The Administrator may disapprove such suspension if he determines that it does not meet the requirements of paragraph (2).

(4) This subsection shall not apply in the case of a plan provision or requirement promulgated by the Administrator under subsection (c) of this section, but in any such case the President may grant a temporary emergency suspension for a four month period of any such provision or requirement if he makes the determinations and findings specified in paragraphs (1) and (2).

(5) The Governor may include in any temporary emergency suspension issued under this subsection a provision delaying for a period identical to the period of such suspension any compliance schedule (or increment of progress) to which such source is subject under section 1857c-10 of this title, as in effect before August 7, 1977, or section 7413(d) of this title, upon a finding that such source is unable to comply with such schedule (or increment) solely because of the conditions on the basis of which a suspension was issued under this subsection.

(g) Governor's authority to issue temporary emergency suspensions

(1) In the case of any State which has adopted and submitted to the Administrator a proposed plan revision which the State determines –

> **(A)** meets the requirements of this section, and
>
> **(B)** is necessary (i) to prevent the closing for one year or more of any source of air pollution, and (ii) to prevent substantial increases in unemployment which would result from such closing, and

which the Administrator has not approved or disapproved under this section within 12 months of submission of the proposed plan revision, the Governor may issue a temporary emergency suspension of the part of the applicable implementation plan for such

State which is proposed to be revised with respect to such source. The determination under subparagraph (B) may not be made with respect to a source which would close without regard to whether or not the proposed plan revision is approved.

(2) A temporary emergency suspension issued by a Governor under this subsection shall remain in effect for a maximum of four months or such lesser period as may be specified in a disapproval order of the Administrator. The Administrator may disapprove such suspension if he determines that it does not meet the requirements of this subsection.

(3) The Governor may include in any temporary emergency suspension issued under this subsection a provision delaying for a period identical to the period of such suspension any compliance schedule (or increment of progress) to which such source is subject under section 1857c-10 of this title as in effect before August 7, 1977, or under section 7413(d) of this title upon a finding that such source is unable to comply with such schedule (or increment) solely because of the conditions on the basis of which a suspension was issued under this subsection.

(h) Publication of comprehensive document for each State setting forth requirements of applicable implementation plan

(1) Not later than 5 years after November 15, 1990, and every 3 years thereafter, the Administrator shall assemble and publish a comprehensive document for each State setting forth all requirements of the applicable implementation plan for such State and shall publish notice in the Federal Register of the availability of such documents.

(2) The Administrator may promulgate such regulations as may be reasonably necessary to carry out the purpose of this subsection.

(i) Modification of requirements prohibited

Except for a primary nonferrous smelter order under section 7419 of this title, a suspension under subsection (f) or (g) of this section (relating to emergency suspensions), an exemption under section 7418 of this title (relating to certain Federal facilities), an order under section 7413(d) of this title (relating to compliance orders), a plan promulgation under subsection (c) of this section, or a plan revision under subsection (a)(3) of this section, no order, suspension, plan revision, or other action modifying any requirement of an applicable implementation plan may be taken with respect to any stationary source by the State or by the Administrator.

(j) Technological systems of continuous emission reduction on new or modified stationary sources; compliance with performance standards

As a condition for issuance of any permit required under this subchapter, the owner or operator of each new or modified stationary source which is required to obtain such a permit must show to the satisfaction of the permitting authority that the technological system of continuous emission reduction which is to be used at such source will enable it to comply with the standards of performance which are to apply to such source and that the construction or modification and operation of such source will be in compliance with all other requirements of this chapter.

(k) Environmental Protection Agency action on plan submissions

(1) Completeness of plan submissions

(A) Completeness criteria

Within 9 months after November 15, 1990, the Administrator shall promulgate minimum criteria that any plan submission must meet before the Administrator is required to act on such submission under this subsection. The criteria shall be limited to the information necessary to enable the Administrator to determine whether the plan submission complies with the provisions of this chapter.

(B) Completeness finding

Within 60 days of the Administrator's receipt of a plan or plan revision, but no later than 6 months after the date, if any, by which a State is required to submit the plan or revision, the Administrator shall determine whether the minimum criteria established pursuant to subparagraph (A) have been met. Any plan or plan revision that a State submits to the Administrator, and that has not been determined by the Administrator (by the date 6 months after receipt of the submission) to have failed to meet the minimum criteria established pursuant to subparagraph (A), shall on that date be deemed by operation of law to meet such minimum criteria.

(C) Effect of finding of incompleteness

Where the Administrator determines that a plan submission (or part thereof) does not meet the minimum criteria established pursuant to subparagraph (A), the State shall be treated as not having made the submission (or, in the Administrator's discretion, part thereof).

(2) Deadline for action

Within 12 months of a determination by the Administrator (or a determination deemed by operation of law) under paragraph (1) that a State has submitted a plan or plan revision (or, in the Administrator's discretion, part thereof) that meets the minimum criteria established pursuant to paragraph (1), if applicable (or, if those criteria are not applicable, within 12 months of submission of the plan or revision), the Administrator shall act on the submission in accordance with paragraph (3).

(3) Full and partial approval and disapproval

In the case of any submittal on which the Administrator is required to act under paragraph (2), the Administrator shall approve such submittal as a whole if it meets all of the applicable requirements of this chapter. If a portion of the plan revision meets all the applicable requirements of this chapter, the Administrator may approve the plan revision in part and disapprove the plan revision in part. The plan revision shall not be treated as meeting the requirements of this chapter until the Administrator approves the entire plan revision as complying with the applicable requirements of this chapter.

(4) Conditional approval

The Administrator may approve a plan revision based on a commitment of the State to adopt specific enforceable measures by a date certain, but not later than 1 year after the date of approval of the plan revision. Any such conditional approval shall be treated as a disapproval if the State fails to comply with such commitment.

(5) Calls for plan revisions

Whenever the Administrator finds that the applicable implementation plan for any area is substantially inadequate to attain or maintain the relevant national ambient air quality standard, to mitigate adequately the interstate pollutant transport described in section 7506a of this title or section 7511c of this title, or to otherwise comply with any requirement of this chapter, the Administrator shall require the State to revise the plan as necessary to correct such inadequacies. The Administrator shall notify the State of the inadequacies, and may establish reasonable deadlines (not to exceed 18 months after the date of such notice) for the submission of such plan revisions. Such findings and notice shall be public. Any finding under this paragraph shall, to the extent the Administrator deems appropriate, subject the State to the requirements of this chapter to which the State was subject when it developed and submitted the plan for which such finding was made, except that the Administrator may adjust any dates applicable under such requirements as appropriate (except that the Administrator may not adjust any attainment date prescribed under part D of this subchapter, unless such date has elapsed).

(6) Corrections

Whenever the Administrator determines that the Administrator's action approving, disapproving, or promulgating any plan or plan revision (or part thereof), area designation, redesignation, classification, or reclassification was in error, the Administrator may in the same manner as the approval, disapproval, or promulgation revise such action as appropriate without requiring any further submission from the State. Such determination and the basis thereof shall be provided to the State and public.

(l) Plan revisions

Each revision to an implementation plan submitted by a State under this chapter shall be adopted by such State after reasonable notice and public hearing. The Administrator shall not approve a revision of a plan if the revision would interfere with any applicable requirement concerning attainment and reasonable further progress (as defined in section 7501 of this title), or any other applicable requirement of this chapter.

(m) Sanctions

The Administrator may apply any of the sanctions listed in section 7509(b) of this title at any time (or at any time after) the Administrator makes a finding, disapproval, or determination under paragraphs (1) through (4), respectively, of section 7509(a) of this title in relation to any plan or plan item (as that term is defined by the Administrator) required under this chapter, with respect to any portion of the State the Administrator determines reasonable and appropriate, for the purpose of ensuring that the requirements of this chapter relating to such plan or plan item are met. The Administrator shall, by rule, establish criteria for exercising his authority under the previous sentence with respect to any deficiency referred to in section 7509(a) of this title to ensure that, during the 24-month period following the finding, disapproval, or determination referred to in section 7509(a) of this title, such sanctions are not applied on a statewide basis where one or more political subdivisions covered by the applicable implementation plan are principally responsible for such deficiency.

(n) Savings clauses

(1) Existing plan provisions

Any provision of any applicable implementation plan that was approved or promulgated by the Administrator pursuant to this section as in effect before November 15, 1990, shall remain in effect as part of such applicable implementation plan, except to the extent that a revision to such provision is approved or promulgated by the Administrator pursuant to this chapter.

(2) Attainment dates

For any area not designated nonattainment, any plan or plan revision submitted or required to be submitted by a State –

(A) in response to the promulgation or revision of a national primary ambient air quality standard in effect on November 15, 1990, or

(B) in response to a finding of substantial inadequacy under subsection (a)(2) of this section (as in effect immediately before November 15, 1990), shall provide for attainment of the national primary ambient air quality standards within 3 years of November 15, 1990, or within 5 years of issuance of such finding of substantial inadequacy, whichever is later.

(3) Retention of construction moratorium in certain areas

In the case of an area to which, immediately before November 15, 1990, the prohibition on construction or modification of major stationary sources prescribed in subsection (a)(2)(I) of this section (as in effect immediately before November 15, 1990) applied by virtue of a finding of the Administrator that the State containing such area had not submitted an implementation plan meeting the requirements of section 7502(b)(6) of this title (relating to establishment of a permit program) (as in effect immediately before November 15, 1990) or 7502(a)(1) of this title (to the extent such requirements relate to provision for attainment of the primary national ambient air quality standard for sulfur oxides by December 31, 1982) as in effect immediately before November 15, 1990, no major stationary source of the relevant air pollutant or pollutants shall be constructed or modified in such area until the Administrator finds that the plan for such area meets the applicable requirements of section 7502(c)(5) of this title (relating to permit programs) or subpart 5 of part D of this subchapter (relating to attainment of the primary national ambient air quality standard for sulfur dioxide), respectively.

(o) Indian tribes

If an Indian tribe submits an implementation plan to the Administrator pursuant to section 7601(d) of this title, the plan shall be reviewed in accordance with the provisions for review set forth in this section for State plans, except as otherwise provided by regulation promulgated pursuant to section 7601(d)(2) of this title. When such plan becomes effective in accordance with the regulations promulgated under section 7601(d) of this title, the plan shall become applicable to all areas (except as expressly provided otherwise in the plan) located within the exterior boundaries of the reservation, notwithstanding the issuance of any patent and including rights-of-way running through the reservation.

(p) Reports

Any State shall submit, according to such schedule as the Administrator may prescribe, such reports as the Administrator may require relating to emission reductions, vehicle miles traveled, congestion levels, and any other information the Administrator may deem necessary to assess the development effectiveness, need for revision, or implementation of any plan or plan revision required under this chapter.

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42 U.S.C. § 7491. Visibility protection for Federal class I areas

(a) Impairment of visibility; list of areas; study and report

(1) 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 manmade air pollution.

(2) Not later than six months after August 7, 1977, the Secretary of the Interior in consultation with other Federal land managers shall review all mandatory class I Federal areas and identify those where visibility is an important value of the area. From time to time the Secretary of the Interior may revise such identifications. Not later than one year after August 7, 1977, the Administrator shall, after consultation with the Secretary of the Interior, promulgate a list of mandatory class I Federal areas in which he determines visibility is an important value.

(3) Not later than eighteen months after August 7, 1977, the Administrator shall complete a study and report to Congress on available methods for implementing the national goal set forth in paragraph (1). Such report shall include recommendations for –

> **(A)** methods for identifying, characterizing, determining, quantifying, and measuring visibility impairment in Federal areas referred to in paragraph (1), and
>
> **(B)** modeling techniques (or other methods) for determining the extent to which manmade air pollution may reasonably be anticipated to cause or contribute to such impairment, and
>
> **(C)** methods for preventing and remedying such manmade air pollution and resulting visibility impairment. Such report shall also identify the classes or categories of sources and the types of air pollutants which, alone or in conjunction with other sources or pollutants, may reasonably be anticipated to cause or contribute significantly to impairment of visibility.

(4) Not later than twenty-four months after August 7, 1977, and after notice and public hearing, the Administrator shall promulgate regulations to assure (A) reasonable progress toward meeting the national goal specified in paragraph (1), and (B) compliance with the requirements of this section.

(b) Regulations

Regulations under subsection (a)(4) of this section shall –

(1) provide guidelines to the States, taking into account the recommendations under subsection (a)(3) of this section on appropriate techniques and methods for implementing this section (as provided in subparagraphs (A) through (C) of such subsection (a)(3)), and

(2) require each applicable implementation plan for a State in which any area listed by the Administrator under subsection (a)(2) of this section is located (or for a State the emissions from which may reasonably be anticipated to cause or contribute to any impairment of visibility in any such area) to contain such emission limits, schedules of compliance and other measures as may be necessary to make reasonable progress toward meeting the national goal specified in subsection (a) of this section, including –

(A) except as otherwise provided pursuant to subsection (c) of this section, a requirement that each major stationary source which is in existence on August 7, 1977, but which has not been in operation for more than fifteen years as of such date, and which, as determined by the State (or the Administrator in the case of a plan promulgated under section 7410(c) of this title) emits any air pollutant which may reasonably be anticipated to cause or contribute to any impairment of visibility in any such area, shall procure, install, and operate, as expeditiously as practicable (and maintain thereafter) the best available retrofit technology, as determined by the State (or the Administrator in the case of a plan promulgated under section 7410(c) of this title) for controlling emissions from such source for the purpose of eliminating or reducing any such impairment, and

(B) a long-term (ten to fifteen years) strategy for making reasonable progress toward meeting the national goal specified in subsection (a) of this section.

