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ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 52

[EPA-R08-OAR-2024-0609; FRL-12596-01-R8]

Air Plan Approval; South Dakota; Regional Haze Plan for the Second Implementation Period

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: The Environmental Protection Agency (EPA) is proposing to approve the regional haze state implementation plan (SIP) submission submitted by the State of South Dakota on July 29, 2022 (South Dakota's 2022 SIP submission), under the Clean Air Act (CAA) and the EPA's Regional Haze Rule (RHR) for the program's second implementation period. South Dakota's 2022 SIP submission addresses the requirement that states revise their long-term strategies every implementation period to make reasonable progress towards the national goal of preventing any future, and remedying any existing, anthropogenic impairment of visibility, including regional haze, in mandatory Class I Federal areas. South Dakota's 2022 SIP submission also addresses other applicable requirements for the second implementation period of the regional haze program. The EPA is taking this action pursuant to the CAA.

DATES: Written comments must be received on or before **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

ADDRESSES: Submit your comments, identified by Docket ID No. EPA-R08-OAR-2024-0609, to the Federal Rulemaking Portal: <https://www.regulations.gov>. Follow the

online instructions for submitting comments. Once submitted, comments cannot be edited or removed from <https://www.regulations.gov>. The EPA may publish any comment received to its public docket. Do not submit electronically any information you consider to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Multimedia submissions (audio, video, etc.) must be accompanied by a written comment. The written comment is considered the official comment and should include discussion of all points you wish to make. The EPA will generally not consider comments or comment contents located outside of the primary submission (i.e., on the web, cloud, or other file sharing system). For additional submission methods, the full EPA public comment policy, information about CBI or multimedia submissions, and general guidance on making effective comments, please visit

<https://www.epa.gov/dockets/commenting-epa-dockets>.

Docket: All documents in the docket are listed in the <https://www.regulations.gov> index. Although listed in the index, some information is not publicly available, e.g., CBI or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, will be publicly available only in hard copy. Publicly available docket materials are available electronically in <https://www.regulations.gov>. Please email or call the person listed in the **FOR FURTHER INFORMATION CONTACT** section if you need to make alternative arrangements for access to the docket.

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SUPPLEMENTARY INFORMATION: Throughout this document wherever “we,” “us,” or “our” is used, we mean the EPA.

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I. What Action Is the EPA Proposing?

The EPA is proposing to approve a SIP submission submitted by the State of South Dakota to the EPA on July 29, 2022, addressing the requirements of the second implementation period of the RHR. Specifically, the EPA is proposing to approve South Dakota's 2022 SIP submission as satisfying the requirements of 40 CFR 51.308(f)(1): calculations of baseline, current, and natural visibility conditions, progress to date, and the uniform rate of progress; 40 CFR 51.308(f)(2): long-term strategy; 40 CFR 51.308(f)(3): reasonable progress goals; 40 CFR 51.308(f)(4): reasonably attributable visibility impairment; 40 CFR 51.308(f)(5) and 40 CFR 51.308(g): progress report requirements; 40 CFR 51.308(f)(6): monitoring strategy and other implementation plan requirements; and 40 CFR 51.308(i): Federal Land Manager (FLM) consultation.

II. Background and Requirements for Regional Haze Plans

A detailed history and background of the regional haze program is provided in multiple prior EPA proposal actions.¹ For additional background on the 2017 RHR revisions, please refer to section III. Overview of Visibility Protection Statutory Authority, Regulation, and Implementation of "Protection of Visibility: Amendments to Requirements for State Plans" of the 2017 RHR.² The following is an abbreviated history and background of the regional haze program and 2017 Regional Haze Rule as it applies to the current action.

¹ See 90 FR 13516 (March 24, 2025).

² See 82 FR 3078 (January 10, 2017), located at <https://www.federalregister.gov/documents/2017/01/10/2017-00268/protection-of-visibility-amendments-to-requirements-for-State-plans#h-16>.

A. Regional Haze

In the 1977 CAA amendments, Congress created a program for protecting visibility in the Nation's mandatory Class I Federal areas, which include certain national parks and wilderness areas.³ CAA section 169A. The CAA establishes 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." CAA section 169A(a)(1).

Regional haze is visibility impairment that is produced by a multitude of anthropogenic sources and activities that are located across a broad geographic area and that emit pollutants that impair visibility. Visibility impairing pollutants include fine and coarse particulate matter (PM) (e.g., sulfates, nitrates, organic carbon, elemental carbon, and soil dust) and their precursors (e.g., sulfur dioxide (SO₂), nitrogen oxides (NO_x), and, in some cases, volatile organic compounds (VOC) and ammonia (NH₃)). Fine particle precursors react in the atmosphere to form fine particulate matter (PM_{2.5}), which impairs visibility by scattering and absorbing light. Visibility impairment reduces the perception of clarity and color, as well as visible distance.⁴

³ Areas statutorily designated as mandatory Class I Federal areas consist of national parks exceeding 6,000 acres, wilderness areas and national memorial parks exceeding 5,000 acres, and all international parks that were in existence on August 7, 1977. CAA section 162(a). There are 156 mandatory Class I areas. The list of areas to which the requirements of the visibility protection program apply is in 40 CFR part 81, subpart D.

⁴ There are several ways to measure the amount of visibility impairment, i.e., haze. One such measurement is the deciview, which is the principal metric used by the RHR. Under many circumstances, a change in one deciview will be perceived by the human eye to be the same on both clear and hazy days. The deciview is unitless. It is proportional to the logarithm of the atmospheric extinction of light, which is the perceived dimming of light due to its being scattered and absorbed as it passes through the atmosphere. Atmospheric light extinction (b^{ext}) is a metric used for expressing visibility and is measured in inverse megameters (Mm⁻¹).

To address regional haze visibility impairment, the 1999 RHR established an iterative planning process that requires both states in which Class I areas are located and states “the emissions from which may reasonably be anticipated to cause or contribute to any impairment of visibility” in a Class I area to periodically submit SIP revisions to address such impairment. CAA section 169A(b)(2);⁵ see also 40 CFR 51.308(b), (f) (establishing submission dates for iterative regional haze SIP revisions) (64 FR 35768, July 1, 1999).

On January 10, 2017, the EPA promulgated revisions to the RHR (82 FR 3078, January 10, 2017), that apply for the second and subsequent implementation periods. The reasonable progress requirements as revised in the 2017 rulemaking (referred to here as the 2017 RHR Revisions) are codified at 40 CFR 51.308(f).

B. Roles of Agencies in Addressing Regional Haze

Because the air pollutants and pollution affecting visibility in Class I areas can be transported over long distances, successful implementation of the regional haze program requires long-term, regional coordination among multiple jurisdictions and agencies that have responsibility for Class I areas and the emissions that impact visibility in those areas. To address regional haze, states need to develop strategies in coordination with one another, considering the effect of emissions from one jurisdiction on the air quality in another. Five regional planning organizations (RPOs),⁶ which include representation from state and Tribal governments, the EPA, and FLMs, were developed in the lead-up to

⁵ The RHR expresses the statutory requirement for states to submit plans addressing out-of-state Class I areas by providing that states must address visibility impairment “in each mandatory Class I Federal area located outside the State that may be affected by emissions from within the State.” 40 CFR 51.308(d), (f).

⁶ RPOs are sometimes also referred to as “multi-jurisdictional organizations,” or MJOs. For the purposes of this document, the terms RPO and MJO are synonymous.

the first implementation period to address regional haze. RPOs evaluate technical information to better understand how emissions from state and tribal land impact Class I areas across the country, pursue the development of regional strategies to reduce emissions of particulate matter and other pollutants leading to regional haze, and help states meet the consultation requirements of the RHR.

The Western Regional Air Partnership (WRAP), one of the five regional planning organizations described in the previous paragraph, is a collaborative effort of state governments, local air agencies, tribal governments, and various Federal agencies established to initiate and coordinate activities associated with the management of regional haze, visibility, and other air quality issues in the Western United States. Members include the states of Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington, Wyoming, and 28 tribal governments.⁷ The Federal partner members of WRAP are the EPA, U.S. National Parks Service (NPS), U.S. Fish and Wildlife Service (USFWS), U.S. Forest Service (USFS), and the Bureau of Land Management (BLM).

The WRAP membership formed a workgroup to develop a planning framework for state regional haze second planning period SIPs. Based on emissions and monitoring data supplied by its membership, WRAP produced a technical system to support regional modeling of visibility impacts at Class I areas across the West. The WRAP Technical Support System consolidated air quality monitoring data, meteorological and receptor modeling data analyses, emissions inventories and projections, and gridded air quality/visibility regional modeling results. The Technical Support System is accessible

⁷ A full list of WRAP members is available at <https://www.westar.org/wrap-council-members/>.

by member states and allows for the creation of maps, figures, and tables to export and use in state plan development. It also maintains the original source data for verification and further analysis.

C. Status of South Dakota's Regional Haze Plan for the First Implementation Period

The CAA requires that regional haze plans for the first implementation period (2008 through 2018) include, among other things, a long-term strategy for making reasonable progress and BART requirements for certain older stationary sources, where applicable.⁸ In January 2011, South Dakota submitted a first implementation period regional haze SIP submission addressing the requirements of 40 CFR 51.308. On April 26, 2012, the EPA approved the 2011 SIP submission as meeting the requirements of the CAA and the RHR.⁹

On January 27, 2016, South Dakota submitted its first planning period progress report SIP submission. It detailed the State's progress toward achieving reasonable progress for visibility improvement and included a determination of adequacy of the State's regional haze implementation plan to meet reasonable progress goals. In 2018, we approved South Dakota's progress report SIP submission.¹⁰

D. South Dakota's Regional Haze Plan for the Second Implementation Period

On April 28, 2022, South Dakota submitted a SIP submission to address its regional haze obligations for the second implementation period (2018-2028). South Dakota's 2022 SIP submission contains the State's evaluation of which measures to

⁸ Requirements for regional haze SIPs for the first implementation period are contained in CAA section 169A(b)(2). As relevant to South Dakota, 40 CFR 51.308(d) and (e) require states to perform individual point source BART determinations and evaluate the need for other control strategies.

⁹ 77 FR 24845 (April 26, 2012).

¹⁰ 83 FR 62262 (December 3, 2018).

include in its long-term strategy to address regional haze visibility impairment for each Class I area within the State and each Class I area outside the State that may be affected by emissions from the State. The State examined the need to implement additional enforceable emission limitations, compliance schedules, and other measures that may be necessary to make reasonable progress since the first implementation period. Specifically, South Dakota's 2022 SIP submission contains an assessment of visibility progress made at Class I areas since the first implementation period and the State's determinations regarding a long-term strategy to address regional haze visibility impairment at the Class I areas the State identified, including: South Dakota's selection of sources that may affect visibility in Class I areas for four-factor analysis; its evaluation of the selected sources to determine what emission reduction measures may be necessary to achieve reasonable progress for the long-term strategy; WRAP's regional scale modeling of the State's long-term strategy to set reasonable progress goals for 2028; and ultimately, South Dakota's determinations on what measures are necessary for the long-term strategy to address regional haze visibility impairment in Class I areas. The State concluded that no additional emission reduction measures for any South Dakota facilities are required for the second implementation period under its long-term strategy.

III. Requirements for Regional Haze Plans for the Second Implementation Period

Under the CAA and the EPA's regulations, all 50 states, the District of Columbia, and the U.S. Virgin Islands are required to submit regional haze SIPs satisfying the applicable requirements for the second implementation period of the regional haze program by July 31, 2021. Each state's SIP must contain a long-term strategy for making reasonable progress toward meeting the national goal of remedying any existing and

preventing any future anthropogenic visibility impairment in Class I areas. CAA section 169A(b)(2)(B). To this end, 40 CFR 51.308(f) lays out the process by which states determine what constitutes their long-term strategies, with the order of the requirements in paragraphs (f)(1) through (3) generally mirroring the order of the steps in the reasonable progress analysis¹¹ and paragraphs (f)(4) through (6) containing additional, related requirements. Broadly speaking, a state first must identify the Class I areas within the state and determine the Class I areas outside the state in which visibility may be affected by emissions from the state. These are the Class I areas that must be addressed in the state's long-term strategy. See 40 CFR 51.308(f) introductory text, (f)(2). For each Class I area within its borders, a state must then calculate the baseline (five-year average period of 2000-2004), current, and natural visibility conditions (i.e., visibility conditions without anthropogenic visibility impairment) for that area, as well as the visibility improvement made to date and the "uniform rate of progress" (URP). The URP is the linear rate of progress needed to attain natural visibility conditions, assuming a starting point of baseline visibility conditions in 2004 and ending with natural conditions in 2064. This linear interpolation is used as a tracking metric to help states assess the amount of progress they are making towards the national visibility goal over time in each Class I area. See 40 CFR 51.308(f)(1). Each state having a Class I area and/or emissions that may affect visibility in a Class I area must then develop a long-term strategy that includes the enforceable emission limitations, compliance schedules, and other measures that are necessary to make reasonable progress in such areas. A reasonable progress

¹¹ The EPA explained in the 2017 RHR Revisions that we were adopting new regulatory language in 40 CFR 51.308(f) that, unlike the structure in 40 CFR 51.308(d), "tracked the actual planning sequence." (82 FR 3091).

determination is based on applying the four factors in CAA section 169A(g)(1) to sources of visibility impairing pollutants that the state has selected to assess for controls for the second implementation period. Additionally, as further explained below, the RHR at 40 CFR 51.3108(f)(2)(iv) separately provides five “additional factors”¹² that states must consider in developing their long-term strategies. See 40 CFR 51.308(f)(2). A state evaluates potential emission reduction measures for those selected sources and determines which are necessary to make reasonable progress. Those measures are then incorporated into the state’s long-term strategy. After a state has developed its long-term strategy, it then establishes reasonable progress goals (RPGs) for each Class I area within its borders by modeling the visibility impacts of all reasonable progress controls at the end of the second implementation period, i.e., in 2028, as well as the impacts of other requirements of the CAA. The RPGs include reasonable progress controls not only for sources in the state in which the Class I area is located, but also for sources in other states that contribute to visibility impairment in that area. The RPGs are then compared to the baseline visibility conditions and the URP to ensure that progress is being made towards the statutory goal of preventing any future and remedying any existing anthropogenic visibility impairment in Class I areas. 40 CFR 51.308(f)(2) and (3). There are additional requirements in the rule, including FLM consultation, that apply to all visibility protection SIPs and SIP revisions. *See e.g.*, 40 CFR 51.308(i).

While states have discretion to choose any source selection methodology that is reasonable, whatever choices they make should be reasonably explained. To this end, 40

¹² The five “additional factors” for consideration in § 51.308(f)(2)(iv) are distinct from the four factors listed in CAA section 169A(g)(1) and § 51.308(f)(2)(i) that states must consider and apply to sources in determining reasonable progress.

CFR 51.308(f)(2)(i) requires that a state’s SIP submission include “a description of the criteria it used to determine which sources or groups of sources it evaluated.” The technical basis for source selection, which may include methods for quantifying potential visibility impacts such as emissions divided by distance metrics, trajectory analyses, residence time analyses, and/or photochemical modeling, must also be appropriately documented, as required by 40 CFR 51.308(f)(2)(iii).

Once a state has selected the set of sources, the next step is to determine the emissions reduction measures for those sources that are necessary to make reasonable progress for the second implementation period.¹³ This is accomplished by considering the four factors—“the costs of compliance, the time necessary for compliance, and the energy and non-air quality environmental impacts of compliance, and the remaining useful life of any existing source subject to such requirements.” CAA section 169A(g)(1). The EPA has explained that the four-factor analysis is an assessment of potential emission reduction measures (i.e., control options) for sources; “use of the terms ‘compliance’ and ‘subject to such requirements’ in section 169A(g)(1) strongly indicates that Congress intended the relevant determination to be the requirements with which sources would have to comply to satisfy the CAA’s reasonable progress mandate.” 82 FR 3091. Thus, for each source it has selected for four-factor analysis,¹⁴ a state must consider

¹³ The CAA provides that, “[i]n determining reasonable progress there shall be taken into consideration” the four statutory factors. CAA section 169A(g)(1). However, in addition to four-factor analyses for selected sources, groups of sources, or source categories, a state may also consider additional emission reduction measures for inclusion in its long-term strategy, e.g., from other newly adopted, on-the-books, or on-the-way rules and measures for sources not selected for four-factor analysis for the second implementation period.

¹⁴ “Each source” or “particular source” is used here as shorthand. While a source-specific analysis is one way of applying the four factors, neither the statute nor the RHR requires states to evaluate individual sources. Rather, states have “the flexibility to conduct four-factor analyses for specific sources, groups of sources or even entire source categories, depending on state policy preferences and the specific circumstances of each state.” 82 FR 3088.

a “meaningful set” of technically feasible control options for reducing emissions of visibility impairing pollutants. *Id.* at 3088.

The EPA has also explained that, in addition to the four statutory factors, states have flexibility under the CAA and RHR to reasonably consider visibility benefits as an additional factor alongside the four statutory factors.¹⁵ Ultimately, while states have discretion to reasonably weigh the factors and to determine what level of control is needed, 40 CFR 51.308(f)(2)(i) provides that a state “must include in its implementation plan a description of . . . how the four factors were taken into consideration in selecting the measure for inclusion in its long-term strategy.”

As explained above, 40 CFR 51.308(f)(2)(i) requires states to determine the emission reduction measures for sources that are necessary to make reasonable progress by considering the four factors. Pursuant to 40 CFR 51.308(f)(2), measures that are necessary to make reasonable progress towards the national visibility goal must be included in a state’s long-term strategy and in its SIP. If the outcome of a four-factor analysis is that an emissions reduction measure is necessary to make reasonable progress towards remedying existing or preventing future anthropogenic visibility impairment, that measure must be included in the SIP.

The characterization of information on each of the factors is also subject to the documentation requirement in 40 CFR 51.308(f)(2)(iii). The reasonable progress analysis is a technically complex exercise, and also a flexible one that provides states with bounded discretion to design and implement approaches appropriate to their

¹⁵ *See, e.g.,* Responses to Comments on Protection of Visibility: Amendments to Requirements for State Plans; Proposed Rule (81 FR 26942, May 4, 2016), Docket ID No. EPA-HQ-OAR-2015-0531, U.S. Environmental Protection Agency at 186.

circumstances. Given this flexibility, 40 CFR 51.308(f)(2)(iii) plays an important function in requiring a state to document the technical basis for its decision making so that the public and the EPA can comprehend and evaluate the information and analysis the state relied upon to determine what emission reduction measures must be in place to make reasonable progress. The technical documentation must include the modeling, monitoring, cost, engineering, and emissions information on which the state relied to determine the measures necessary to make reasonable progress.