In the case of a fossil-fuel fired generating powerplant having a total generating capacity in excess of 750 megawatts, the emission limitations required under this paragraph shall be determined pursuant to guidelines, promulgated by the Administrator under paragraph (1).

(c) Exemptions

(1) The Administrator may, by rule, after notice and opportunity for public hearing, exempt any major stationary source from the requirement of subsection (b)(2)(A) of this section, upon his determination that such source does not or will not, by itself or in combination with other sources, emit any air pollutant which may reasonably be anticipated to cause or contribute to a significant impairment of visibility in any mandatory class I Federal area.

(2) Paragraph (1) of this subsection shall not be applicable to any fossil-fuel fired powerplant with total design capacity of 750 megawatts or more, unless the owner or operator of any such plant demonstrates to the satisfaction of the Administrator that such powerplant is located at such distance from all areas listed by the Administrator under subsection (a)(2) of this section that such powerplant does not or will not, by itself or in combination with other sources, emit any air pollutant which may reasonably be anticipated to cause or contribute to significant impairment of visibility in any such area.

(3) An exemption under this subsection shall be effective only upon concurrence by the appropriate Federal land manager or managers with the Administrator's determination under this subsection.

(d) Consultations with appropriate Federal land managers

Before holding the public hearing on the proposed revision of an applicable implementation plan to meet the requirements of this section, the State (or the Administrator, in the case of a plan promulgated under section 7410(c) of this title) shall consult in person with the appropriate Federal land manager or managers and shall include a summary of the conclusions and recommendations of the Federal land managers in the notice to the public.

(e) Buffer zones

In promulgating regulations under this section, the Administrator shall not require the use of any automatic or uniform buffer zone or zones.

(f) Nondiscretionary duty

For purposes of section 7604(a)(2) of this title, the meeting of the national goal specified in subsection (a)(1) of this section by any specific date or dates shall not be considered a "non-discretionary duty" of the Administrator.

(g) Definitions

For the purpose of this section –

(1) in determining reasonable progress there shall be taken into consideration the costs of compliance, the time necessary for compliance, and the energy and nonair quality environmental impacts of compliance, and the remaining useful life of any existing source subject to such requirements;

(2) in determining best available retrofit technology the State (or the Administrator in determining emission limitations which reflect such technology) shall take into consideration the costs of compliance, the energy and nonair quality environmental impacts of compliance, any existing pollution control technology in use at the source, the remaining useful life of the source, and the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology;

(3) the term "manmade air pollution" means air pollution which results directly or indirectly from human activities;

(4) the term "as expeditiously as practicable" means as expeditiously as practicable but in no event later than five years after the date of approval of a plan revision under this section (or the date of promulgation of such a plan revision in the case of action by the Administrator under section 7410(c) of this title for purposes of this section);

(5) the term "mandatory class I Federal areas" means Federal areas which may not be designated as other than class I under this part;

(6) the terms "visibility impairment" and "impairment of visibility" shall include reduction in visual range and atmospheric discoloration; and

(7) the term "major stationary source" means the following types of stationary sources with the potential to emit 250 tons or more of any pollutant: fossil-fuel fired steam electric plants of more than 250 million British thermal units per hour heat input, coal cleaning plants (thermal dryers), kraft pulp mills, Portland Cement plants, primary zinc smelters, iron and steel mill plants, primary aluminum ore reduction plants, primary copper smelters, municipal incinerators capable of charging more than 250 tons of refuse per day, hydrofluoric, sulfuric, and nitric acid plants, petroleum refineries, lime plants, phosphate rock processing plants, coke oven batteries, sulfur recovery plants, carbon black plants (furnace process), primary lead smelters, fuel conversion plants, sintering plants, secondary metal production facilities, chemical process plants, fossil-fuel boilers of more than 250 million British thermal units per hour heat input, petroleum storage and transfer facilities with a capacity exceeding 300,000 barrels, taconite ore processing facilities, glass fiber processing plants, charcoal production facilities.

40 C.F.R. § 51.308 Regional haze program requirements.

Effective: August 6, 2012

(a) What is the purpose of this section? This section establishes requirements for implementation plans, plan revisions, and periodic progress reviews to address regional haze.

(b) When are the first implementation plans due under the regional haze program? Except as provided in § 51.309(c), each State identified in § 51.300(b)(3) must submit, for the entire State, an implementation plan for regional haze meeting the requirements of paragraphs (d) and (e) of this section no later than December 17, 2007.

(c) [Reserved]

(d) What are the core requirements for the implementation plan for regional haze? The State must address regional haze in each mandatory Class I Federal area located within the State and in each mandatory Class I Federal area located outside the State which may be affected by emissions from within the State. To meet the core requirements for regional haze for these areas, the State must submit an implementation plan containing the following plan elements and supporting documentation for all required analyses:

(1) Reasonable progress goals. For each mandatory Class I Federal area located within the State, the State must establish goals (expressed

in deciviews) that provide for reasonable progress towards achieving natural visibility conditions. The reasonable progress goals must provide for an improvement in visibility for the most impaired days over the period of the implementation plan and ensure no degradation in visibility for the least impaired days over the same period.

(i) In establishing a reasonable progress goal for any mandatory Class I Federal area within the State, the State must:

(A) Consider the costs of compliance, the time necessary for compliance, the energy and non-air quality environmental impacts of compliance, and the remaining useful life of any potentially affected sources, and include a demonstration showing how these factors were taken into consideration in selecting the goal.

(B) Analyze and determine the rate of progress needed to attain natural visibility conditions by the year 2064. To calculate this rate of progress, the State must compare baseline visibility conditions to natural visibility conditions in the mandatory Federal Class I area and determine the uniform rate of visibility improvement (measured in deciviews) that would need to be maintained during each implementation period in order to attain natural visibility conditions by 2064. In establishing the reasonable progress goal, the State must consider the uniform rate of improvement in visibility and the emission reduction measures needed to achieve it for the period covered by the implementation plan.

(ii) For the period of the implementation plan, if the State establishes a reasonable progress goal that provides for a slower rate of improvement in visibility than the rate that would be needed to attain natural conditions by 2064, the State must demonstrate, based on the factors in paragraph (d)(1)(i)(A) of this section, that the rate of progress for the implementation plan to attain natural conditions by 2064 is not reasonable; and that the progress goal adopted by the State is reasonable. The State must provide to the public for review as part of its implementation plan an assessment of the number of years it would take to attain natural conditions if visibility improvement continues at the rate of progress selected by the State as reasonable.

(iii) In determining whether the State's goal for visibility improvement provides for reasonable progress towards natural visibility conditions, the Administrator will evaluate the demonstrations developed by the State pursuant to paragraphs (d)(1)(i) and (d)(1)(ii) of this section.

(iv) In developing each reasonable progress goal, the State must consult with those States which may reasonably be anticipated to cause or contribute to visibility impairment in the mandatory Class I Federal area. In any situation in which the State cannot agree with another such State or group of States that a goal provides for reasonable progress, the State must describe in its submittal the actions taken to resolve the disagreement. In reviewing the State's implementation plan submittal, the Administrator will take this information into account in determining whether the State's goal for visibility improvement provides for reasonable progress towards natural visibility conditions.

(v) The reasonable progress goals established by the State are not directly enforceable but will be considered by the Administrator in evaluating the adequacy of the measures in the implementation plan to achieve the progress goal adopted by the State.

(vi) The State may not adopt a reasonable progress goal that represents less visibility improvement than is expected to result from implementation of other requirements of the CAA during the applicable planning period.

(2) Calculations of baseline and natural visibility conditions. For each mandatory Class I Federal area located within the State, the State must determine the following visibility conditions (expressed in deciviews):

(i) Baseline visibility conditions for the most impaired and least impaired days. The period for establishing baseline visibility conditions is 2000 to 2004. Baseline visibility conditions must be calculated, using available monitoring data, by establishing the average degree of visibility impairment for the most and least impaired days for each calendar year from 2000 to 2004. The baseline visibility conditions are the average of these annual values. For mandatory Class I Federal areas without onsite monitoring data for

2000-2004, the State must establish baseline values using the most representative available monitoring data for 2000-2004, in consultation with the Administrator or his or her designee;

(ii) For an implementation plan that is submitted by 2003, the period for establishing baseline visibility conditions for the period of the first long-term strategy is the most recent 5-year period for which visibility monitoring data are available for the mandatory Class I Federal areas addressed by the plan. For mandatory Class I Federal areas without onsite monitoring data, the State must establish baseline values using the most representative available monitoring data, in consultation with the Administrator or his or her designee;

(iii) Natural visibility conditions for the most impaired and least impaired days. Natural visibility conditions must be calculated by estimating the degree of visibility impairment existing under natural conditions for the most impaired and least impaired days, based on available monitoring information and appropriate data analysis techniques; and

(iv)(A) For the first implementation plan addressing the requirements of paragraphs (d) and (e) of this section, the number of deciviews by which baseline conditions exceed natural visibility conditions for the most impaired and least impaired days; or

(B) For all future implementation plan revisions, the number of deciviews by which current conditions, as calculated under paragraph (f)(1) of this section, exceed natural visibility conditions for the most impaired and least impaired days.

(3) Long-term strategy for regional haze. Each State listed in § 51.300(b)(3) must submit a long-term strategy that addresses regional haze visibility impairment for each mandatory Class I Federal area within the State and for each mandatory Class I Federal area located outside the State which may be affected by emissions from the State. The long-term strategy must include enforceable emissions limitations, compliance schedules, and other measures as necessary to achieve the reasonable progress goals established by States having mandatory Class I Federal areas. In establishing its long-term strategy for regional haze, the State must meet the following requirements:

(i) Where the State has emissions that are reasonably anticipated to contribute to visibility impairment in any mandatory Class I Federal area located in another State or States, the State must consult with the other State(s) in order to develop coordinated emission management strategies. The State must consult with any other State having emissions that are reasonably anticipated to contribute to visibility impairment in any mandatory Class I Federal area within the State.

(ii) Where other States cause or contribute to impairment in a mandatory Class I Federal area, the State must demonstrate that it has included in its implementation plan all measures necessary to obtain its share of the emission reductions needed to meet the progress goal for the area. If the State has participated in a regional planning process, the State must ensure it has included all measures needed to achieve its apportionment of emission reduction obligations agreed upon through that process.

(iii) The State must document the technical basis, including modeling, monitoring and emissions information, on which the State is relying to determine its apportionment of emission reduction obligations necessary for achieving reasonable progress in each mandatory Class I Federal area it affects. The State may meet this requirement by relying on technical analyses developed by the regional planning organization and approved by all State participants. The State must identify the baseline emissions inventory on which its strategies are based. The baseline emissions inventory year is presumed to be the most recent year of the consolidate periodic emissions inventory.

(iv) The State must identify all anthropogenic sources of visibility impairment considered by the State in developing its long-term strategy. The State should consider major and minor stationary sources, mobile sources, and area sources.

(v) The State must consider, at a minimum, the following factors in developing its long-term strategy:

(A) Emission reductions due to ongoing air pollution control programs, including measures to address reasonably attributable visibility impairment;

(B) Measures to mitigate the impacts of construction activities;

(C) Emissions limitations and schedules for compliance to achieve the reasonable progress goal;

(D) Source retirement and replacement schedules;

(E) Smoke management techniques for agricultural and forestry management purposes including plans as currently exist within the State for these purposes;

(F) Enforceability of emissions limitations and control measures; and

(G) The anticipated net effect on visibility due to projected changes in point, area, and mobile source emissions over the period addressed by the long-term strategy.

(4) Monitoring strategy and other implementation plan requirements. The State must submit with the implementation plan a monitoring strategy for measuring, characterizing, and reporting of regional haze visibility impairment that is representative of all mandatory Class I Federal areas within the State. This monitoring strategy must be coordinated with the monitoring strategy required in § 51.305 for reasonably attributable visibility impairment. Compliance with this requirement may be met through participation in the Interagency Monitoring of

Protected Visual Environments network. The implementation plan must also provide for the following:

(i) The establishment of any additional monitoring sites or equipment needed to assess whether reasonable progress goals to address regional haze for all mandatory Class I Federal areas within the State are being achieved.

(ii) Procedures by which monitoring data and other information are used in determining the contribution of emissions from within the State to regional haze visibility impairment at mandatory Class I Federal areas both within and outside the State.

(iii) For a State with no mandatory Class I Federal areas, procedures by which monitoring data and other information are used in determining the contribution of emissions from within the State to regional haze visibility impairment at mandatory Class I Federal areas in other States.

(iv) The implementation plan must provide for the reporting of all visibility monitoring data to the Administrator at least annually for each mandatory Class I Federal area in the State. To the extent possible, the State should report visibility monitoring data electronically.

(v) A statewide inventory of emissions of pollutants that are reasonably anticipated to cause or contribute to visibility impairment in any mandatory Class I Federal area. The inventory must include emissions for a baseline year, emissions for the most recent year for which data are available, and estimates of future projected emissions. The State must also include a commitment to update the inventory periodically.

(vi) Other elements, including reporting, recordkeeping, and other measures, necessary to assess and report on visibility.

(e) Best Available Retrofit Technology (BART) requirements for regional haze visibility impairment. The State must submit an implementation plan containing emission limitations representing BART and schedules for compliance with BART for each BART-eligible source that may reasonably be anticipated to cause or contribute to any impairment of visibility in any mandatory Class I Federal area, unless the State demonstrates that an emissions trading program or other alternative will achieve greater reasonable progress toward natural visibility conditions.

(1) To address the requirements for BART, the State must submit an implementation plan containing the following plan elements and include documentation for all required analyses:

(i) A list of all BART-eligible sources within the State.

(ii) A determination of BART for each BART-eligible source in the State that emits any air pollutant which may reasonably be anticipated to cause or contribute to any impairment of visibility in any mandatory Class I Federal area. All such sources are subject to BART.

(A) The determination of BART must be based on an analysis of the best system of continuous emission control technology available and associated emission reductions achievable for each BART-eligible source that is subject to BART within the State. In this analysis, the State must take into consideration the technology available, the costs of compliance, the energy and nonair quality environmental impacts of compliance, any pollution control equipment in use at the source, the remaining useful life of the source, and the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology.

(B) The determination of BART for fossil-fuel fired power plants having a total generating capacity greater than 750 megawatts must be made pursuant to the guidelines in appendix Y of this part (Guidelines for BART Determinations Under the Regional Haze Rule).

(C) Exception. A State is not required to make a determination of BART for SO_2 or for NO_x if a BART-eligible source has the potential to emit less than 40 tons per year of such pollutant(s), or for PM_{10} if a BART-eligible source has the potential to emit less than 15 tons per year of such pollutant.

(iii) If the State determines in establishing BART that technological or economic limitations on the applicability of measurement methodology to a particular source would make the imposition of an emission standard infeasible, it may instead prescribe a design, equipment, work practice, or other operational standard, or combination thereof, to require the application of BART. Such standard, to the degree possible, is to set forth the emission reduction to be achieved by implementation of such design, equipment, work practice or operation, and must provide for compliance by means which achieve equivalent results.

(iv) A requirement that each source subject to BART be required to install and operate BART as expeditiously as practicable, but in no event later than 5 years after approval of the implementation plan revision.

(v) A requirement that each source subject to BART maintain the control equipment required by this subpart and establish procedures to ensure such equipment is properly operated and maintained.

(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. Such an emissions trading program or other alternative measure must achieve greater reasonable progress than would be achieved through the installation and operation of BART. For all such emission trading programs or other alternative measures, the State must submit an implementation plan containing the following plan elements and include documentation for all required analyses:

(i) 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. This demonstration must be based on the following:

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

(B) A list of all BART-eligible sources and all BART source categories covered by the alternative program. The State is not required to include every BART source category or every BART-eligible source within a BART source category in an alternative program, but each BART-eligible source in the State must be subject to the requirements of the alternative program, have a federally enforceable emission limitation determined by the State and approved by EPA as meeting BART in accordance with section 302(c) or paragraph (e)(1) of this section, or otherwise addressed under paragraphs (e)(1) or (e)(4)of this section.

(C) An analysis of the best system of continuous emission control technology available and associated emission reductions achievable for each source within the State subject to BART and covered by the alternative program. This analysis must be conducted by making a determination of BART for each source subject to BART and covered by the alternative program as provided for in paragraph (e)(1) of this section, unless the emissions trading program or other alternative measure has been designed to meet a requirement other than BART (such as the core requirement to have a long-term strategy to achieve the reasonable progress goals established by States). In this case, the State may determine the best system of continuous emission control technology and associated emission reductions for similar types of sources within a source category based on both source-specific and category-wide information, as appropriate.

(D) An analysis of the projected emissions reductions achievable through the trading program or other alternative measure.

(E) A determination under paragraph (e)(3) of this section or otherwise based on the clear weight of evidence that the trading program or other alternative measure achieves greater reasonable progress than would be achieved through the installation and operation of BART at the covered sources.

(ii) [Reserved]

(iii) A requirement that all necessary emission reductions take place during the period of the first long-term strategy for regional haze. To meet this requirement, the State must provide a detailed description of the emissions trading program or other alternative measure, including schedules for implementation, the emission reductions required by the program, all necessary administrative and technical procedures for implementing the program, rules for accounting and monitoring emissions, and procedures for enforcement.

(iv) A demonstration that the emission reductions resulting from the emissions trading program or other 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.

(v) At the State's option, a provision that the emissions trading program or other alternative measure may include a geographic enhancement to the program to address the requirement under § 51.302(c) related to BART for reasonably attributable impairment from the pollutants covered under the emissions trading program or other alternative measure.

(vi) For plans that include an emissions trading program that establishes a cap on total annual emissions of SO_2 or NO_x from sources subject to the program, requires the owners and operators of sources to hold allowances or authorizations to emit equal to emissions, and allows the owners and operators of sources and other entities to purchase, sell, and transfer allowances, the following elements are required concerning the emissions covered by the cap:

(A) Applicability provisions defining the sources subject to the program. The State must demonstrate that the applicability provisions (including the size criteria for including sources in the program) are designed to prevent any significant potential shifting within the State of production and emissions from sources in the program to sources outside the program. In the case of a program covering sources in multiple States, the States must demonstrate that the applicability provisions in each State cover essentially the same size facilities and, if source categories are specified, cover the same source categories and prevent any significant, potential shifting within such States of production and emissions to sources outside the program.

(B) Allowance provisions ensuring that the total value of allowances (in tons) issued each year under the program will not exceed the emissions cap (in tons) on total annual emissions from the sources in the program.

(C) Monitoring provisions providing for consistent and accurate measurements of emissions from sources in the program to ensure that each allowance actually represents the same specified tonnage of emissions and that emissions are measured with similar accuracy at all sources in the program. The monitoring provisions must require that boilers, combustion turbines, and cement kilns in the program allowed to sell or transfer allowances must comply with the requirements of part 75 of this chapter. The monitoring provisions must require that other sources in the program allowed to sell or transfer allowances must provide emissions information with the same precision, reliability, accessibility, and timeliness as information provided under part 75 of this chapter.

(D) Recordkeeping provisions that ensure the enforceability of the emissions monitoring provisions and other program requirements. The recordkeeping provisions must require that boilers, combustion turbines, and cement kilns in the program allowed to sell or transfer allowances must comply with the recordkeeping provisions of part 75 of this chapter. The recordkeeping provisions must require that other sources in the program allowed to sell or transfer allowances must comply with recordkeeping requirements that, as compared with the recordkeeping provisions under part 75 of this chapter, are of comparable stringency and require recording of comparable types of information and retention of the records for comparable periods of time.

(E) Reporting provisions requiring timely reporting of monitoring data with sufficient frequency to ensure the enforceability of the emissions monitoring provisions and other program requirements and the ability to audit the program. The reporting provisions must require that boilers, combustion turbines, and cement kilns in the program allowed to sell or transfer allowances must comply with the reporting provisions of part 75 of this chapter, except that, if the Administrator is not the tracking system administrator for the program, emissions may be reported to the tracking system administrator, rather than to the Administrator. The reporting provisions must require that other sources in the program allowed to sell or transfer allowances must comply with reporting requirements that, as compared with the reporting provisions under part 75 of this chapter, are of comparable stringency and require reporting of comparable types of information and require comparable timeliness and frequency of reporting.

(F) Tracking system provisions which provide for a tracking system that is publicly available in a secure, centralized database to track in a consistent manner all allowances and emissions in the program.

(G) Authorized account representative provisions ensuring that the owners and operators of a source designate one individual who is authorized to represent the owners and operators in all matters pertaining to the trading program.

(H) Allowance transfer provisions providing procedures that allow timely transfer and recording of allowances, minimize administrative barriers to the operation of the allowance market, and ensure that such procedures apply uniformly to all sources and other potential participants in the allowance market.

(I) Compliance provisions prohibiting a source from emitting a total tonnage of a pollutant that exceeds the tonnage value of its allowance holdings, including the methods and procedures for determining whether emissions exceed allowance holdings. Such method and procedures shall apply consistently from source to source.

(J) Penalty provisions providing for mandatory allowance deductions for excess emissions that apply consistently from source to source. The tonnage value of the allowances deducted shall equal at least three times the tonnage of the excess emissions.

(K) For a trading program that allows banking of allowances, provisions clarifying any restrictions on the use of these banked allowances.

(L) Program assessment provisions providing for periodic program evaluation to assess whether the program is accomplishing its goals and whether modifications to the program are needed to enhance performance of the program.

(3) A State which opts under 40 CFR 51.308(e)(2) to implement an emissions trading program or other alternative measure rather than to require sources subject to BART to install, operate, and maintain BART may satisfy the final step of the demonstration required by that section as follows: 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. 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 for each impacted Class I area, for the worst and best 20 percent of days. The modeling would demonstrate "greater reasonable progress" if both of the following two criteria are met:

(i) Visibility does not decline in any Class I area, and

(ii) There is an overall improvement in visibility, determined by comparing the average differences between BART and the alternative over all affected Class I areas.

(4) A State subject to a trading program established in accordance with § 52.38 or § 52.39 under a Transport Rule Federal Implementation Plan need not require BART-eligible fossil fuel-fired steam electric plants in the State to install, operate, and maintain BART for the pollutant covered by such trading program in the State. A State that chooses to meet the emission reduction requirements of the Transport Rule by submitting a SIP revision that establishes a trading program and is approved as meeting the requirements of § 52.38 or § 52.39 also need not require BART-eligible fossil fuel-fired steam electric plants in the State to install, operate, and maintain BART for the pollutant covered by such trading program in the State. A State may adopt provisions, consistent with the requirements applicable to the State for a trading program established in accordance with § 52.38 or § 52.39 under the Transport Rule Federal Implementation

Plan or established under a SIP revision that is approved as meeting the requirements of § 52.38 or § 52.39, for a geographic enhancement to the program to address the requirement under § 51.302(c) related to BART for reasonably attributable impairment from the pollutant covered by such trading program in that State.

(5) After a State has met the requirements for BART or implemented emissions trading program or other alternative measure that achieves more reasonable progress than the installation and operation of BART, BART-eligible sources will be subject to the requirements of paragraph (d) of this section in the same manner as other sources.

(6) Any BART-eligible facility subject to the requirement under paragraph (e) of this section to install, operate, and maintain BART may apply to the Administrator for an exemption from that requirement. An application for an exemption will be subject to the requirements of § 51.303(a)(2)-(h).

(f) Requirements for comprehensive periodic revisions of implementation plans for regional haze. Each State identified in § 51.300(b)(3) must revise and submit its regional haze implementation plan revision to EPA by July 31, 2018 and every ten years thereafter. In each plan revision, the State must evaluate and reassess all of the elements required in paragraph (d) of this section, taking into account improvements in monitoring data collection and analysis techniques, control technologies, and other relevant factors. In evaluating and reassessing these elements, the State must address the following:

(1) Current visibility conditions for the most impaired and least impaired days, and actual progress made towards natural conditions during the previous implementation period. The period for calculating current visibility conditions is the most recent five year period preceding the required date of the implementation plan submittal for which data are available. Current visibility conditions must be calculated based on the annual average level of visibility impairment for the most and least impaired days for each of these five years. Current visibility conditions are the average of these annual values.

(2) The effectiveness of the long-term strategy for achieving reasonable progress goals over the prior implementation period(s); and

(3) Affirmation of, or revision to, the reasonable progress goal in accordance with the procedures set forth in paragraph (d)(1) of this section. If the State established a reasonable progress goal for the prior period which provided a slower rate of progress than that needed to attain natural conditions by the year 2064, the State must evaluate and determine the reasonableness, based on the factors in paragraph (d)(1)(i)(A) of this section, of additional measures that could be adopted to achieve the degree of visibility improvement projected by the analysis contained in the first implementation plan described in paragraph (d)(1)(i)(B) of this section.

(g) Requirements for periodic reports describing progress towards the reasonable progress goals. Each State identified in § 51.300(b)(3) must submit a report to the Administrator every 5 years evaluating progress towards the reasonable progress goal for each mandatory Class I Federal area located within the State and in each mandatory Class I Federal area located outside the State which may be affected by emissions from within the State. The first progress report is due 5 years from submittal of the initial implementation plan addressing paragraphs (d) and (e) of this section. The progress reports must be in the form of implementation plan revisions that comply with the procedural requirements of § 51.102 and § 51.103. Periodic progress reports must contain at a minimum the following elements:

(1) A description of the status of implementation of all measures included in the implementation plan for achieving reasonable progress goals for mandatory Class I Federal areas both within and outside the State.

(2) A summary of the emissions reductions achieved throughout the State through implementation of the measures described in paragraph (g)(1) of this section.

(3) For each mandatory Class I Federal area within the State, the State must assess the following visibility conditions and changes, with values for most impaired and least impaired days expressed in terms of 5-year averages of these annual values.

(i) The current visibility conditions for the most impaired and least impaired days;

(ii) The difference between current visibility conditions for the most impaired and least impaired days and baseline visibility conditions;

(iii) The change in visibility impairment for the most impaired and least impaired days over the past 5 years;

(4) An analysis tracking the change over the past 5 years in emissions of pollutants contributing to visibility impairment from all sources and activities within the State. Emissions changes should be identified by type of source or activity. The analysis must be based on the most recent updated emissions inventory, with estimates projected forward as necessary and appropriate, to account for emissions changes during the applicable 5-year period.

(5) An assessment of any significant changes in anthropogenic emissions within or outside the State that have occurred over the past 5 years that have limited or impeded progress in reducing pollutant emissions and improving visibility.

(6) An assessment of whether the current implementation plan elements and strategies are sufficient to enable the State, or other States with mandatory Federal Class I areas affected by emissions from the State, to meet all established reasonable progress goals.

(7) A review of the State's visibility monitoring strategy and any modifications to the strategy as necessary.

(h) Determination of the adequacy of existing implementation plan. At the same time the State is required to submit any 5-year progress report to EPA in accordance with paragraph (g) of this section, the State must also take one of the following actions based upon the information presented in the progress report:

(1) If the State determines that the existing implementation plan requires no further substantive revision at this time in order to achieve established goals for visibility improvement and emissions reductions, the State must provide to the Administrator a negative declaration that further revision of the existing implementation plan is not needed at this time.