Additionally, the RHR at 40 CFR 51.3108(f)(2)(iv) separately provides five “additional factors”¹⁶ that states must consider in developing their long-term strategies: (1) Emission reductions due to ongoing air pollution control programs, including measures to address reasonably attributable visibility impairment; (2) measures to reduce the impacts of construction activities; (3) source retirement and replacement schedules; (4) basic smoke management practices for prescribed fire used for agricultural and wildland vegetation management purposes and smoke management programs; and (5) 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.

Because the air pollution that causes regional haze crosses state boundaries, 40 CFR 51.308(f)(2)(ii) requires a state to consult with other states that also have emissions that are reasonably anticipated to contribute to visibility impairment in a given Class I area. If a state, pursuant to consultation, agrees that certain measures (e.g., a certain emission limitation) are necessary to make reasonable progress at a Class I area, it must

¹⁶ The five “additional factors” for consideration in § 51.308(f)(2)(iv) are distinct from the four factors listed in CAA section 169A(g)(1) and § 51.308(f)(2)(i) that states must consider and apply to sources in determining reasonable progress.

include those measures in its SIP. 40 CFR 51.308(f)(2)(ii)(A). Additionally, the RHR requires that states that contribute to visibility impairment at the same Class I area consider the emission reduction measures the other contributing states have identified as being necessary to make reasonable progress for their own sources. 40 CFR 51.308(f)(2)(ii)(B). If a state has been asked to consider or adopt certain emission reduction measures, but ultimately determines those measures are not necessary to make reasonable progress, that state must document in its SIP the actions taken to resolve the disagreement. 40 CFR 51.308(f)(2)(ii)(C). Under all circumstances, a state must document in its SIP submission all substantive consultations with other contributing states. 40 CFR 51.308(f)(2)(ii)(C).

A. Reasonable Progress Goals

Reasonable progress goals “measure the progress that is projected to be achieved by the control measures states have determined are necessary to make reasonable progress based on a four-factor analysis.” 82 FR 3091.

For the second implementation period, the RPGs are set for 2028. Reasonable progress goals are not enforceable targets, 40 CFR 51.308(f)(3)(iii). While states are not legally obligated to achieve the visibility conditions described in their RPGs, 40 CFR 51.308(f)(3)(i) requires that “[t]he long-term strategy and the reasonable progress goals must provide for an improvement in visibility for the most impaired days since the baseline period and ensure no degradation in visibility for the clearest days since the baseline period.”

RPGs may also serve as a metric for assessing the amount of progress a state is making towards the national visibility goal. To support this approach RHR requires states

with Class I areas to compare the 2028 RPG for the most impaired days to the corresponding point on the URP line (representing visibility conditions in 2028 if visibility were to improve at a linear rate from conditions in the baseline period of 2000-2004 to natural visibility conditions in 2064). If the most impaired days RPG in 2028 is above the URP (i.e., if visibility conditions are improving more slowly than the rate described by the URP), each state that contributes to visibility impairment in the Class I area must demonstrate, based on the four-factor analysis required under 40 CFR 51.308(f)(2)(i), that no additional emission reduction measures would be reasonable to include in its long-term strategy. 40 CFR 51.308(f)(3)(ii). To this end, 40 CFR 51.308(f)(3)(ii) requires that each state contributing to visibility impairment in a Class I area that is projected to improve more slowly than the URP provide “a robust demonstration, including documenting the criteria used to determine which sources or groups [of] sources were evaluated and how the four factors required by paragraph (f)(2)(i) were taken into consideration in selecting the measures for inclusion in its long-term strategy.”

B. Monitoring Strategy and Other State Implementation Plan Requirements

Section 51.308(f)(6) requires states to have certain strategies and elements in place for assessing and reporting on visibility. Individual requirements under this section apply either to states with Class I areas within their borders, states with no Class I areas but that are reasonably anticipated to cause or contribute to visibility impairment in any Class I area, or both. Compliance with the monitoring strategy requirement may be met through a state’s participation in the Interagency Monitoring of Protected Visual Environments (IMPROVE) monitoring network, which is used to measure visibility

impairment caused by air pollution at the 156 Class I areas covered by the visibility program. 40 CFR 51.308(f)(6) introductory text, (f)(6)(i), (iv).

All states' SIPs must provide for procedures by which monitoring data and other information are used to determine the contribution of emissions from within the state to regional haze visibility impairment in affected Class I areas, as well as a statewide inventory documenting such emissions. 40 CFR 51.308(f)(6)(ii), (iii), and (v). All states' SIPs must also provide for any other elements, including reporting, recordkeeping, and other measures, that are necessary for states to assess and report on visibility. 40 CFR 51.308(f)(6)(vi).

C. Requirements for Periodic Reports Describing Progress Towards the Reasonable Progress Goals

Section 51.308(f)(5) requires a state's regional haze SIP revision to address the requirements of 40 CFR 51.308(g)(1) through (5) so that the plan revision due in 2021 will serve also as a progress report addressing the period since submission of the progress report for the first implementation period. The regional haze progress report requirement is designed to inform the public and the EPA about a state's implementation of its existing long-term strategy and whether such implementation is in fact resulting in the expected visibility improvement. See 81 FR 26942, 26950 (May 4, 2016) (82 FR 3119, January 10, 2017). To this end, every state's SIP revision for the second implementation period is required to assess changes in visibility conditions and describe the status of implementation of all measures included in the state's long-term strategy, including BART and reasonable progress emission reduction measures from the first implementation period, and the resulting emissions reductions. 40 CFR 51.308(g)(1) and

(2).

D. Requirements for State and Federal Land Manager Coordination

CAA section 169A(d) requires that before a state holds a public hearing on a proposed regional haze SIP revision, it must consult with the appropriate FLM or FLMs; pursuant to that consultation, the state must include a summary of the FLMs' conclusions and recommendations in the notice to the public. Consistent with this statutory requirement, the RHR also requires that states "provide the [FLM] with an opportunity for consultation, in person and at a point early enough in the State's policy analyses of its long-term strategy emission reduction obligation so that information and recommendations provided by the [FLM] can meaningfully inform the State's decisions on the long-term strategy." 40 CFR 51.308(i)(2). For the EPA to evaluate whether FLM consultation meeting the requirements of the RHR has occurred, the SIP submission should include documentation of the timing and content of such consultation. The SIP revision submitted to the EPA must also describe how the state addressed any comments provided by the FLMs. 40 CFR 51.308(i)(3). Finally, a SIP revision must provide procedures for continuing consultation between the state and FLMs regarding the state's visibility protection program, including development and review of SIP revisions, five-year progress reports, and the implementation of other programs having the potential to contribute to impairment of visibility in Class I areas. 40 CFR 51.308(i)(4).

IV. The EPA’s Evaluation of South Dakota’s Regional Haze Plan for the Second Implementation Period

In section IV. of this document, we describe South Dakota’s 2022 SIP submission and evaluate it against the requirements of the CAA and RHR for the second implementation period of the regional haze program.

A. Identification of Class I Areas

Section 169A(b)(2) of the CAA requires each state in which any Class I area is located or “the emissions from which may reasonably be anticipated to cause or contribute to any impairment of visibility” in a Class I area to have a long-term strategy for making reasonable progress toward the national visibility goal. The RHR implements this statutory requirement in 40 CFR 51.308(f) for the second and subsequent planning periods for regional haze. Section 51.308(f)(2) requires states to submit a long-term strategy that addresses regional haze visibility impairment for each mandatory Class I area within the state and for each mandatory Class I area located outside the state that may be affected by emissions from the state.

There are two designated Class I Areas within the State of South Dakota, including two national parks managed by the U.S. National Parks Service: Badlands National Park and Wind Cave National Park.¹⁷ In its 2022 SIP submission, South Dakota acknowledges its sources’ contribution to visibility impairment at both Badlands and Wind Cave.¹⁸ South Dakota maintains that Wind Cave is already projected to meet natural visibility conditions by 2028.¹⁹ As shown in the SIP submission, the 2028 “on-

¹⁷ South Dakota’s 2022 SIP submission at 17-21.

¹⁸ *Id.* at 78.