(2) If the State determines that the implementation plan is or may be inadequate to ensure reasonable progress due to emissions from sources in another State(s) which participated in a regional planning process, the State must provide notification to the Administrator and to the other State(s) which participated in the regional planning process with the States. The State must also collaborate with the other State(s) through the regional planning process for the purpose of developing additional strategies to address the plan's deficiencies.

(3) Where the State determines that the implementation plan is or may be inadequate to ensure reasonable progress due to emissions from sources in another country, the State shall provide notification, along with available information, to the Administrator.

(4) Where the State determines that the implementation plan is or may be inadequate to ensure reasonable progress due to emissions from sources within the State, the State shall revise its implementation plan to address the plan's deficiencies within one year.

(i) What are the requirements for State and Federal Land Manager coordination?

(1) By November 29, 1999, the State must identify in writing to the Federal Land Managers the title of the official to which the Federal Land Manager of any mandatory Class I Federal area can submit any recommendations on the implementation of this subpart including, but not limited to:

(i) Identification of impairment of visibility in any mandatory Class I Federal area(s); and

(ii) Identification of elements for inclusion in the visibility monitoring strategy required by § 51.305 and this section.

(2) The State must provide the Federal Land Manager with an opportunity for consultation, in person and at least 60 days prior to holding any public hearing on an implementation plan (or plan revision) for regional haze required by this subpart. This consultation must include the opportunity for the affected Federal Land Managers to discuss their:

(i) Assessment of impairment of visibility in any mandatory Class I Federal area; and

(ii) Recommendations on the development of the reasonable progress goal and on the development and implementation of strategies to address visibility impairment.

(3) In developing any implementation plan (or plan revision), the State must include a description of how it addressed any comments provided by the Federal Land Managers.

(4) The plan (or plan revision) must provide procedures for continuing consultation between the State and Federal Land Manager on the implementation of the visibility protection program required by this subpart, including development and review of implementation plan revisions and 5-year progress reports, and on the implementation of other programs having the potential to contribute to impairment of visibility in mandatory Class I Federal areas.

North Dakota State Implementation Plan
for
Regional Haze

A Plan for Implementing the
Regional Haze Program Requirements
of
Section 308 of 40 CFR Part 51,
Subpart P – Protection of Visibility

North Dakota Department of Health
Adopted: February 24, 2010

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*   *   *

ii Executive Summary

This document comprises the State of North Dakota's State Implementation Plan (SIP) submittal to EPA to meet the requirements of Section 308 of the Regional Haze Regulation (40 CFR Part 51, Subpart P, Section 51.308). Adoption of the North Dakota State Implementation Plan For Regional Haze amends the Implementation Plan for the Control of Air Pollution for the State of North Dakota.

Section 1 describes the purpose of and legal authority of the SIP. Section 2 provides introductory and background information on, the federal regional haze law and regulation, visibility impairment, a description of North Dakota's Class I areas and reasonable progress towards the 2064 visibility goals. Section 3 describes plan development and consultation with federal land managers, other states, the EPA, and stakeholders. Section 4 describes the North Dakota monitoring strategy and commitments for future monitoring. Section 5 describes baseline and natural visibility conditions for the North Dakota Class I areas and the uniform rate of progress for each Class I area. Section 6 describes the sources of visibility impairment at North Dakota's Class I areas. Section 7 describes and provides the results of the Best Available Retrofit Technology (BART) process including the Air Pollution Control Permits to Construct issued to the seven power plant boilers subject to BART. Section 8 describes the CMAQ and CALPUFF modeling used in developing the SIP. Section 9 describes the process for determining the reasonable progress goals for North Dakota's Class I areas and what they are. Section 10 describes the long term strategy. Section 11 describes the commitments to future consultation, progress reports, periodic evaluations of SIP adequacy, and future SIP revisions. Section 12 summarizes the public participation and review process and the revisions made subsequent to the public hearing for the SIP. Appendices at the end of this document provide additional information on BART and reasonable progress modeling protocols, company BART analyses, Department BART determinations, the BART Air Pollution Control Permits to Construct, FLM and EPA comments during the 60-day FLM comment period, the public hearing record, Department responses to FLM, EPA, and public comments, consultation with the FLMs, EPA and other states, the legal opinions of the Attorney General, and the State BART rule.

The North Dakota BART determination process identified seven electrical generating units that are subject to the BART requirements. The installation of new control devices or modifications to existing control devices will reduce sulfur dioxide emission from point sources in the state by 98,618 tons per year and nitrogen oxides emissions by 21,139 tons per year. The BART reductions must be implemented no later than five years after EPA approves this SIP. The anticipated date of implementation is 2013. These reductions are expected to make a significant improvement in visibility in the affected Class I areas. Total sulfur dioxide emissions in North Dakota are expected to decline by 105,729 tons per year (60%) and nitrogen oxides emissions by 57,970 tons per year (25%) during this planning period.

The 2018 reasonable progress goals for the twenty percent worst days in the North Dakota Class I areas have been established at 16.9 deciviews for each unit of Theodore Roosevelt National Park (TRNP) and 18.9 deciviews at Lostwood Wilderness Area (LWA). The analyses conducted by the North Dakota Department of Health (NDDoH) and the Western Regional

Air Partnership (WRAP) indicates there will be no degradation during the 20% best days.

*   *   *

2.2 Visibility Impairment

Most visibility impairment occurs when pollution in the form of small particles scatters or absorbs light. Air pollutants come from a variety of natural and anthropogenic sources. Natural sources can include windblown dust and smoke from wildfires. Anthropogenic sources can include motor vehicles, electric utility and industrial fuel burning and manufacturing operations. More pollutants mean more absorption and scattering of light, which reduce the clarity and color of a scene. Some types of particles such as sulfates and nitrates, scatter more light, particularly during humid conditions. Other particles like elemental carbon from combustion processes are highly efficient at absorbing light. Commonly, the receptor is the human eye and the object may be a single viewing target or a scene.

In the 156 Class I areas across the country, visual range has been substantially reduced by air pollution. In eastern parks, average visual range has decreased from 90 miles to 15-25 miles. In the West, visual range has decreased from an average of 140 miles to 35-90 miles.

Some haze causing particles are directly emitted to the air. Others are formed when gases emitted to the air form particles as they are carried many miles from the source of the pollutants. Some haze-forming pollutants are also linked to human health problems and other environmental damage. Exposure to very small particles in the air has been linked with increased respiratory illness, decreased lung function and premature death. In addition, particles such as nitrates and sulfates contribute to acid deposition potentially making lakes, rivers and streams unsuitable for some forms of aquatic life and impacting flora in the ecosystem. These same acid particles can also erode materials such as paint, buildings or other natural and man-made structures.

2.3 Description of North Dakota's Class I Areas

The Class I areas in North Dakota include: the Theodore Roosevelt National Park (TRNP) which consists of three separate, distinct units and the Lostwood National Wildlife Refuge Wilderness Area (LWA). The North Dakota Class I Areas are shown on Figure 2.1 and Figure 2.2.

Theodore Roosevelt National Park is located within Billings and McKenzie Counties in North Dakota. The colorful badlands and Little Missouri River of western North Dakota provide the scenic backdrop to the park which memorializes the 26th president for his enduring contributions to the conservation of our nation's resources. The park contains 70,447 acres divided among three separate units: South Unit, Elkhorn Ranch and North Unit and is managed by the National Park Service. The park is comprised of badlands, open prairie and hardwood draws that provide habitat for a wide variety of wildlife species including bison, prairie dogs, elk, deer, big horn sheep and other wildlife. The Little Missouri River passes through the three units of the park.

Lostwood National Wildlife Refuge Wilderness Area is located in Burke County in the northwestern part of the State. Created by an act of Congress in 1975, the wilderness covers an area of 5,577 acres. It is contained within Lostwood National. Wildlife Refuge and is managed by the U.S. Fish and Wildlife Service. Lostwood National Wilderness Area is designated to preserve a region well known for numerous lakes and mixed grass prairie. The wilderness ensures that the finest duck and waterfowl breeding region in North America remains wild and unimproved.

2.4 Class I Areas in Other States Impacted by North Dakota Sources

In accordance with 40 CFR 51.308, emissions sources within North Dakota have or may be reasonably expected to have impacts on the following Class I Areas: Boundary Waters Canoe Area Wilderness Area (BOWA) and Voyageurs National Park (VOYA) in Minnesota, Isle Royale National Park (ISLE) and Seney National Wildlife Refuge Wilderness Area (SENE) in Michigan, Medicine Lake National Wildlife Refuge Wilderness Area (MELA) and U. L. Bend National Wildlife Refuge Wilderness Area ((ULBE) in Montana, and Badlands National Park (BADL) and Wind Cave National

Park (WICA) in South Dakota. As shown in Table 2.1 and Figure 2.1, sources in North Dakota have only a small impact on out-of-state Class I areas. For Class I areas that are more distant, the impact will be even smaller. Impacts from emission sources in North Dakota contribute 5 percent or more of the total 2002 extinction (Bext) in the above Class I areas except those in Michigan and BOWA. A 5 percent or larger contribution is considered a significant contribution.

* * *

2.6 Reasonable Progress Toward the 2064 Visibility Goals

Section 51.308(d) contains the core requirements for the regional haze SIP. The requirements for reasonable progress goals (RPG) are found in 51.308(d)(1) which reads:

> "Reasonable progress goals. For each mandatory Class I Federal area located within the State, the State must establish goals (expressed in deciviews) that provide for reasonable progress towards achieving natural visibility conditions. The reasonable progress goals must provide for an improvement in visibility for the most impaired days over the period of the implementation plan and ensure no degradation in visibility for the least impaired days over the same period."

The reasonable progress goals are interim goals that represent incremental visibility improvement over time for the most-impaired (20% worst) days and no degradation in visibility for the least-impaired (20%

best) days. The first regional haze plan that States must submit to EPA needs to include RPGs for the year 2018, also known as the "2018 milestone year". The State has the flexibility in establishing different RPGs for each Class I area. In establishing the RPG, the State must consider four factors:

- the costs of compliance;
- the time necessary for compliance;
- the energy and non-air quality environmental impacts of compliance; and
- the remaining useful life of any potentially affected sources.

States must demonstrate how these factors were taken into consideration in selecting the RPG for each Class I area.

The North Dakota Department of Health has worked with the Western Regional Air Partnership (WRAP) and with the WRAP's ongoing modeling program as well as implemented our own modeling program to establish and refine RPGs for 2018 for the North Dakota Class I areas. This process is described in detail in sections 8 and 9.

The RPGs for each North Dakota Class I area established for 2018 are found in section 9. Required BART controls will be installed and become operational as expeditiously as practicable, but no later than five years after this SIP is approved by EPA. The controls are expected to be operational in 2013-2014.

The technical analyses described in this SIP demonstrate that emissions both inside and outside of North Dakota have an appreciable impact on the State's Class I areas. This includes emissions from neighboring states as well as international emissions from Canada, especially from the provinces of Alberta and Saskatchewan. Emission controls from many sources outside of North Dakota will not be fully defined during this round of the Regional Haze SIP process, necessitating consideration of outside controls and further interstate and possibly tribal consultation in the reasonable progress process to establish refined reasonable progress goals. The EPA, through the Department of State, will have to work with Canada and its provinces to reduce visibility impairing pollutants that impact North Dakota and other states' Class I areas. Until SIP controls including BART and other programs outside of North Dakota are defined, modeled and analyzed, North Dakota cannot fully determine progress toward the 2018 goal or the 2064 goal. North Dakota will make its best attempt at demonstrating progress toward the goals based on addressing sources within its control.

* * *

3. Plan Development and Consultation

The State is required by Section 51.308(d)(3)(i) of the EPA Regional Haze Rule to consult with other states to develop coordinated emission management strategies for Class I areas in those states North Dakota's emissions impact or those states whose emissions impact North Dakota's Class I areas and by Section 51.308(i) to consult with the federal land managers of the Class I areas in our state and the Class I areas in other states that emissions from North Dakota impact.

3.1 Consultation with Federal Land Managers

The North Dakota Department of Health consults with the FLMs as a part of the WRAP and as needed directly with the National Park Service and U.S. Fish and Wildlife Service in Denver, CO. They have reviewed and commented on North Dakota's BART modeling protocol and draft BART determinations submitted by the BART sources.

The National Park Service, the U.S. Fish and Wildlife Service, and the U.S. Forest Service (federal land manager of Boundary Waters Canoe Area Wilderness in Minnesota) were each furnished copies of the draft SIP for review and comment as part of the required 60 day FLM comment period (Section 51.308(i)(2)). Continuing consultation with the three FLM's in the future as required by 40 CFR 51.308(i)(4) is addressed in Section 11.1.1.

3.1.1 FLM Comments Provided During 60 Day Comment Period

A draft was provided to the FLMs in August 2009 for their 60-day consultation period. The FLM comments are included in Appendix J.

3.1.2 Response to FLM Comments

The Department's responses to the FLM's comments are included in Appendix J.

3.1.3 FLM Comments Provided on BART Portion of SIP in 2008

The Department had originally planned to submit the BART portion of the regional haze SIP separately from the Reasonable Progress portion of the SIP. The BART portion (which is now Section 7) was submitted to the FLMs in June of 2008 as part of the required 60-day FLM comment period.

Comments that were received from the FLMs in August of 2008 are attached in Appendix J.1.1 and discussed further in Section 7. They have been reviewed and considered by the Department and included as appropriate in Section 7 of this current SIP. The Department's responses to the FLM comments are attached in Appendix J.1.2.

3.2 Consultation with EPA Region 8

The North Dakota Department of Health has consulted with EPA as a part of the WRAP and as needed directly with Air Program staff of the EPA Region 8 office in Denver, CO in developing this SIP. EPA has reviewed and commented on the State BART modeling protocol, the BART Air Pollution Control Permit to Construct template and the draft BART determinations submitted by the BART sources.

In June of 2008, the Department submitted the BART portion of the SIP to EPA Region 8 at the same time it was submitted to the FLMs as discussed in Section 3.1.3. Comments were received from EPA and are attached as Appendix J.3.1. The Department's responses to the EPA comments are attached as Appendix J.3.2.

EPA was also provided a copy for comment of the draft SIP at the time it was provided to the FLMs as a part of the FLM 60 day comment period. The Department considered the EPA comments and made appropriate revisions to the SIP.

The Department also consulted with EPA Region 8 concerning Class I areas in Montana as they are preparing a federal implementation plan for Montana.

3.3 Consultation with Other States

The North Dakota Department of Health has consulted with our neighboring states of South Dakota and Montana through the WRAP and as needed individually. We also participated in monthly teleconferences from 2004 through 2008 with Minnesota and Michigan, the states containing the four northern Class I areas (Boundary Waters Canoe Wilderness Area and Voyageurs National Park in Minnesota, Isle Royale National Park and Seney National Wildlife Refuge Wilderness Area in Michigan), and other states in CENRAP and LADCO. We also individually consulted as needed with Minnesota, our neighbor directly to the east.

As a result of the consultations, Minnesota sent a memorandum dated September 19, 2007 to North Dakota and other states impacting Minnesota's Class I areas. Minnesota requested a response documenting these consultations have taken place to the satisfaction of North Dakota or detailing areas where additional consultation should occur. In those states Minnesota has identified as additional contribution states, they asked those states to respond with their agreement or disagreement with Minnesota's determination of contributing states and the additional control strategies that will be evaluated. Minnesota's memorandum and the NDDoH letter of response dated August 22, 2008 are attached in Appendix J.2.

These states were notified of the availability of the draft SIP at the time it was sent to the FLMs.

3.4 Regional Planning Consultation

The North Dakota Department of Health became a member of the Western Regional Air Partnership (WRAP) in March of 1999. WRAP is one of five regional planning organizations representing 13 western states, tribes in those states, federal agencies including EPA and FLMs, environmental organizations, industry, academics, and other stakeholders. Department staff has participated and continues to participate in many WRAP committees and workgroups including the Air Managers Committee, the

Initiatives Oversight Committee, the Technical Oversight Committee, the Emissions Forum, the Stationary Sources Joint Forum, the Technical Analysis Forum, the Implementation Workgroup, and the BART Workgroup. Membership in the WRAP and participation in its many committees, forums and workgroups allows consultation with the many organizations WRAP represents.

3.5 Consultation with Tribes

The Department notified the tribes in North Dakota of the public hearing and comment period on the draft RH SIP. The Department also notified the WRAP Tribal Caucus Coordinator of its intent to draft a SIP to address regional haze and provided a list of contacts within the Department (see Appendix J.4).

3.6 Other Consultation

The Department has monthly teleconferences with the Subject-to-BART sources in North Dakota and has quarterly meetings with the Lignite Energy Council, an organization representing lignite coal mines and users within the State.

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8. Visibility Modeling

8.1 Introduction

Computer modeling to determine progress with respect to visibility improvement goals was conducted in support of this North Dakota Regional Haze SIP. The Regional Haze Rule[2] (Rule) specifies that modeling must be applied to demonstrate reasonable progress toward the goal of achieving natural visibility conditions in each PSD Class I area by 2064. As discussed in Section 5.4, the *uniform rate of progress* defines the visibility improvement which would be needed for each planning period to achieve natural visibility conditions by 2064. The first planning period begins at the end of the baseline (2004) and terminates in 2018. The visibility improvement progress needed by 2018 (or 2018 target) is determined by interpolating from the uniform rate of progress glide path, as illustrated in Figure 5.5.

Modeling analyses completed in support of the North Dakota SIP and discussed here address the first planning period, and the 2018 target. These analyses assume that the 2018 goal for each Class I area is the uniform rate of progress (glide path) target for 2018. The Regional Haze Rule, however, gives states the option of establishing *reasonable progress goals* which are independent of the uniform rate of progress. The reasonable progress goals established by a state for

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[2] 40 CFR 51.308

2018 will not necessarily equal the uniform rate of progress target for 2018 (see Section 10).

To demonstrate reasonable progress with respect to visibility goals for the first planning period, the Rule specifies that visibility on the 20 percent worst (most impaired) days must improve, while visibility on the 20 percent best (least impaired) days must not deteriorate, between the base period (2000-2004) and 2018. Computer modeling was used to project future visibility, accounting for proposed BART controls and other visibility-affecting emissions increases/decreases. Modeling was applied in a relative sense. Baseline and projected future emission inventories were modeled to develop a future/baseline prediction ratio (relative response factor). The ratio was then applied to baseline monitoring data for visibility-affecting species to project future visibility.

The Western Regional Air Partnership (WRAP) regional planning organization has established a Regional Modeling Center (RMC) to assist member states, including North Dakota, with modeling to determine status with respect to the 2018 goals. The RMC has applied a chemically sophisticated grid model (CMAQ), on a regional basis, to project future visibility in Class I areas in the WRAP region[3]. The

[3] Tonnesen, G., R. Morris, Z. Adelman, et. al., 2006. 2006 Report for the Western Regional Air Partnership (WRAP) Regional Modeling Center (RMC). Western Regional Air Partnership, Denver, CO 80202.

RMC has developed comprehensive base period and future period visibility-affecting emission inventories to use with CMAQ, and has performed numerous studies using base period model and monitoring data to evaluate CMAQ performance[4]. Finally, the RMC has applied CMAQ to project 2018 visibility for each Class I area in the WRAP region, including the Theodore Roosevelt National Park and Lostwood Wilderness Class I areas in North Dakota.

To supplement work done by the WRAP RMC, the North Dakota Department of Health (NDDoH) has conducted further modeling analysis to address 2018 visibility goals for North Dakota Class I areas. Though the NDDoH utilized WRAP RMC results in assessing progress with respect to visibility goals in North Dakota Class I areas, the NDDoH also recognized it would have to develop further modeling capability for visibility projection in order to address weight of evidence issues not included in WRAP modeling, such as discounting the impact of international sources. In addition, the NDDoH had concerns regarding the spatial resolution of the WRAP CMAQ simulations, particularly for large point sources.

The RMC is applying CMAQ on a national basis using a grid resolution of 36 km, with no plume-in-grid treatment. This means that emissions from point sources are immediately mixed uniformly throughout

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[4] See WRAP RMC web site at http://pah.cert.ucr.edu/aqm/308/

a 36 km (square) grid cell volume, which may overstate the dilution of the plume, and the speed of chemical reactions for species contained in the plume. This may be problematic, especially for sources located relatively near Class I areas. Consequently, the contribution of visibility-affecting species from these sources may be misrepresented for both base period and future period modeling. This limitation in treatment of point sources is recognized in CMAQ documentation[5].

The NDDoH utilized a hybrid modeling approach for determining status with respect to the visibility goals. This approach involved nesting the local NDDoH CALPUFF domain within the WRAP National CMAQ domain, and applying the Lagrangian CALPUFF model in a retrospective sense to more realistically define plume geometry for local point sources. To implement the nesting, hourly output concentrations from WRAP CMAQ were used to set hourly boundary conditions for CALPUFF. The use of CMAQ output to set CALPUFF boundary conditions has been suggested by Escoffier-Czaja and Scire[6]. Location of the NDDoH CALPUFF domain

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[5] EPA, 1999. Science Algorithms of the EPA Models-3 Community Multiscale Air Quality (CMAQ) Modeling System. Office of Research and Development, Washington DC 20460.

[6] Escoffier-Czaja, C., and J. Scire, 2005. Comments on the Computation of Nitrate Using the Ammonia Limiting Method in CALPUFF. Appendix A, Draft Protocol for the Application of the CALPUFF Model for Analyses of Best Available Retrofit Technology (BART), VISTAS.

within the National CMAQ domain is illustrated in Figure 8.1.

Given limitations in the CALPUFF chemistry for other species, the NDDoH hybrid modeling system was used for simulation of SO_2-SO_4-NO_x-HNO_3-NO_3 chemistry and transport, and thus sulfate (SO_4) and nitrate (NO_3) predictions, only. Results for all other visibility-affecting species, including organic carbon mass (OMC), elemental carbon (EC), fine particulate (Soil), and coarse particulate (CM), were obtained directly from the CMAQ output for the grid cell containing each subject Class I area IMPROVE monitor. CMAQ output was combined with CALPUFF results for sulfate and nitrate in order to perform necessary light extinction calculations. In this way, the NDDoH benefits from the sophistication of the RMC approach for other particulate components, which reflect a very small percentage of emissions from the local point sources of concern.

WRAP and NDDoH protocols for modeling visibility progress goals generally adhere to EPA *Guidance on the Use of Models and Other Analyses for Demonstrating Attainment of Air Quality Goals for Ozone, $PM_{2.5}$, and Regional Haze*[7]. An evaluation of modeling system performance was conducted first. Then baseline

[7] EPA, 2007. Guidance on the Use of Models and Other Analyses for Demonstrating Attainment of Air Quality Goals for Ozone, PM2.5, and Regional Haze. Publication No. EPA 454/B-07-002, Office of Air Quality Planning and Standards, Research Triangle Park, NC 27711.

(2000-2004) and future (2018) emission scenarios were modeled in order to develop relative response factors (RRFs). Finally, RRFs were applied to baseline IMPROVE monitoring data to project future visibility in North Dakota Class I areas.

Class I areas in North Dakota include the three units of Theodore Roosevelt National Park (TRNP), and the Lostwood Wilderness Area (LWA). IMPROVE monitors are located at the TRNP South Unit and LWA, only. Therefore, these two Class I areas were the focus of the modeling analyses. Locations of North Dakota Class I areas, IMPROVE monitor sites, and larger visibility-affecting sources are depicted in Figure 8.2.

While this presentation (Section 8) addresses both WRAP and NDDoH visibility modeling analyses, focus is on the NDDoH modeling as WRAP procedures are extensively documented elsewhere. The WRAP protocol for regional haze visibility modeling is summarized in *2006 Report for the Western Regional Air Partnership (WRAP) Regional Modeling Center (RMC)*[8]. The NDDoH protocol for regional haze progress goal modeling is attached as Appendix E to this document.

[Fig. 8.1 Omitted In Printing]

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[8] See supra note 3.

9. Reasonable Progress Goals

9.1 Introduction

The Regional Haze Rule states that for each mandatory Class I Federal area located within the State and in each mandatory Class I Federal area located outside the State which may be affected by emissions from within the State, the State must establish reasonable progress goals for each area. For out-of-state Class I areas that are affected by in-state emissions, the State must consult with the affected state regarding the reasonable progress goals for those Class I areas. The reasonable progress goals (expressed in deciviews) must provide for reasonable progress towards achieving natural visibility conditions including improvement in visibility for the most impaired days (20% worst days) and ensuring no degradation in visibility for the least impaired days (20% cleanest days) over the planning period.

The EPA has published guidance[1] for setting reasonable progress goals. The basic steps include:

1. Establish Baseline and Natural Visibility Conditions
2. Determine the Glidepath, or Uniform Rate of Progress

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[1] U.S. EPA 2007; Guidance for Setting Reasonable Progress Goals under the Regional Haze Rule: U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Research Triangle Park, NC, June 1, 2007.

3. Identify and Analyze the Measures Aimed at Achieving the Uniform Rate of Progress

    a. Identify the key pollutants and sources and/or source categories that are contributing to visibility impairment at each Class I area. The sources of impairment for the most impaired and least impaired days may differ.

    b. Identify the control measures and associated emission reductions that are expected to result from compliance with existing rules and other available measurements for the sources and source categories that contribute significantly to visibility impairment.

    c. Determine what additional control measures would be reasonable based on the statutory factors and other relevant factors for the sources and/or source categories you have identified.

    d. Estimate through the use of air quality models the improvement in visibility that would result from implementation of the control measures you have found to be reasonable and compare this to the uniform rate of progress.

4. Establish the Reasonable Progress Goal

9.2 Establish Baseline and Natural Visibility Conditions

The baseline visibility conditions are established in Section 5.3 while the natural visibility conditions are addressed in Section 5.4. The following table summarizes the results for North Dakota's Class I Federal areas.

Table 9.1
Baseline and Natural Visibility Conditions

Area	Baseline (dv)		Natural Conditions (dv)	
	20% Best	20% Worst	20% Best	20% Worst
TRNP	7.8	17.8	3.0	7.8
LWA	8.2	19.6	2.9	8.0

9.3 Determine the Glide Path or Uniform Rate of Progress

The uniform rate of progress necessary to achieve natural conditions is addressed in Section 5.4. The results of that analysis are as follows:

Table 9.2
Visibility Improvement Required

Area	Total Improvement Required (dv) 20% Worst Days	2018 Target Improvement (dv) 20% Worst Days
TRNP	10.0	2.3
LWA	11.6	2.7

9.4 Identify and Analyze the Measures Aimed at Achieving the Uniform Rate of Progress

A. Identify key pollutants and sources contributing to visibility impairment in each Class I area.

The key pollutants contributing to visibility degradation in North Dakota's Class I areas are sulfur dioxide and nitrogen oxides which form sulfates and nitrates (see analysis in Section 8.7.2.2). For sulfates, the contributing sources are primarily point sources in Canada, sources outside WRAP's modeling domain and point sources in North Dakota.