¹⁹ South Dakota’s 2022 SIP submission at 161.

the-books” modeling scenario projects a value of 9.76 deciviews (dv) impairment at Wind Cave, which is lower than the level of estimated adjusted natural conditions at 10.06 dv.²⁰ This visibility modeling is consistent with South Dakota’s statement that Wind Cave is projected to achieve adjusted natural conditions by 2028, based on the adjustment applied by South Dakota, which accounts for both international anthropogenic and prescribed fire contributions. However, there is some uncertainty that Wind Cave will reach natural conditions by 2028 because sources that contribute to U.S. anthropogenic visibility impairment at Wind Cave will still be operating in 2028. For example, WRAP’s source apportionment modeling shows that South Dakota sources contribute about 8% of U.S. anthropogenic nitrate impairment and around 2.5% of U.S. anthropogenic sulfate impairment at Wind Cave.²¹ In terms of total U.S. anthropogenic impairment (nitrate and sulfate combined), South Dakota contributes 5.5% of total anthropogenic impairment at Wind Cave.²²

WRAP’s source apportionment data also shows that South Dakota sources contribute about 5.9% of anthropogenic nitrate impairment and 1.3% of anthropogenic sulfate impairment at Badlands.²³ In terms of total anthropogenic impairment (nitrate and sulfate combined), South Dakota contributes around 3.5% of total anthropogenic impairment at Badlands.²⁴

There is also some uncertainty in the estimate of natural conditions on the 20% most impaired days, and uncertainty in the estimate of prescribed fire and international

²⁰ *Id.* at 166.

²¹ "TSS XY Chart - Product #XMTP_SASB_LUCS." WRAP Technical Support System (TSS); CSU and the Cooperative Institute for Research in the Atmosphere (CIRA), 30 Dec 2024.

²² *Id.*

²³ *Id.*

²⁴ *Id.*

anthropogenic contributions at Wind Cave that could skew calculations of adjusted natural conditions. However, this uncertainty does not impact glidepath status. Both Class I areas are projected to be well below the adjusted glidepath for 2028,²⁵ and in fact, Wind Cave is projected to be below the unadjusted glidepath in 2028.²⁶ Therefore, irrespective of any adjustments, Wind Cave is clearly below the glidepath in 2028, and Badlands is below the adjusted glidepath in 2028.

South Dakota also evaluated 10 Class I Areas outside the State where visibility may be affected by South Dakota sources. South Dakota concluded that its sources do not significantly impact these out-of-state Class I areas (table 1).²⁷ Based on our review of WRAP’s source apportionment data,²⁸ we find that South Dakota’s sources primarily contribute to visibility impairment to the two in-state Class I areas and have small contributions to several out-of-state Class I areas, in alignment with South Dakota’s analysis.

Table 1. Class I Areas in Other States that May Be Affected by South Dakota Sources

State	Class I Area
North Dakota	Theodore Roosevelt National Park
North Dakota	Lostwood Wilderness
Montana	Medicine Lake Wilderness
Montana	UL Bend Wilderness
Minnesota	Boundary Waters Wilderness
Minnesota	Voyageurs National Park
Wyoming	Bridger Wilderness
Wyoming	North Absaroka Wilderness
Colorado	Mount Zirkel Wilderness
Colorado	Rocky Mountain National Park

²⁵ *Id.* at 159-176.

²⁶ *Id.*

²⁷ South Dakota 2022 SIP submission at 80 and 176-177.

²⁸ *Id.*

B. Calculation of Baseline, Current, and Natural Visibility Conditions; Progress to Date; and Uniform Rate of Progress for Class I Areas Within the State

Section 51.308(f)(1) requires states to determine the following for “each mandatory Class I Federal area located within the State”: baseline visibility conditions for the most impaired and clearest days, natural visibility conditions for the most impaired and clearest days, progress to date for the most impaired and clearest days, the differences between current visibility conditions and natural visibility conditions, and the URP. This section also provides the option for states to propose adjustments to the URP line for a Class I area to account for visibility impacts from anthropogenic sources outside the United States and/or the impacts from wildland prescribed fires that were conducted for certain specified objectives. 40 CFR 51.308(f)(1)(vi)(B).

The IMPROVE monitoring network measures visibility impairment caused by air pollution at Class I areas. South Dakota’s 2022 SIP submission provides visibility conditions for each IMPROVE monitor and associated Class I area in South Dakota (table 2).²⁹

Table 2. Visibility Conditions (Deciviews) for South Dakota IMPROVE Stations

Monitor ID	Class I areas	Baseline (2000-2004)	Period (2008-2012)	Current (2014-2018)	Natural (2064)	Progress since baseline (2000-2004) – (2014-2018)	Progress during last implementation period (2008-2012) – (2014-2018)	Difference between current (2014-2018) and Natural (2064)
Most Impaired Days								
BADL1	Badlands National Park	15	14.6	12.3	6.1	2.7	2.3	6.2

²⁹ *Id.* at 24-29 and 39-44.

WICA1	Wind Cave National Park	13.1	12.5	10.5	5.6	2.6	2	4.9
Clearest Days								
BADL1	Badlands National Park	6.9	6.2	5.4	2.9	1.5	0.8	2.5
WICA1	Wind Cave National Park	5.1	4.1	3.5	1.9	1.6	0.6	1.6

The State also determined the uniform rate of progress for the most impaired and clearest days for South Dakota Class I areas.³⁰ Under 40 CFR 51.308(f)(1)(vi)(B), South Dakota chose to adjust the uniform rate of progress glidepath for the State’s two Class I Areas to account for impacts from anthropogenic sources outside the United States and impacts from wildland prescribed fires.^{31,32}

Based on the information provided in chapter 2 of South Dakota’s 2022 SIP submission, the EPA is proposing to approve the State’s visibility condition calculations for Badlands National Park and Wind Cave National Park as meeting the requirements of 40 CFR 51.308(f)(1) related to the calculation of baseline, current, and natural visibility conditions; progress to date; and the URP. As discussed in section IV.A., both Class I areas are projected to be below the adjusted glidepath in 2028.³³

³⁰ *Id.* at 41-44.

³¹ Wildland prescribed fires are those conducted with the objective to establish, restore, and/or maintain sustainable and resilient wildland ecosystems, to reduce the risk of catastrophic wildfires, and/or to preserve endangered or threatened species during which appropriate basic smoke management practices were applied. 40 CFR 51.308(f)(1)(vi)(B).

³² South Dakota 2022 SIP submission at 44-46.

³³ *Id.* at 159-176.

C. Long-Term Strategy

Each state having a Class I area within its borders or emissions that may affect visibility in any Class I area outside the state must develop a long-term strategy for making reasonable progress towards the national visibility goal for each impacted Class I area. CAA section 169A(b)(2)(B). After considering the four statutory factors, all measures that are determined to be necessary to make reasonable progress must be in the long-term strategy. In developing its long-term strategy, a state must also consider the five additional factors in 40 CFR 51.308(f)(2)(iv). As part of its reasonable progress determinations, the state must describe the criteria used to determine which sources or group of sources were evaluated (i.e., subjected to four-factor analysis) for the second implementation period and how the four factors were taken into consideration in selecting the emission reduction measures for inclusion in the long-term strategy. 40 CFR 51.308(f)(2)(iii).

1. Summary of South Dakota's Long-Term Strategy

South Dakota identified two Class I areas that must be addressed in its long-term strategy: Badlands National Park and Wind Cave National Park.³⁴ Under 40 CFR 51.308(f)(2)(i), SIP submittals must include a description of the criteria a state used to determine which sources or groups of sources to evaluate through four-factor analysis. South Dakota used Q/d screening and Weighted Emissions Potential/Area of Influence (WEP/AOI) analysis to identify sources for four-factor analysis. The Q/d screening metric uses a source's annual emissions in tons (Q) divided by the distance in kilometers (d) between the source and the nearest Class I area, along with a reasonably selected

³⁴ *Id.* at 121.

threshold for this metric. The larger the Q/d value, the greater the source's expected effect on visibility in each associated Class I area. WEP is calculated by overlaying extinction weighted residence time results with 2028OTBa2 emissions of light extinction precursors (i.e., NO_x emissions for ammonium nitrate light extinction and SO₂ emissions for ammonium sulfate light extinction). Extinction weighted residence time is calculated by weighting Hybrid Single-Particle Lagrangian Integrated Trajectory (HYSPLIT) back trajectories by the actual observed light extinction at IMPROVE sites on each Most Impaired Day. The results are then normalized by the sum of the WEP for the total anthropogenic emissions. WEP results include percentages of the total for nitrates and sulfates and the rankings by Class I areas.³⁵

Initially, using WRAP's source selection threshold of Q/d > 10, South Dakota pulled only one source forward for analysis.³⁶ To expand its analysis and ensure that an adequate number of sources were evaluated, South Dakota lowered its source selection threshold to Q/d > 2. Using a screening threshold of Q/d > 2 and emissions information from the 2014 National Emission Inventory, South Dakota identified two sources (GCC Dacotah and Pete Lien and Sons) in the State that may be affecting visibility at Class I areas in South Dakota.³⁷ South Dakota also looked at WEP/AOI results,³⁸ finding that these two sources' relatively higher WEP values, compared to other sources for nitrates and sulfates, further justified the selection of these sources for four-factor analysis.³⁹

³⁵ WRAP, "WEP/AOI Analysis for western U.S. Class I Areas," <https://views.cira.colostate.edu/tssv2/WEP-AOI/> (last accessed January 24, 2025).

³⁶ South Dakota's 2022 SIP submission at 78.

³⁷ *Id.*

³⁸ WEP is a qualitative method of analyzing how pollutants from particular sources may be transported to Class I areas.

³⁹ South Dakota's 2022 SIP submission at 121.