For nitrates, point/area/mobile sources in Canada, North Dakota, Montana and sources outside of WRAP's modeling domain area are the primary contributors (see analysis in Section 6.3 and Section 8). North Dakota sources contributed 21% of the sulfate and 19% of the nitrate at TRNP during the 20% worst days of the baseline (WRAP Case Plan 02c). At LWA, North Dakota sources contributed 18% of the sulfate and 13% of the nitrate for the same period.

Organic carbon (primary organic aerosols) is the next largest contributor to extinction in the Class I areas of North Dakota. Organic carbon contributes 17.5% of the total extinction at TRNP and 14.9% at LWA during the baseline 20% worst days. As can be seen in Figures 9.1 and 9.2, much of the organic carbon emissions in North Dakota are from the "natural fire" source category or from the "fugitive dust" category. Natural fire cannot be controlled and will vary year to year in each state. Fugitive dust is addressed in Sections 9.5.2 and 10.6.2. Off-road mobile sources of organic carbon are expected to decrease 54% by 2018.

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B. Identify the Control Measures and Associated Emission Reductions from Existing Rules

See Section 10. The WRAP has estimated that the "on-the-books" controls will reduce emissions of nitrogen oxides by approximately 28,000 tons per year, sulfur dioxide 1,700 tons per year, elemental carbon 2,700 tons per year, and fine particulate matter by 900 tons per year. Coarse particulate matter is expected to increase by 18,000 tons primarily due to fugitive dust. These "on the books" controls include:

- Tier 1 light-duty vehicle standards, beginning MY 1996;
- National Low Emission Vehicle (NLEV) standards, beginning MY 2001;
- Tier 2 light-duty vehicle standards beginning MY 2005, with low sulfur gasoline beginning summer 2004;
- Heavy-duty vehicle standards beginning MY 2004;
- Heavy-duty vehicle standards beginning MY 2007, with low sulfur diesel beginning summer 2006;
- Emission standards for new nonroad spark-ignition engines below 25 hp;
- Phase 2 emission standards for new spark-ignition hand-held engines below 25 hp;
- Phase 2 emission standards for new spark-ignition nonhand-held engines below 25 hp;
- Emission standards for new gasoline spark-ignition marine engines;

- Tier 1 emission standards for new nonroad compression-ignition engines above 50 hp;
- Tier 1 and Tier 2 emission standards for new nonroad compression-ignition engines below 50 hp including recreational marine engines;
- Tier 2 and Tier 3 standards for new nonroad compression-ignition engines of 50 hp and greater not including recreational marine engines greater than 50 hp; and
- Tier 4 emissions standards for new nonroad compression-ignition engines above 50 hp, and reduced nonroad diesel fuel sulfur levels.

Modeling by the WRAP indicates these "on-the-books" rules will improve visibility by 0.1 deciviews in the 20% worst day at TRNP and 0.2 deciviews at LWA.

C. Determine What Additional Control Measures Would be Reasonable Based on the Statutory Factors and Other Relevant Factors

See Section 9.5 and 9.6.

D. Estimate Through the Use of Air Quality Models the Improvement in Visibility that Would Result From the Implementation of the Control Measures Found to be Reasonable

See Section 9.5.

E. Establish the Reasonable Progress Goals

See Section 9.7.

9.5 Additional Controls

9.5.1 Point Sources Contributing to Visibility Impairment in the North Dakota Class I Areas

In determining reasonable progress goals for any Class I Federal area, 40 CFR 51.308(d)(1)(i)(A) requires a state to consider the costs of compliance, the time necessary for compliance, the energy and non-air quality environmental impacts of compliance, and the remaining useful life of any potentially affected sources, and include a demonstration showing how these factors were taken into consideration in selecting the goal.

In determining the cost of compliance for individual sources or source categories potentially subject to emission limitations, the following steps are suggested:

A. Identify the emission units to be controlled.

B. Identify the design parameters for emission controls, and

C. Develop cost estimates based upon those design parameters.

The Guidance for Setting Progress Goals under the Regional Haze Program states "it is not necessary for you to reassess the reasonable progress factors for sources subject to BART for which you have already completed a BART analysis."

Cost of Compliance

Step 1: Identify Emission Units to be Controlled

The Department has identified sulfur dioxide and nitrogen oxides as the primary pollutants that are emitted by stationary point sources that contribute most of the visibility impairment. Particulate emissions from stationary sources have very little impact on visibility in North Dakota (see Figures 6.5 and 6.6) and represent only 1% of the total PM emissions in 2002 (see Table 6.1). Therefore, PM emissions from point sources were not evaluated under this section.

Under BART, it was determined that no additional controls were required for the largest sources of PM, the electric utility steam generating units. Primary sulfuric acid mist emissions are also a very small contributor to visibility impairment. The sources that were subject to BART, the largest emitters of sulfuric acid mist, were evaluated for emissions of this pollutant. Because of the small impact of sulfuric acid mist on visibility, sulfuric acid mist was not included in the reasonable progress analysis.

To identify point sources in North Dakota that potentially affect visibility in Class I Federal areas, the list of sources subject to Title V permitting requirements was established as the starting point. This represents more than 99% of the sulfur dioxide emissions from all point sources in North Dakota that have an operating permit (Title 5 or Minor Source Operating Permit) and greater than 98% of the nitrogen oxides emissions based on 2007 data. The sources subject to

BART were also eliminated from the list as suggested by EPA guidance. The Department has included all controls on BART sources that have a reasonable cost. Any controls rejected under BART would also be rejected under the four factors for determining reasonable progress. Although sources were excluded from this analysis, all sources, including sources subject to BART, will be reviewed during future planning periods.

To further evaluate the list of sources, the actual emissions from the source were compared to the distance the source is located from the nearest Class I Federal area. The Department has determined from previous BART modeling that particulate matter emissions from point sources have a very small contribution to visibility impairment in the Class I areas. Therefore, only emissions of nitrogen oxides and sulfur dioxide were evaluated in this comparison. The Department initially used the average of the 2000-2004 emission rate for this analysis. The emission rate (Q) in tons per year was divided by the distance (D), in kilometers, to the nearest Class I area. A value of Q/D greater than 10 was chosen as a point for further evaluation of those sources. A Q/D of greater than 10 was chosen based on the FLM's proposed FLAG guidance amendments initial screening criteria for sources that may affect air quality related values. In addition, EPA in the preamble to the BART Guideline states, "Our analyses of visibility impacts from model plants provide a useful example of the type of analyses that might be used to exempt categories of sources from BART. Based on our model plant analysis, EPA believes that a State could reasonably choose to exempt sources that emit less than 500 tons per year of NO_x or SO_2 (or combined NO_x and SO_2), as long as they are located more than 50 kilometers from any Class I area; and sources that emit less than 1000 tons per year of NO_x or SO_2 (or combined NO_x and SO_2) that are located more than 100 kilometers from any Class I area." EPA's criteria is equivalent to a Q/D of 10. For all sources, except EGUs, the total SO_2 and NO_x emissions from the facility were used and no distinction was made for individual units. EGU's were separated by units because they can act as standalone facilities while other process units cannot.

* * *

After review of the sources in Table 9.4, the following sources in Table 9.5 were considered for additional controls during this planning period:

Table 9.5
Sources Evaluated for Additional Control

Source	Owner	Unit	Type	Capacity
Antelope Valley Station	Basin Electric Power Coop.	1	EGU	435 MWe
Antelope Valley Station	Basin Electric Power Coop.	2	EGU	435 MWe
Coyote Station	OtterTail Power Co.	Main Boiler	EGU	450 MWe
Great Plains Synfuels Plant	Dakota Gasification Co.	Boilers A, B & S	Industrial Boilers	763 x 10^6 Btu/hr each
Tioga Gas Plant	Hess Corp.	3	Sulfur Recovery Unit	225 LTPD
Tioga Gas Plant	Hess Corp.	C1-A to F	Compressor Engines	1920-2350 BHp each

Step 2: Identify the Design Parameters for Emission Controls

All of the source units identified for possible additional air pollutant control are equipped with varying degrees of air pollution control equipment, as shown in Table 9.6.

Table 9.6
Remaining Sources Existing Conditions

Source	Pollutant	Control Equipment	Current[a] Emission Rate	Current[a] Control Efficiency (%)
AVS 1	SO_2	Spray Dryer OFA	0.36 lb/10^6 Btu	77
	NO_x		0.37 lb/10^6 Btu	--
AVS 2	SO_2	Spray Dryer OFA	0.38 lb/10^6 Btu	76
	NO_x		0.34 lb/10^6 Btu	--
Coyote	SO_2	Spray Dryer None	0.71 lb/10^6 Btu	66
	NO_x		0.68 lb/10^6 Btu	--
Tioga Gas Plant SRU	SO_2	3 Stage Claus +4 bed Cold Bed Absorber	1097 tpy	98.8
Engines	NO_x	None	1353	--
GPSP-Boilers	SO_2	Wet Scrubber	2169 tpy	96-97
	NO_x	None	0.5 lb/10^6 Btu[b]	--

[a] Based on 2005-2007 data
[b] Based on 2007 data

Work is currently underway to increase the efficiency of the spray dryers at AVS I and II. This work is being done because of an expected increase in the sulfur content of the coal used at the facilities. The increase in efficiency is expected to approach 90% which the Department considers the limit of spray dryer efficiency. Even though the efficiency will be increased, no reduction in emissions is expected because of the higher sulfur coal. Because upgrades of the spray dryers are already in progress, this option was not considered at AVS I or II during this planning period. At the Coyote Station, upgrades to the spray dryer would require a detailed engineering analysis to determine if improvements are possible. For this planning period, replacing the spray dryer is evaluated. Any upgrades to the spray dryer (if possible) will produce less emissions reductions and less visibility improvement when compared to a new wet scrubber. This source will also be reevaluated during future planning periods to determine if additional controls are reasonable.

The boilers at the Great Plains Synfuels Plant (GPSP) are equipped with an ammonia reagent wet scrubbing system followed by a wet electrostatic precipitator. This system is achieving 96-97% removal of sulfur dioxide from the flue gas. This removal efficiency is comparable to BACT or BART for industrial boilers of this size. Therefore, sulfur dioxide controls for these boilers were not evaluated further during this planning period.

The following control options were reviewed for possible implementation at the remaining sources:

Table 9.7
Control Options Evaluated

Source	Pollutant	Control Considered	Estimated Control Efficiency (%)
AVS 1 and 2	SO_2	New Wet Scrubber	95
	NO_x	LNB SNCR SCR w/Reheat	30-75 30-75 40-90[c]
Coyote	SO_2	New Wet Scrubber	95
	NO_x	ASOFA SNCR ASOFA + SNCR SCR w/Reheat	40 30 50-60 40-90[c]
Tioga Gas Plant SRU	SO_2	Tail Gas Cleanup	99.8-99.98[a]
1920 BHp Engines	NO_x	SCR Engine Remanu- facture Air-Fuel Ratio Controller Ignition Timing Retard	80-90[c] 80-90 10-40 15-30
2350 BHp Engines	NO_x	SCR	33-67
GPSP – Boilers	NO_x	SNCR[b] SCR[b]	30-40 40-90[c]

[a]Overall efficiency of the sulfur recovery unit and tail gas cleanup unit. BACT determinations range from 99.8% for existing units to 99.98% for new units.
[b]The Department has concerns whether SCR and SNCR are technically feasible for the GPSP (see DGC's comments in Appendix I).
[c]The Department considers 90% efficiency reasonable for new installations and 80% reasonable for retrofits.

Step 3: Develop Cost Estimates Based on the Design Parameters

The available control options were evaluated by WRAP's contractor EC/R Incorporated. The report on this evaluation is found in Appendix I.1. The cost for the wet scrubber at the Coyote Station was adjusted to represent the gross capacity of the facility (450 MWe vs 427 MWe) which is larger than EC/R evaluated. Also, the removal efficiency for a new wet scrubber was adjusted from 90% to 95%. The costs associated with the various control technologies are shown in Table 9.8.

The cost effectiveness ($/ton) for new scrubbers at AVS I & II and Coyote Station is higher than at the BART sources that are not equipped with scrubbers. Because AVS and Coyote Station are already equipped with spray dryers, the cost effectiveness is higher because less sulfur dioxide will be removed than at the unit without a scrubber. The following control options were found to have an excessive cost effectiveness:

AVS 1 & 2 – Wet scrubber; SCR w/reheat; and LNB + SCR w/reheat
Coyote – SCR w/reheat and ASOFA + SCR w/reheat
Tioga Gas Plant – Tail Gas Cleanup
DGC – SNCR and SCR

The SRU at the Tioga Gas Plant is currently operating at less than 45% of its rated capacity. It is expected that the amount of sulfur recovered and emissions from the tail gas incinerator will continue to decline due to a decline in sour gas production in the area the Tioga Gas Plant serves. Most new gas produced comes from the Bakken formation which is sweet gas.

The Department has concerns whether SCR or SNCR can be successfully applied at the GPSP (see DGC comments in Appendix I). Pilot scale testing may be necessary to determine the technical feasibility of SCR or SNCR for the boilers which produce a flue gas with a high carbon dioxide and sulfur concentration.

Therefore, these control technologies were not evaluated further.