Ultimately, the State selected these two sources to perform a four-factor analysis (table 3).⁴⁰

Table 3. Facilities Screened in Using Q/d and Class I Area with Maximum Q/d

Facility Name	Class I Area with Maximum Q/d	Class I Area State	Distance (km) to Class I Area	Updated Q/d Value (tpy/km)				Wind Cave NP Maximum WEP Value (NO ₃)	Badlands NP Maximum WEP Value (NO ₃)
				NO _x +SO ₂ +PM ₁₀	NO _x	SO ₂	PM ₁₀		
GCC Dacotah	Wind Cave NP	South Dakota	51.62	22.63	16.02	5.89	0.72	172502.5	65883.83
Pete Lien and Sons	Wind Cave NP	South Dakota	55.93	5.62	5.08	0.01	0.53	56732.86	22259.19

The State then requested four-factor analyses from these sources for its review and consideration.⁴¹ South Dakota included the facilities’ four-factor analyses and other submissions in appendices to its 2022 SIP submission. The State determined that the facilities’ submissions sufficiently evaluated potential emission reduction measures.⁴² Section 3.3 of South Dakota’s 2022 SIP submission contains South Dakota’s evaluation of the four statutory factors for each source and South Dakota’s determinations of whether source-specific emission reduction measures are necessary to make reasonable progress. In sections IV.C.1.i-iii. of this document, we summarize the four-factor analyses for the two selected sources, as well as South Dakota’s reasons for concluding

⁴⁰ See WRAP_Threshold_Analysis.xlsx, available in the docket for this action. Note that in the spreadsheet, Q/d summary data is shown above a Q/d threshold of 10 tpy/km by default. Removing the “AbvThresh_Q/d” filter in the pivot table will present all Q/d data for facilities within 400 km of a Class I Area. Removing the “AbvThresh_Q/d” filter in the pivot table will present all Q/d data for facilities within 400 km of a Class I area.

⁴¹ South Dakota’s 2022 SIP submission at 121.

⁴² *Id.* at 134, 137.

that no additional emission reduction measures are necessary to make reasonable progress during the regional haze second implementation period.

a. GCC Dacotah⁴³

GCC Dacotah is a Portland cement manufacturing plant located in Pennington County, South Dakota. GCC Dacotah now operates an indirect fired dry kiln with a low-NO_x burner known as the Kiln #6 system. This kiln system has a staged pre-combustion system, where initial combustion occurs in a fuel-rich zone and secondary combustion is carried out in a fuel-lean zone.⁴⁴ South Dakota selected GCC Dacotah for further evaluation because it exceeded the State's Q/d threshold of 2⁴⁵ and because WRAP's WEP/AOI analysis indicated that NO_x and SO₂ emissions from this facility may contribute to visibility impairment in Badlands National Park and Wind Cave National Park.⁴⁶ In its 2019 four-factor analysis, GCC Dacotah reported that it made "significant capital investments in recent years to transition from two wet kilns to a single modern dry kiln and to upgrade the dry kiln and its precalciner burner," which reduced net emissions from the facility due to the retirement of the wet kilns and the improved emissions performance of the upgraded dry kiln.⁴⁷ Because GCC Dacotah reported that it had not achieved in practice its final, steady state, full-scale production rates as of 2019,⁴⁸ South Dakota used projected actual emission rates used in the construction permit for the facility as baseline emission rates. These rates are shown below in table 4:

⁴³ This facility is addressed in South Dakota's 2022 SIP submission, section 3.2.2.1. and Appendices B and C.

⁴⁴ *Id.* at 131.

⁴⁵ South Dakota's 2022 SIP submission at 78.

⁴⁶ *Id.* at 121.

⁴⁷ South Dakota's 2022 SIP submission, appendix C.

⁴⁸ *Id.*

Table 4. GCC Dacotah Baseline Annual Emissions

Pollutant	Baseline Annual Emissions (tons/yr)	
	Total Kiln System ¹	Kiln Stack ²
SO ₂	734	560
NO _x	1,975	1,394

¹Total kiln system baseline emissions are the projected actual emissions for the construction permit for the Kiln 6 upgrade, which accounts for the kiln, alkali bypass, and coal mill stacks. The four-factor analysis was limited to the kiln stack, which accounts for the majority of emissions from GCC Dacotah.

²Kiln baseline emissions are derived from the total kiln system projected actual emissions and the proportion of the total emissions associated with the kiln stack. The proportion of kiln stack versus total kiln system is determined using continuous emission monitoring system (CEMS) data.

South Dakota evaluated a range of controls for both SO₂ and NO_x emissions at GCC Dacotah, ultimately determining that no additional measures are necessary at this source to achieve reasonable progress during the regional haze second implementation period.

South Dakota noted that GCC Dacotah already has inherent process limestone/lime scrubbing via an in-line raw mill that removes approximately 90% of the SO₂ that would otherwise be emitted from the raw material.⁴⁹ South Dakota evaluated a wet scrubber and a semi-dry scrubber as potential additional SO₂ controls for the facility. Applying interest rates ranging from 3% to 7%, South Dakota calculated the cost per ton of SO₂ reduced as \$5,453/ton to \$6,694/ton for a wet scrubber and \$6,394/ton to \$7,874/ton for a semi-dry scrubber. South Dakota determined that neither scrubber was cost-effective.⁵⁰

GCC Dacotah currently operates a low-NO_x burner on its indirect fired kiln and uses good combustion practices (including the use of uniform quality fuels) to control

⁴⁹ South Dakota’s 2022 SIP submission at 128 and appendix C.

⁵⁰ South Dakota’s 2022 SIP submission, appendix C.

NO_x emissions.⁵¹ In terms of additional NO_x controls, South Dakota evaluated flue gas recirculation (FGR) and found it to be technically infeasible, explaining that FGR requires certain conditions (cooling the flame and creating an oxygen-deficient atmosphere) that are not compatible with the high flame temperatures and oxidizing atmosphere needed for production of a quality clinker product.⁵² Lastly, South Dakota evaluated selective catalytic reduction (SCR) at GCC Dacotah, finding that SCR is not technically feasible for the facility. The State maintained that SCR has seen extremely limited use in the cement kiln industry and South Dakota notes that only one cement plant in the country has installed SCR.⁵³

Finally, South Dakota evaluated selective noncatalytic reduction (SNCR). In its 2019 four-factor analysis, GCC Dacotah found that SNCR would cost \$2,093/ton NO_x removed.⁵⁴ In an updated cost analysis submitted in 2021, GCC Dacotah explained that its 2019 four-factor analysis presented a “study-level estimate” of “preliminary cost calculations” that relied on default inputs and assumptions.⁵⁵ Using updated site-specific inputs, GCC Dacotah calculated the revised cost of SNCR as \$4,941/ton.⁵⁶ Applying a range of interest rates to GCC Dacotah’s original (2019) cost calculations, and bolstered by the GCC Dacotah’s updated SNCR cost of \$4,941/ton, South Dakota concluded that adding SNCR at GCC Dacotah is not cost-effective.⁵⁷

b. Pete Lien and Sons⁵⁸

⁵¹ South Dakota’s 2022 SIP submission at 130, 132.

⁵² *Id.* at 131.

⁵³ *Id.*

⁵⁴ South Dakota’s 2022 SIP Submission, appendix C, section 6.4

⁵⁵ South Dakota’s 2022 SIP Submission, appendix B-2 (December 13, 2021 letter re: GCC Dacotah Cost Calculations for Regional Haze).

⁵⁶ *Id.*

⁵⁷ South Dakota’s 2022 SIP Submission, appendix B-1 at 3-4.

⁵⁸ This facility is addressed in South Dakota’s 2022 SIP submission, section 3.3.2.2. and appendix D.

Pete Lien and Sons is a lime manufacturing plant located in Rapid City, South Dakota. The facility is comprised of two direct-fired lime kilns: Kiln 1 and Kiln 2.⁵⁹ South Dakota selected Pete Lien and Sons for further evaluation because emissions from the facility exceeded the State's Q/d threshold of 2,⁶⁰ and because WRAP's WEP/AOI analysis indicated that the facility's NO_x emissions may contribute to visibility impairment in Badlands National Park and Wind Cave National Park.⁶¹ South Dakota noted in its 2022 SIP submission that Pete Lien and Sons had an SO₂-specific Q/d value of less than 0.1.⁶² As a result, South Dakota did not find it necessary to evaluate additional SO₂ controls at Pete Lien and Sons.

South Dakota evaluated a range of controls for NO_x emissions, ultimately determining that no additional measures are necessary at Pete Lien and Sons to achieve reasonable progress during the second implementation period. To control NO_x emissions, Pete Lien and Sons currently utilizes kiln preheaters and "good combustion practices," which include a properly designed stone feeding system, uniform stone feed material, and uniform quality fuels.⁶³ The environmental consulting firm SLR International Corporation, in its four-factor analysis performed for Pete Lien and Sons, stated that the preheater kiln "preheats the incoming limestone, reducing fuel usage and fuel generated emissions by approximately 30% compared to conventional rotary kilns."⁶⁴

In terms of additional NO_x controls, South Dakota considered FGR, staged combustion air, SNCR, and SCR.⁶⁵ South Dakota ultimately agreed with the source that

⁵⁹ South Dakota's 2022 SIP submission at 130.

⁶⁰ *Id.* at 78.

⁶¹ *Id.* at 121.

⁶² South Dakota's 2022 SIP submission at 121.

⁶³ *Id.* at 132.