For the most efficient control options for which the cost effectiveness (as described in Table 9.8) was considered reasonable on a $/ton basis, the 2018 projected emissions were modeled by the NDDoH to determine the source-specific improvement in visibility. Cumulative modeling was conducted using the procedures (default EPA methodology), hybrid modeling system, and baseline and future (2018) emissions inventories as described in Section 8.5. The

Table 9.8
Control Options Cost

Source	Unit	Pollutant	Control Technology	Total Annualized Cost ($)	Control Efficiency (%)	Emissions Reduction (tpy)	Cost Effectiveness ($/ton)
AVS	1	SO_2	New Wet Scrubber	32,170,000	95	6,780	4,745
		NO_x	LNB	2,280,000	51	3,889	586
			SNCR	8,960,000	40	3,050	2,938
			LNB+SNCR	11,240,000	65	4,956	2,268
			SCR w/reheat[1]	44-63.2 million	80	6,100	7,213-10,360
			LNB + SCR w/reheat	46.3-65.5 million	90	6,863	6,746-9,544
AVS	2	SO_2	New Wet Scrubber	32,170,000	95	5,899	5,453
		NO_x	LNB	2,280,000	51	3,450	661
			SNCR	8,960,000	40	2,706	3,311
			LNB+SNCR	11,240,000	65	4,397	2,556
			SCR w/reheat[1]	44-63.2 million	80	5,411	8,132-11,680
			LNB + SCR w/reheat	46.3-65.5 million	90	6,087	7,606-10,761
Coyote	1	SO_2	New Wet Scrubber	33,280,000	95	12,835	2,593
		NO_x	ASOFA[1]	1,284,000	40	5,223	246
			SNCR	8,520,000	40	5,223	1,631
			ASOFA & SNCR[1]	11,245,000	55	7,182	1,566
			SCR w/reheat[1]	45.3-65.1 million	80	10,446	4,337-6,232
			ASOFA + SCR w/reheat	46.6-66.4 million	90	11,752	3,965-5,650
Tioga Gas Plant[3]	SRU	SO_2	Tail Gas Clean Up[2]	5,800,000	99.8	1,018	5,697
	1920 Hp Engines	NO_x	Air Fuel Ratio Controller	260,000	25	305	852
			Ignition Timing Retard	140,000	22	268	522
			LEC Retrofit	560,000	85	1,035	541
			SCR	1,600,000	80	974	1,643
	2350 Hp Engines		SCR	500,000	50	34	1,471
DGC	Boilers (each)		SNCR	1,690,000	30	259	6,525
			SCR	5,505,000	80	670	8,216

Notes: A) The Department does not consider high dust SCR to be technically feasible for North Dakota lignite (see BART analysis in Section 7). The uncertainties associated with designing an SCR system because of the high sodium and potassium submicron aerosols in the flue gas, even after the air pollution control equipment, dictates the use of the high end of the SCR cost range.

B) Replacement of the compressor engines with electric motors is not technically feasible since the compressor cylinder connecting rods are an integral part of the engines crankshaft.

[1]Based on BART cost estimate for Leland Olds Unit 2 and Minnkota 1 & 2 shared cost estimate.
[2]Based on an overall efficiency of the SRU and tail gas cleanup unit of 99.8%.
[3]Reductions are the total for all engines with the specified horsepower rating.

future emissions inventory was modified to reflect the control technology for each candidate source (AVS 1 EGU, AVS 2 EGU, Coyote EGU, and Tioga Gas Plant), and modeling was conducted using the revised future inventory for one source at a time. The reasonable progress goals in 40 CFR 51.308(d)(1) requires improvement in the most impaired days. The most impaired days are defined in 40 CFR 51.301 as the average visibility impairment for the twenty percent days with the highest amount of visibility impairment. Therefore, modeling addressed the 20% worst days for both TRNP and LWA Class I areas. The results for each candidate source were compared with the results using the unmodified future emissions inventory (Table 8.11) to determine the additional visibility improvement due to the tested control technology.

Modeled visibility improvement, for each candidate source/technology, is provided in Table 9.9. The single source controlled emissions (modeled tons per year) and annualized cost effectiveness (dollars per deciview) are also reported in the table. Reported visibility improvement (in deciviews) reflects the higher value for either TRNP or LWA. Note that visibility improvement reported for Coyote represents the total for both SO_2 and NO_x control technologies, and the improvement reported for the Tioga Gas Plant represents the total for all 1920 and 2350 horsepower engines. As shown in the table, predicted visibility improvement is very marginal for all candidate sources/technologies, and consequently cost per deciview is very high.

Table 9.9
Visibility Improvement and Cost Effectiveness

Source	Pollutant	Control Technology	Emissions (TPY)	Visibility Improvement (dv)*		Visibility Improvement (%) ***		Cost Effectiveness ($/dv)**
				TRNP	LWA	TRNP	LWA	
AVS 1	NO_x	LNB+SNCR	2,358	0.005	0.01	0.03	0.05	1,124,000,000
AVS 2	NO_x	LNB+SNCR	2,144	0.005	0.01	0.03	0.05	1,124,000,000
Coyote	SO_2 NO_x	Wet Scrubber ASOFA+SNCR	1,924 5,871	0.02	0.04	0.11	0.20	1,113,000,000
Tioga G.P. 1920 BHp Engines 2350 BHp Engines	NO_x NO_x	LEC Retrofit SCR	268 33	0	0.5	0	0.26	21,200,000

*The less efficient technologies evaluated would provide less improvement.

**Based on the maximum visibility improvement (per source) at any Class I area in North Dakota.

***Improvement (%) from baseline conditions.

Time Necessary for Compliance

Up to 6.5 years after SIP approval is necessary to achieve compliance (see EC/R report in Appendix I.1). Additional time may be necessary if normal maintenance outages do not coincide with the projected schedule. It is anticipated that all required changes could be implemented by 2018 depending on the date of approval of this SIP. It is not anticipated that any of the remaining sources will be retired prior to 2018.

Energy and Non-Air Impacts

All of the control technologies for the various sources will consume energy (see EC/R report in Appendix I.1). In the case of the Antelope Valley Station and the Coyote Station, this would mean less electricity available for sale. The enhancement of the sulfur dioxide scrubbing system at the Coyote Station would increase the amount of solid waste generated (ash/$CaSO_4$) which must be handled and properly disposed. However, there are no non-air impacts identified that would preclude additional reductions of SO_2 or NO_x from the facilities.

Remaining Useful Life of the Source

The following table lists the expected remaining useful life of the remaining sources.

Table 9.10
Remaining Useful Life

Source	Unit	Startup Date	Estimated Remaining Useful Life (yrs)
AVS	Unit 1	1983	20-40
	Unit 2	1985	20-40
Coyote	Unit 1	1981	20-40
Tioga Gas Plant	Engines	1954	5-40

The engines at the Tioga Gas Plant are now 55 years old. Engines D and F have recently been refurbished. It is expected that the other engines could be refurbished which will extend their remaining useful life an indefinite period. Other than the engines at the Tioga Gas Plant, the remaining useful life of the affected sources would not preclude additional air pollution controls.

Reasonable Progress Goals – Required Controls for Point Sources

EPA has stated in their Guidance for Setting Reasonable Progress Goals Under the Regional Haze Program (June 1, 2007) "in assessing additional emissions reduction strategies for source categories or individual, large scale sources, simple cost effectiveness based on a dollar-per-ton calculation may not be as meaningful as a dollar per deciview calculation." It has been determined that requiring additional controls, beyond BART, on existing point sources will not substantially improve visibility in the Class I Federal Areas. The maximum combined improvement based on the Department's cumulative modeling for the average of the 20% worst days is 0.11 deciviews at LWA and 0.03 deciviews at TRNP for the most efficient control options for each source that is cost effective. This amounts to a 0.17% improvement at TRNP over the baseline condition for the most impaired days and 0.56% improvement at LWA. Other less efficient control technology options would provide substantially less visibility improvement in the Class I areas. The total capital cost to achieve this improvement is approximately 243 million dollars with an annualized cost of approximately 68 million dollars. Based on the data in Tables 9.8 and 9.9, the cost effectiveness is over 618 million dollars per deciview of improvement at LWA and 2.3 billion dollars per deciview at TRNP. For all sources evaluated individually and cumulatively, the cost ($/dv) is considered excessive. Therefore, no additional controls are proposed for these non-BART sources during this planning period. However, conditions at the plants and control technologies may change in the future. Therefore, all of these sources will be reevaluated during future planning periods.

9.5.2 Agricultural Tillage Operations

North Dakota has approximately 38 million acres of farm and ranch land or approximately 86% of the State's area. Working the land can contribute significant amounts of fugitive and windblown dust. The

WRAP has estimated that emission sources in North Dakota put more than 420,000 tons of particulate matter into the atmosphere in 2002. Fugitive dust from agricultural activities and windblown dust from farm fields were a major contributor to these emissions. Although there was a large amount of particulate matter emissions, the effect on visibility in the North Dakota Class I areas was small, but not insignificant, as shown in Figures 9.1 and 9.2 from the WRAP's TSS. At TRNP, coarse mass and soil (fine mass) combined to contribute approximately 11% of the total extinction during the 20% worst days of the baseline period. At the Lostwood Wilderness Area, approximately 7% of the total extinction was due to coarse mass and soil. North Dakota sources contributed approximately 45 percent of the PMF and PMC at TRNP and approximately 30 percent at LWA during the 20 percent worst days in 2000-2004 (based on WRAP's weighted emissions potential analysis).

[Figs. 9.2 and 9.3 Omitted In Printing]

The practice of conservation tillage is becoming more popular in North Dakota. The Conservation Technology Information Center (CTIC) in West Lafayette, Indiana specifies that 30 percent or more of crop residue must be left after planting to qualify as a conservation tillage system. Some specific types of conservation tillage include Minimum Tillage, Zone Tillage, No-till, Ridge-till, Mulch-till, Reduced-till, Strip-till, Rotational Tillage and Crop Residue Management. According to the Crop Residue Management survey conducted by the CTIC, total conservation tillage in North Dakota increased from 28% to 39% of total planted acres from 1998 to 2004. In general, conservation tillage practices are used more in the western part of the State (near the Class I areas) than in the eastern part of the State due to the more arid conditions, thinner topsoil and the types of crops grown. In 2006, 77% of the crop acreage in Williams County in Western North Dakota was planted using conservation tillage practices versus 28% in Sargent County (southeastern North Dakota). It is expected that conservation tillage practices will increase over the planning period. Higher fuel, equipment and labor costs will entice farmers to reduce tillage. Other added benefits include better soil moisture storage and eventually less fertilizer usage. Additionally, conservation tillage practices, such as No-till farming, help sequester carbon which can be sold as carbon credits. As carbon dioxide controls are instituted, the money earned by farmers for carbon sequestration will also provide an incentive for conservation tillage practices.

Given the small contribution of coarse mass and soil to total extinction and that conservation tillage practices are increasing, the Department concludes there is no need to implement controls on farming practices. As outlined earlier, free market incentives should increase conservation tillage which will reduce emissions. The trend of increased conservation tillage practices from 1998-2004 is expected to continue during the planning period.

Sources in this category are subject to NDAC 33-15-17-02.6 which requires agricultural activities be managed in a manner as to minimize dust from becoming airborne. The Department will reevaluate the source category in future planning periods to determine if additional controls are required.

9.5.3 Smoke Management for Agricultural, Forest Management and Prescribed Burning

It has been determined that no additional rules or controls for smoke management are required (see Section 10.6.5). The worst short-term visibility degradation that occurs in the Class I areas is caused by prescribed burning conducted by the Federal Land Managers. In 2005, the entire LWA (5,577 acres) was burned by the FLM. In addition, 3,579 acres in the immediately adjacent Lostwood Wildlife Refuge were burned on 7 different days. Although the State of North Dakota recognizes the position of the FLMs that prescribed burning is necessary to maintain a healthy ecosystem, it must also be recognized that the actions of the FLMs that affect visibility in the Class I areas must be considered when evaluating controls for others that use prescribed burning (e.g., farming, road maintenance, etc). No additional smoke management requirements are proposed in this planning period. However, the Department will reevaluate this source category during future planning periods to determine if additional regulation is required.

9.5.4 Reserved

9.5.5 Oil and Gas Exploration and Production

Oil and natural gas production in North Dakota is generally limited to the western one-third of the State. In September 2009, there were 4,348 operating wells that produced approximately 238,000 barrels of oil per day. This is in contrast to states like Wyoming that has approximately 45,000 producing oil and gas wells and Colorado which has approximately 40,000 active wells. The primary difference is that North Dakota does not have any coal bed methane (CBM) wells. The lack of CBM wells means there are much fewer pumps, compressors and gas processing plants needed even though North Dakota produces more oil than either of these states. The baseline SO_2 and NO_x emissions from area oil and gas sources are estimated at less than 5000 tons per year of each pollutant (see Table 6.1).

North Dakota's oil production is highly dependent on the price of oil. Several peaks in production (i.e. 1996 and 1983) have been achieved only for production to drop severely (i.e. 42% from 1983 to 2003) and then increase as the price of oil increases. Several projections have been made regarding the amount of oil that will be produced in the future, the number of wells that will be producing and the number of drilling rigs that will operate in the State. All of these projections are highly speculative because of the volatility of oil prices. The price of North Dakota crude oil reached a high of approximately $127 per barrel in 2008 and dropped to as low as $25 per barrel in 2009. The number of drilling rigs also dropped dramatically from a high of 92 in November 2008 to 35 in May 2009. WRAP has projected a 4-5 fold increase in NO_x emissions from oil and gas activities by 2018. Although emissions may increase this amount during the planning period, the North Dakota Oil and Gas Division of the State Industrial Commission believes that emissions will decrease by 2018 to a level that is 2.0 to 2.5 times the baseline emission rate. The Oil and Gas Division believes that activity associated with the major oil producing formation (Bakken formation) will be decreasing by 2018 with a peak during this planning period. However, any estimate of future activity is suspect because the future of oil prices is unknown. Because current estimates of future oil and gas activity, and emissions from that activity, are very questionable, the Independent Petroleum Association of Mountain States (IPAMS) is sponsoring development of a third, or Phase III, inventory of emissions from the Williston Basin in North Dakota. This inventory is not complete and available for this planning period. Because of the serious flaws in the Phase I and Phase II inventories, the Department believes that the Phase III inventory is necessary for any planning activities for oil and gas emissions in North Dakota.

A Q/D type analysis does not work well for oil exploration or production facilities. These individual facilities generally have very low sulfur dioxide and nitrogen oxides emissions. However, when the facilities emissions are aggregated, there may be significant impact on visibility in a Class I area. The Q/D analysis in 9.5.1 included the larger compressor stations and natural gas processing plants (sources subject to Title V). North Dakota also permits minor oil and gas sources including small compressor stations (greater than 500 Hp), natural gas processing plants and tank batteries. The Q/D analysis indicates that only the larger facilities (i.e. larger Title V sources) have a significant impact on visibility in North Dakota Class I areas. Sulfur dioxide emissions from future oil and gas activities are not a concern because most new oil and gas production is from the Bakken formation which contains sweet (negligible sulfur content) oil and gas. In addition, engines will be required by Federal rule to use ultra low sulfur gasoline and diesel fuel. Nitrogen oxides emissions are the primary concern. These will emanate from vehicles, drilling rig engines, glycol dehydrators, flares, compressor engines, and other combustion sources. Stationary engines are subject to a number of New Source Performance Standards (NSPS) and Maximum Achievable Control Technology (MACT) standards which will help limit NO_x emissions. The EPA has also promulgated a 1-hour NAAQS for NO_2. North Dakota had a 1-hour NO_2 AAQS set at 100 ppb until December of 1994. The new NAAQS is slightly more stringent than the former SAAQS for NO_2. The Department's experience indicates that oil and gas facilities will have to limit NO_x emissions through the use of control devices such as catalytic convertors on engines or low NO_x burners at heater/treaters or glycol dehydration unit boilers. Particulate emissions from oil and development and production are not expected to change appreciably from the baseline emission rate. Emissions from the production site are mostly from development of the well pad which is of short duration. Vehicle traffic would be the only other significant source of particulate matter emissions. Once the well is developed, these emissions should decrease substantially.

The WRAP, through its contractor EC/R Incorporated, has prepared an analysis of the four factors for reasonable progress for oil and gas exploration and production operations (see Appendix I.2, Section 4). Given the small amount of baseline emissions and the uncertainty of the projection of future emissions, the Department proposes no additional controls for oil and gas exploration and production facilities at this time. The Department will continue to track oil and gas emissions and will take into consideration the Phase III inventory when it is available. During the mid planning period review, the Department will review oil and gas emissions and take action if necessary. Oil and gas emissions will also be addressed during subsequent planning periods.

9.6 Visibility Modeling and Weight of Evidence

As detailed in Section 8, modeling has been conducted by both WRAP and the NDDoH to estimate visibility improvement resulting from implementation of BART and other reasonable control measures. Modeling addressed TRNP and LWA Class I areas in North Dakota. Visibility improvement modeling accounted for the cumulative effect of BART controls, and other growth and control factors. Modeling was initially conducted using the default EPA methodology, and results were compared with the default EPA uniform rate of progress (URP). Because results based on the default EPA methodology did not achieve compliance with default URP targets for 2018, additional modeling was conducted by the NDDoH for various weight of evidence options.

Supplemental weight of evidence modeling analyses conducted by the NDDoH, which have a bearing on the selection of reasonable progress goals, include the following.

1) Discounted the impact of international (in this case, Canadian) source visibility-affecting emissions on North Dakota Class I areas.

2) Discounted the impact of visibility-affecting emissions from all sources located outside of North Dakota, on North Dakota Class I areas.

3) Used the complete emissions inventory for the default EPA method, but zeroed out future SO_2 and NO_x emissions from all sources located in North Dakota (i.e., assumed 100 percent future control of all SO_2 and NO_x emissions in North Dakota), to determine progress with respect to the default glide path for North Dakota Class I areas.

4) Conducted modeling to determine the incremental visibility improvement, and cost effectiveness

($/dv), of enhanced control technology at AVS generating station, Coyote generating station, and Tioga Gas Plant (Section 9.5.1).

Modeling results for the default EPA methodology and weight of evidence analyses are summarized in Table 9.11. In the table, Scenarios 1 and 2 represent the implementation of default EPA methodology by WRAP and NDDoH, respectively. Scenarios 3, 4, and 5 reflect the first three NDDoH weight of evidence analyses outlined above. Results for the fourth weight of evidence analysis (above) were provided in Table 9.9. Results in Table 9.11 are presented as the projected percent of the 2018 target.

From results of visibility modeling based on standard EPA methodology, and results of the weight of evidence analyses, the following conclusions are applicable to the establishment of reasonable progress goals for North Dakota Class I areas.

1) The uniform rate of progress goal for 2018 for 20% worst days will not be achieved at either TRNP or LWA.

2) Apportionment modeling results indicate the contribution of sources located outside of North Dakota is much greater than the contribution of in-state sources to 20% worst day visibility at TRNP and LWA (both baseline and 2018).

3) Though the addition of proposed BART controls substantially decreases the visibility impact of North Dakota EGUs, these EGUs comprise only a small component of total 20% worst day impact at TRNP and LWA.

Table 9.11
NDDoH Visibility Modeling Results 20% Worst Days EPA Methodology and Weight of Evidence Analysis Summary

Scenario	Description	Class I Area	Projected Percent of 2018 Target
1	WRAP CMAQ Default EPA Methodology	TRNP LWA	24.0 16.7
2	NDDoH Hybrid Default EPA Methodology	TRNP LWA	38.1 26.7
3	NDDoH Hybrid Canada Sources Discounted	TRNP LWA	50.0 40.2
4	NDDoH Hybrid All Sources Other Than ND Discounted	TRNP LWA	83.9 59.6
5	NDDoH Hybrid Base Emission Inv = Default Future Emissions Inv = All ND SO_2 and NO_x Emissions set to zero	TRNP LWA	83.8 72.6

4) Compliance with 20% worst day URP 2018 targets at North Dakota Class I areas cannot be achieved through additional emissions reductions from North Dakota sources, alone. It will require significant additional visibility affecting emissions reductions from Canada, other western states

and from sources located outside of the WRAP CMAQ modeling domain.

5) After discounting the impact of Canadian sources, significantly greater progress (50 percent greater) was demonstrated, relative to URP 2018 targets for North Dakota Class I areas, than modeling with the entire emissions inventory but the 20% worst day targets were still not achieved.

6) After discounting the impact of *all sources located outside of North Dakota,* even greater progress was demonstrated, relative to URP 2018 targets for North Dakota Class I areas, than modeling with Canadian sources discounted. However, 20% worst day targets were still not achieved.

7) After zeroing out all future SO_2 and NO_x emissions in North Dakota under default EPA methodology (emulating a 100 percent, unrealistic control of all sources), compliance with 20% worst day targets was still not achieved at North Dakota Class I areas.

8) The use of enhanced control technology at AVS generating station, Coyote generating station, and Tioga Gas Plant provides minimal incremental improvement in 2018 visibility (Table 9.9), and does not meaningfully change status with respect to 2018 visibility goals.

Given these conclusions based on modeling, it appears most of the visibility impact at North Dakota Class I areas is due to emissions from sources located outside the jurisdiction of the NDDoH. But regardless of the extent to which visibility-affecting sources located outside of North Dakota are discounted, compliance with URP targets cannot be achieved. Further, the use of enhanced control technology on additional candidate sources (Item 8, above) within jurisdiction of the NDDoH does not provide a meaningful improvement in terms of 2018 URP visibility goals. It is not realistic to expect significant additional controls (beyond BART or other current controls) will be implemented in states or Canadian provinces apart from North Dakota before 2018. From a modeling perspective, therefore, setting reasonable progress goals for 20% worst days to be consistent with 2018 modeling results for the default EPA methodology (Table 9.11) would seem most realistic.

9.7 Establish Reasonable Progress Goals

As indicated in Section 8, control of emissions from North Dakota sources has only a small effect on visibility conditions in the North Dakota Class I areas. The source apportionment (based on WRAP modeling) for the 20% worst days in the Class I areas indicates that sources outside of North Dakota contribute from 79-87% of the sulfate or nitrate which cause the greatest visibility impairment in the North Dakota Class I areas. The source region apportionment provided by WRAP is presented in Table 9.12 for the North Dakota Class I areas. Note that the WRAP modeled contributions for North Dakota sources in Table 9.12 are somewhat smaller than the contributions based on NDDoH modeling in Table 8.16. This is because the NDDoH approach incorporated a more realistic representation of point source plumes, resulting in higher predictions for North Dakota sources (and greater visibility improvement).

Table 9.12
Source Region Apportionment 20% Worst Days

Contributing Area	Class I Area			
	TRNP		LWA	
	SO_4	NO_3	SO_4	NO_3
North Dakota	21.1%	19.1%	17.9%	13.0%
Canada	28.3%	31.8%	45.9%	44.6%
Outside Domain	32.6%	17.9%	20.2%	14.0%
Montana	3.1%	15.0%	2.4%	9.3%
CENRAP	4.9%	2.5%	5.3%	5.1%
Other	10.5%	13.7%	8.3%	14.0%

An analysis was conducted to determine if the uniform rate of progress could be achieved in the North Dakota Class I areas by controlling sulfur dioxide and nitrogen oxides emissions from in-state sources (see Section 8.7.3.3). The results indicate the uniform rate of progress cannot be achieved by reductions in North Dakota alone. If all sulfur dioxide and nitrogen oxides emissions in North Dakota were completely controlled (zero emissions), only 72.6% of the uniform rate of progress for the 20% worst days would be achieved at LWA and only 83.8% at TRNP. Significant reductions of emissions from sources outside of North Dakota will be required in order to meet the uniform rate of progress for this planning period.

North Dakota can only require emission controls for sources within its boundaries. Because of the large contribution to visibility impairment from sources outside of North Dakota, any estimate of reasonable progress on a deciview basis is tenuous at best. Any increase in emissions from sources external to North Dakota could offset any improvement from the reduction of emissions at in-state sources. By 2018, North Dakota BART controls plus other regulatory requirements are expected to reduce in-state SO_2 emissions by more than 60% and NO_x emissions by more than 25%. Table 9.13 shows the projected change in emissions for North Dakota as well as surrounding states and Canada.

Table 9.13
Projected Change in Emissions
2002-2018
(%)

	South Dakota	Montana	Minnesota	Canada	North Dakota
SO_2	-35.7	-11.8	-28.8	-6.8	-60.0
NO_x	-17.9	-26.0	-39.4	-0.8	-25.3
OC	-6.1	-3.3	-5.3	22.7	-19.4
EC	-51.1	-16.6	-28.9	75.2	-52.3
PMF	2.2	7.5	-1.3	34.8	2.0
PMC	4.2	8.8	-4.4	33.8	3.5
NH_3	0.3	1.2	33.9	-31.9	-0.3
VOC	-0.5	-0.6	2.9	-1.2	1.1
CO	-17.0	-15.9	-20.8	-11.7	-27.4

Note: Based on WRAP's Case Plans 02d and PRP 18b.

The reasonable progress goals based on the Department's hybrid modeling approach in Table 9.14 are established. The analyses conducted indicate there will be no degradation in the 20% best days. The Department's modeling results show that visibility in the 20% best days will improve 0.14 deciviews at TRNP and 0.09 deciviews at LWA.

Table 9.14
Reasonable Progress Goals

Class I Area	Baseline Visibility 20% Worst Days (dv)	2018 RPG[a] 20% Worst Days (dv)	2018 RPG[b] 20% Worst Days (dv)
TRNP	17.8	16.9	17.2
LWA	19.6	18.9	19.1

[a]Based on Department's hybrid modeling approach.

[b]Based on WRAP's modeling approach.

40 CFR 51.308(d)(1)(ii) requires the State to provide for public review an assessment of the number of years it would take to attain natural conditions if visibility improvement continues at the rate of progress selected by the State as reasonable. Achieving natural conditions will require the elimination of all anthropogenic sources of emissions. Given current technology, achieving natural conditions is an impossibility. Any estimate of the number of years necessary to achieve natural visibility conditions would require assumptions about future energy sources, technology improvements for sources of emissions,

and every facet of human behavior that causes visibility impairing emissions. The elimination of all SO_2 and NO_x emissions in North Dakota will not achieve the uniform rate of progress for this, or any future planning period. Any estimate of the number of years to achieve natural conditions is questionable because of the influence of out-of-state sources. The number of years required to achieve natural conditions based on the proposed reasonable goals are as follows:

Table 9.15
Time Necessary to Achieve Natural Conditions

	Baseline Visibility	Natural Visibility	Improvement Rate this Planning Period	Years to Natural Conditions[a]
Class I Area	20% Worst Days (dv)	20% Worst Days (dv)	20% Worst Days (dv/yr)	20% Worst Days
TRNP	17.8	7.8	0.06429	156
LWA	19.6	8.0	0.05000	232

[a]Based on the Department's hybrid modeling approach.

If the most efficient cost effective control options evaluated for Coyote Station, Antelope Valley Station and the Tioga Gas Plant were implemented, the number of years to reach natural conditions would be 151 years at the three units of TRNP and 201 years at LWA. Implementing additional controls at these sources will not significantly affect current visibility conditions or the amount of time necessary to achieve natural conditions.

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