⁶⁴ South Dakota's 2022 SIP submission, appendix D.

⁶⁵ *Id.* at 130-133.

FGR was technically infeasible, stating that it has never been used in a lime kiln because the conditions required for FGR are not compatible with production of a high-quality lime product.⁶⁶ Next, South Dakota considered staged combustion, which it also rejected based on technical infeasibility on the grounds that the conditions required for staged combustion are not compatible with the production of a quality lime product.⁶⁷

South Dakota also found that SCR is not technically feasible at Pete Lien and Sons. The facility stated that there are no lime kilns in the country that operate SCR because “the exhaust gas characteristics create significant chemical and physical problems for the facility.”⁶⁸ As a result, South Dakota did not evaluate SCR at Pete Lien and Sons via the four statutory factors.

South Dakota acknowledged that SNCR can be technically feasible at lime kilns under the right conditions.⁶⁹ In calculating the costs of SNCR, South Dakota used a remaining useful life of 20 years, which aligns with the recommendations in EPA’s Control Cost Manual.⁷⁰ South Dakota noted potential non-air quality impacts of SNCR, including decreased overall plant efficiency and an associated increase in electrical usage,

⁶⁶ *Id.* at 131.

⁶⁷ *Id.* at 131-132.

⁶⁸ South Dakota’s 2022 SIP submission at 132.

⁶⁹ *Id.* at 132-133, 137-143.

⁷⁰ EPA’s Control Cost Manual, chapter 1: Selective Noncatalytic Reduction, pg. 1-53 and 1-54. EPA’s Control Cost Manual provides detailed technical guidance on the estimation of capital and annual costs for air pollution control devices for stationary sources. The Control Cost Manual is commonly used by the EPA, state and local officials, and industry parties that must comply with EPA regulations or EPA permits. EPA has been updating the Control Cost Manual under the authority of the Consolidated Appropriations Act of 2014. Pub. L. 113-76 (2014); 160 Cong. Rec. H475, H979 (January 15, 2014) (stating that the process for reviewing regional haze SIPs “is well-served when EPA, States, and industry work collaboratively to ensure that dispersion models are continually improved and updated to ensure the most accurate predictions of visibility impacts, as well as a uniform set of cost estimates”). Chapter revisions undergo public notice and comment. *Id.*; 81 FR 65352 (September 22, 2016) (section 1, chapter 2 on cost estimation concepts and methodology); 80 FR 33515 (June 12, 2015) (section 4, chapter 1 on SNCR and section 4, chapter 2 on SCR).

and determined that SNCR was likely infeasible at Pete Lien and Sons.⁷¹ South Dakota nonetheless chose to evaluate SNCR via the four factors and presented costs based on a range of interest rates from 3-5%, finding that the cost-effectiveness of SNCR ranged from approximately \$34,000/ton to \$58,000/ton.⁷² In comments on the State's draft SIP, the National Park Service argued that errors in the SNCR cost analysis, such as overly high urea costs and the inclusion of lost kiln dust sales, led to inflated costs. Although South Dakota maintained that the numbers used in the cost analysis were reasonable, it provided a revised cost analysis incorporating the National Park Service's suggestions.⁷³ According to South Dakota's analysis, using the default urea costs in the Control Cost Manual and removing the lost kiln dust sales would drop SNCR costs to approximately \$11,400/ton for Kiln 1 and \$17,400/ton for Kiln 2.⁷⁴ South Dakota noted that it does not consider these revised costs to be cost-effective for Pete Lien and Sons.⁷⁵

c. Summary of South Dakota's Reasons for Concluding that No Additional Emission Reduction Measures Are Necessary to Make Reasonable Progress

South Dakota provided several reasons for its conclusion that it is not necessary to include additional controls for GCC Dacotah and Pete Lien and Sons in the State's long-term strategy to make reasonable progress toward the national visibility goal.⁷⁶ South Dakota stated that the regional haze program does not establish a "specific threshold or bright line" on what measures to include in the long-term strategy, and "the rules allow

⁷¹ South Dakota's 2022 SIP submission at 133.

⁷² *Id.*

⁷³ South Dakota's 2022 SIP submission, appendix A-1, section 3.0, Response to Comment 14.

⁷⁴ *Id.*

⁷⁵ *Id.*

⁷⁶ South Dakota's 2022 SIP Submission at 138-143.

the specific circumstances in each state dictate how those four factors will inform that state's decision."⁷⁷

For the costs of compliance, South Dakota determined that additional NO_x and SO₂ control measures are not cost-effective, on a dollar per ton basis,⁷⁸ at GCC Dacotah and Pete Lien and Sons. Citing 40 CFR 51.308(f)(2)(iv)(E), (f)(3)(i), and (f)(3)(ii)(A), South Dakota maintained that 2028 visibility projections and the URP status of Class I areas may inform its determination of the necessity of control measures and whether their cost is reasonable. South Dakota stated that visibility projections for Badlands and Wind Cave National Parks indicate these Class I areas are below the adjusted URP. South Dakota explained that “[i]f the Class I Areas are meeting or projected to meet the natural background visibility goal, South Dakota has met the requirements of the Regional Haze Rule.”⁷⁹ South Dakota also stated that because reasonable progress was already being achieved, requiring any additional controls would violate a state law prohibiting the promulgation of a regulation that is more stringent than corresponding Federal law.

South Dakota further explained that it would “consider a higher \$ per ton cost as reasonable” if the State were not in attainment for the National Ambient Air Quality Standards (NAAQS), but noted that it is currently meeting the NAAQS.⁸⁰ Similarly, South Dakota considered the impacts of its sources on visibility at Class I areas, stating that it “would consider a higher \$ per ton cost as reasonable if South Dakota’s facilities

⁷⁷ *Id.* at 139.

⁷⁸ In evaluating the cost-effectiveness of controls, South Dakota cited approximate costs of \$1,700/ton NO_x reduced (for SNCR) and \$6,500/ton SO₂ reduced (for semi-dry and wet scrubbers) at GCC Dacotah, and \$34,500/ton NO_x reduced (for SNCR) at Pete Lien and Sons. *Id.* at 134-38, 140. The State also noted that the revised cost estimate that GCC Dacotah calculated for SNCR (\$4,941/ton NO_x reduced) bolstered its decision that SNCR was not cost-effective. South Dakota’s 2022 SIP Submission, appendix B-1 at 3-4.

⁷⁹ South Dakota’s 2022 SIP Submission at 140.

⁸⁰ *Id.* at 141.

are a major contributor to visibility impacts compared to if they are a minor source of impacts.”⁸¹ The State noted that even if all pollution sources in South Dakota were eliminated, in-state Class I areas would achieve only a 1% improvement in visibility, while out-of-state Class I areas would achieve 0% improvement. South Dakota concluded that under these circumstances, it did not consider additional controls at GCC Dacotah and Pete Lien and Sons to be cost-effective.

For the time necessary for compliance, South Dakota stated that “Wind Cave National Park is projected to meet the adjusted national background goal in 2064 by 2028 and Badlands National Park will be about 70% of the goal by 2028 and the potential timelines for installation of the control systems.”⁸² It concluded that, as a result, additional controls are not necessary to meet regional haze requirements.

For the energy and non-air quality impacts of compliance, South Dakota considered additional increases in electricity demand associated with the operation of pollution control systems, as well as safety concerns with the transport and storage of ammonia (which is used as a reagent in SNCR systems). The State also expressed concern about the impacts of ammonia slip, which refers to emissions of unreacted ammonia that result from incomplete reaction of NO_x and the reagent used in SNCR systems. The State maintained that ammonia slip may cause particulate matter concentrations to increase in the Rapid City area, and that it “does not consider the risk to Rapid City’s attainment of the particulate matter National Ambient Air Quality standard is justified.”⁸³

⁸¹ *Id.*

⁸² *Id.* at 142.

⁸³ *Id.* at 142-43.

Finally, in its consideration of remaining useful life, South Dakota noted that GCC Dacotah and Pete Lien and Sons are expected to operate beyond the 20-year useful life of the control measures that were evaluated through four-factor analysis. However, South Dakota did not cite this factor as a reason not to require additional controls. The EPA's evaluation of South Dakota's rationales for not including any additional emission reduction measures in its long-term strategy is contained in section IV.C.2.iii. of this document.

2. The EPA's Evaluation of South Dakota's Long-Term Strategy

In section IV.C.2. of this document, we evaluate South Dakota's determinations of the measures necessary to make reasonable progress (i.e., its long-term strategy) against the requirements of the CAA and RHR for the second implementation period of the regional haze program. Considering the four statutory factors and the projected 2028 visibility conditions for Class I areas both in South Dakota and those influenced by emissions from South Dakota sources, which are all below the URP, the EPA finds South Dakota reasonably concluded that no additional measures for GCC Dacotah and Pete Lien and Sons are necessary to make reasonable progress in the second planning period. As detailed further below, the EPA proposes to approve South Dakota's long-term strategy under 40 CFR 51.308(f)(2).

In this proposed action, the EPA notes that it is the Agency's policy, as announced in the EPA's recent proposed approval of the West Virginia Regional Haze SIP,⁸⁴ that where visibility conditions for a Class I area impacted by a State are below the URP and the State has evaluated potential control measures and considered the four

⁸⁴ 90 FR 16478, 16483 (April 18, 2025).

statutory factors, the State will have presumptively demonstrated reasonable progress for the second planning period for that area. The EPA requests comment on this updated policy. The EPA acknowledges that this proposed action reflects a change in policy from current guidance as to how the URP should be used in the evaluation of regional haze second planning period SIPs. The EPA has the discretion and authority to change policy. In *FCC v. Fox Television Stations, Inc.*, the U.S. Supreme Court plainly stated that an agency is free to change a prior policy and “need not demonstrate ... that the reasons for the new policy are better than the reasons for the old one; it suffices that the new policy is permissible under the statute, that there are good reasons for it, and that the agency believes it to be better.” 566 U.S. 502, 515 (2009) (referencing *Motor Vehicle Mfrs. Ass’n of United States, Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29 (1983)). See also *Perez v. Mortgage Bankers Assn.*, 135 S. Ct. 1199 (2015). However, the EPA believes that this policy aligns with the purpose of the statute and RHR, which is achieving “reasonable” progress, not maximal progress, toward Congress’ natural visibility goal.

In developing the regulations required by CAA section 169A(b), the EPA established the concept of the URP for each Class I area. As discussed above, for each Class I area, there is a regulatory requirement to compare the projected visibility impairment (represented by the reasonable progress goal, or “RPG”) at the end of each planning period to the URP (e.g., in 2028 for the second planning period).⁸⁵ In the 2017 RHR Revisions, the EPA addressed the role of the URP as it relates to a state’s

⁸⁵ We note that RPGs are a regulatory construct that we developed to address statutory mandate in section 169B(e)(1), which required our regulations to include “criteria for measuring ‘reasonable progress’ toward the national goal.” Under 40 CFR 51.308(f)(3)(ii), RPGs measure the progress that is projected to be achieved by the control measures a state has determined are necessary to make reasonable progress. Consistent with the 1999 RHR, the RPGs are unenforceable, though they create a benchmark that allows for analytical comparisons to the URP and mid-implementation-period course corrections if necessary. 82 FR 3091-3092 (January 10, 2017).

development of its second planning period SIP.⁸⁶ Specifically, in response to comments suggesting that the URP should be considered a “safe harbor” and relieve states of any obligation to consider the four statutory factors, the EPA explained that the URP was not intended to be such a safe harbor.⁸⁷ Some commenters stated a desire for corresponding rule text dealing with situations where RPGs are equal to (“on”) or better than (“below”) the URP or glidepath. Several commenters stated that the URP or glidepath should be a “safe harbor,” opining that states should be permitted to analyze whether projected visibility conditions for the end of the implementation period will be on or below the glidepath based on on-the-books or on-the-way control measures, and that in such cases a four-factor analysis should not be required.⁸⁸ Other 2017 RHR comments indicated a similar approach, such as “a somewhat narrower entrance to a ‘safe harbor,’” by suggesting that if current visibility conditions are already below the end-of-planning-period point on the URP line, a four-factor analysis should not be required.⁸⁹ The EPA stated in its response that we do not agree with either of these recommendations. The CAA requires that each SIP revision contain long-term strategies for making reasonable progress, and that in determining reasonable progress states must consider the four statutory factors. Treating the URP as a safe harbor would be inconsistent with the statutory requirement that states assess the potential to make further reasonable progress towards natural visibility goal in every implementation period.⁹⁰

⁸⁶ 82 FR 3078 (January 10, 2017).

⁸⁷ 82 FR 3099 (January 10, 2017).

⁸⁸ *Id.*

⁸⁹ *Id.*

⁹⁰ *Id.*

The EPA's new policy is that so long as the Class I areas impacted by a state are below the URP and the State considers the four factors, the State will have presumptively demonstrated it has already made reasonable progress for the second planning period for that area. Indeed, we believe this policy also recognizes the considerable improvements in visibility impairment that have been made by a wide variety of state and Federal programs in recent decades.

Applying this new policy in our evaluation of South Dakota's SIP and as further detailed in the paragraphs that follow, the EPA agrees with South Dakota's determination that, for the second planning period, no additional measures are necessary to achieve reasonable progress towards natural visibility at Class I areas impacted by emissions from South Dakota sources.

The SIP submittal included evaluations for two emissions sources, including consideration of the four statutory factors for GCC Dacotah and Pete Lien and Sons. Based on these evaluations and analyses, the State determined that no additional measures were necessary for reasonable progress. In reaching this determination, South Dakota also considered the relatively small impact of South Dakota emission sources on all Class I areas, and the emission reductions and visibility improvements that have already occurred in the second planning period in South Dakota and nearby Class I areas. Because the State considered the four statutory factors in the assessment of the potential for additional controls to make reasonable progress and the projected 2028 visibility conditions for Class I areas influenced by emissions from South Dakota sources are all below the URP, the EPA finds that South Dakota has demonstrated that it has made reasonable progress towards the national visibility goal for the second planning period.

Therefore, we are proposing to approve South Dakota's SIP submittal as meeting the CAA and regulatory requirement to make reasonable progress towards the national visibility goal.

a. GCC Dacotah

South Dakota evaluated control measures at GCC Dacotah, considered the four statutory factors, and rejected additional NO_x and SO₂ controls based on cost (approximately \$4,900/ton NO_x reduced for SNCR⁹¹ and approximately \$5,400-\$7,900/ton SO₂ reduced for semi-dry and wet scrubbers). South Dakota cites the limited magnitude of visibility impacts attributable to South Dakota's non-EGU sector sources. A review of WRAP Technical Support System (TSS) data shows that all emissions from the entire South Dakota non-EGU sector (which includes GCC Dacotah) represent only 0.66% and 0.37% of total anthropogenic (nitrate and sulfate combined) visibility impacts at Wind Cave National Park and Badlands National Park, respectively.⁹²

In terms of evaluation of NO_x controls, South Dakota reasonably decided not to evaluate FGR and SCR on the basis of technical infeasibility. South Dakota adequately explained that FGR requires certain conditions (cooling the flame and creating an oxygen-deficient atmosphere) that are not compatible with the high flame temperatures and oxidizing atmosphere needed for production of a quality clinker product at GCC Dacotah.^{93,94} South Dakota noted that SCR has seen extremely limited use in the cement

⁹¹ The EPA is basing its evaluation on GCC Dacotah's updated SNCR cost estimate of \$4,941/ton, not on the source's initial cost estimate of \$2,093/ton or on South Dakota's determination that approximately \$1,700/ton for SNCR would not be cost-effective.

⁹² "TSS XY Chart - Product #XMTP_SASB_LUCS." WRAP Technical Support System (TSS); CSU and the Cooperative Institute for Research in the Atmosphere (CIRA), 30 Dec 2024.

⁹³ South Dakota's 2022 SIP submission at 131.

⁹⁴ Assessment of NO_x Emissions Reduction Strategies for Cement Kilns – Ellis County: Final Report. Prepared by ERG Inc. for Texas Commission on Environmental Quality (TCEQ). July 14, 2006. Accessed via https://downloads.regulations.gov/EPA-R09-OAR-2021-0923-0005/attachment_3.pdf.

kiln industry because high-dust and semi-dust SCR systems rely on site-specific limits.⁹⁵ As South Dakota stated, SCR has seen extremely limited use in cement kilns, largely due to concerns about catalyst inactivation or catalyst plugging and fouling associated with sticky deposits in the preheater exhaust gas at the temperatures necessary for SCR operation. Based on the State's concerns with high dust levels, catalyst fouling, plugging, or deactivation, as well as other SCR-related issues, and the limited use of SCR at cement kilns in the U.S., it is reasonable for South Dakota to determine that SCR is not technically feasible at GCC Dacotah.

In addition, South Dakota's evaluated SNCR under the four-factors, and determined that SNCR is not necessary to make reasonable progress. GCC Dacotah's updated cost estimate, which used site-specific data input values reflective of November 2021 operations, showed that SNCR would cost \$4,941/ton NO_x removed. To calculate costs of compliance, GCC used the EPA's SNCR Cost Calculation Spreadsheet,⁹⁶ which includes default values that can be adjusted by individual users to reflect site-specific information.

The electricity cost (\$0.08/kW-hr) and fuel cost (\$2.87/MMBtu) cited by GCC are in the range of the default values assumed in the 2019 version of the EPA's SNCR Cost Calculation Spreadsheet (\$0.0676/kW-hr and \$2.40/MMBtu, respectively).⁹⁷ However, the ammonia reagent cost cited by GCC (\$1.67/gal) is substantially higher than default

⁹⁵ South Dakota's 2022 SIP submission at 132.

⁹⁶ The EPA's SNCR Cost Calculation Spreadsheets are available in the docket for this action and can be downloaded from <https://www.epa.gov/economic-and-cost-analysis-air-pollution-regulations/cost-reports-and-guidance-air-pollution>.

⁹⁷ Electricity cost: U.S. Energy Information Administration. Electric Power Monthly. Table 5.6.A. Published December 2017. Available at: https://www.eia.gov/electricity/monthly/epm_table_grapher.php?t=epmt_5_6_a; Fuel cost: U.S. Energy Information Administration. Electric Power Annual 2016. Table 7.4. Published December 2017. Available at: <https://www.eia.gov/electricity/annual/pdf/epa.pdf>.

values assumed in the cost-calculation spreadsheet (\$0.293/gal).⁹⁸ As noted in a May 2022 report from the EIA, U.S. ammonia prices rose significantly (by a factor of six) from 2020-2022 due to an increase in natural gas prices.⁹⁹ The ammonia cost cited by GCC Dacotah (\$1.67/gal) in November 2021 would amount to around \$650 per short ton,¹⁰⁰ which is in line with the cost that would be expected at that time based on both Energy Information Administration (EIA)¹⁰¹ and United States Geological Services (USGS)¹⁰² reports. In calculating the cost of compliance of installing SNCR, GCC assumed a 19% ammonia concentration,¹⁰³ which is in line with the concentration assumed in the EPA's Control Cost Manual.¹⁰⁴ GCC also used a 30% assumed control efficiency rate in its updated cost analysis. Because the control efficiency assumed by GCC Dacotah falls within the range of control efficiencies demonstrated by SNCR systems that have been successfully installed on other cement kilns,¹⁰⁵ GCC's use of an assumed 30% control efficiency is reasonable in this instance. Consequently, we find that the record adequately supports South Dakota's consideration of costs of compliance for GCC Dacotah.

⁹⁸ U.S. Geological Survey, Minerals Commodity Summaries, January 2017. Available at: <https://minerals.usgs.gov/minerals/pubs/commodity/nitrogen/mcs-2017-nitro.pdf>.

⁹⁹ "U.S. ammonia prices rise in response to higher international natural gas prices." EIA, May 10, 2022. Accessed via <https://www.eia.gov/todayinenergy/detail.php?id=52358>.

¹⁰⁰ "Anhydrous Ammonia." Purdue University College of Agriculture, June 2021. Accessed via <https://ag.purdue.edu/department/extension/ppp/resources/ppp-publications/ppp-140.html>. Since a gallon of ammonia weighs 5.14 pounds, one short ton (2000 pounds) of ammonia at \$1.67 per gallon equates to ~\$649.81.

¹⁰¹ "U.S. ammonia prices rise in response to higher international natural gas prices." EIA, May 10, 2022. Accessed via <https://www.eia.gov/todayinenergy/detail.php?id=52358>.

¹⁰² A 2022 Mineral Commodity Summary from the United States Geological Survey (USGS) shows that the price of ammonia rose sharply to \$603 per short ton in October 2021, while the average cost of ammonia in 2021 was \$510 per short ton. "Mineral Commodity Summary – Nitrogen (Fixed) Ammonia." USGS, January 2022. Accessed via <https://pubs.usgs.gov/periodicals/mcs2022/mcs2022-nitrogen.pdf>.

¹⁰³ South Dakota's 2022 SIP submission, appendix B-2.

¹⁰⁴ EPA's Control Cost Manual – chapter 1: Selective Noncatalytic Reduction at 1-12 ("most U.S. cement plants use a solution of 19-20% aqueous ammonia reagent").

¹⁰⁵ Technical Support Document (TSD)—Oldcastle Trident Federal Implementation Plan Revision, March 8, 2017. See Attachment 1 to the TSD, Summary of SNCR Performance Data for Long Cement Kilns.

South Dakota also evaluated the other three statutory factors for GCC Dacotah. Time necessary for compliance was considered and South Dakota did not eliminate any control options from consideration as a result of time necessary for compliance.¹⁰⁶ South Dakota raised concerns about certain energy and non-air quality impacts, but did not eliminate any controls from consideration solely as a result of these impacts.¹⁰⁷ Lastly, South Dakota appropriately considered remaining useful life.¹⁰⁸ South Dakota concluded that no additional measures at GCC Dacotah are necessary to make reasonable progress for the second planning period. Because South Dakota considered the four statutory factors for GCC Dacotah and visibility conditions at all Class I areas to which South Dakota contributes are below the URP, the EPA finds that South Dakota has demonstrated that it has made reasonable progress for the second planning period without any additional measures for GCC Dacotah.

b. Pete Lien and Sons

Similarly, and as detailed below, South Dakota determined that no additional emission reduction measures are necessary at Pete Lien and Sons to make reasonable progress during the regional haze second implementation period. South Dakota rejected kiln fuel changes, low-NO_x burners, staged combustion, FGR, and SCR on the basis of technical infeasibility or unavailability. South Dakota adequately explained that using alternative kiln fuels is not an available method of NO_x control because the fuels needed for the kilns at Pete Lien and Sons must have sufficient heat content and be readily available in significant quantities so as not to disrupt continuous production, and because

¹⁰⁶ South Dakota's 2022 SIP submission at 142.

¹⁰⁷ *Id.* at 142-143.

¹⁰⁸ *Id.*

the solid fuels currently used in the kiln already produce lower NO_x emissions than alternative gaseous fuels.¹⁰⁹ South Dakota adequately explained that low-NO_x burners are technically infeasible at this facility because Pete Lien and Sons operates direct-fire kilns and low-NO_x burners require an indirect-fired kiln for operation.¹¹⁰ Similarly, South Dakota adequately explained that staged combustion is not technically feasible for Pete Lien and Sons because lime kilns do not combust in two stages. Our review of the Reasonably Available Control Technology/Best Available Control Technology/Lowest Achievable Emission Rate (RACT/BACT/LAER) Clearinghouse for lime kilns that was provided in the appendices to South Dakota's 2022 SIP submission shows that there are no lime kilns that utilize staged combustion.¹¹¹ As for FGR, our review of the RACT/BACT/LAER Clearinghouse for lime kilns in South Dakota's 2022 SIP submission similarly shows that there are no lime kilns that operate FGR and therefore it is not a technically feasible control option at Pete Lien and Sons.¹¹² Finally, South Dakota provided similar information that no lime kilns have successfully installed and operated SCR; therefore, South Dakota determined that SCR is not feasible at Pete Lien and Sons.¹¹³

South Dakota rejected SNCR as a potential emission reduction measure for Pete Lien and Sons due to the high costs of compliance.¹¹⁴ As noted in section C.1.b. of this document, South Dakota presented costs based on a range of interest rates from 3-5%,

¹⁰⁹ South Dakota's regional haze SIP submission at 130.

¹¹⁰ *Id.* at 130-131.

¹¹¹ South Dakota's 2022 SIP submission, appendix D.

¹¹² *Id.*

¹¹³ *Id.*

¹¹⁴ As with GCC Dacotah and as further detailed in section IV.C.2.iii. of this document, we find that South Dakota's conclusions regarding certain other factors, including the environmental and non-air quality impacts of compliance, do not support its rejection of SNCR for Pete Lien and Sons. Nonetheless, we conclude that South Dakota's decision is justified based on the costs of compliance.

finding that the cost-effectiveness of SNCR ranged from approximately \$34,000/ton to \$58,000/ton NO_x reduced;¹¹⁵ using the default urea costs and removing the lost kiln dust sales, as requested in comments from the National Park Service, would drop costs to approximately \$11,400/ton-\$17,400/ton for Kilns 1 and 2, respectively.¹¹⁶ South Dakota's also evaluated the other three statutory factors for Pete Lien and Sons. Time necessary for compliance was considered and South Dakota did not eliminate any control options from consideration as a result of time necessary for compliance.¹¹⁷ South Dakota raised concerns about certain energy and non-air quality impacts, but did not eliminate any controls from consideration solely as a result of these impacts.¹¹⁸ Lastly, South Dakota's considered remaining useful life.¹¹⁹ South Dakota concluded that no additional measures at Pete Lien and Sons are necessary to make reasonable progress for the second planning period. Because South Dakota considered the four statutory factors for Pete Lien and Sons and visibility conditions at all Class I areas to which South Dakota contributes are below the URP, the EPA finds that South Dakota has demonstrated that it has made reasonable progress for the second planning period without any additional measures for Pete Lien and Sons.

c. Other Long-Term Strategy Requirements (40 CFR 51.308(f)(2)(ii) through (iv))

States must meet the additional requirements specified in 40 CFR 51.308(f)(2)(ii) through (iv) when developing their long-term strategies. Section 51.308(f)(2)(ii) requires states to consult with other states that have emissions that are reasonably anticipated to

¹¹⁵ South Dakota's 2022 SIP submission at 137-138.

¹¹⁶ *Id.*

¹¹⁷ South Dakota's 2022 SIP submission at 142.

¹¹⁸ *Id.* at 142-143.

¹¹⁹ *Id.*

contribute to visibility impairment in Class I areas to develop coordinated emission management strategies. Section 6.2 of South Dakota's 2022 SIP submission describe the State's consultation with other states throughout the development of its regional haze plan.

Section 51.308(f)(2)(iii) requires states to document the technical basis, including modeling, monitoring, costs, engineering, and emissions information, on which the state is relying to determine the emission reduction measures that are necessary to make reasonable progress in each mandatory Class I area it impacts. Sections 2, 3, 4, and 5 of South Dakota's 2022 SIP submission describe the technical information on which the State relied. The State relied on WRAP technical information, modeling, and analysis to support development of its long-term strategy.¹²⁰

Section 51.308(f)(2)(iv) specifies five additional factors states must consider in developing their long-term strategies. The five additional factors are: emission reductions due to ongoing air pollution control programs, including measures to address reasonably attributable visibility impairment; measures to mitigate the impacts of construction activities; source retirement and replacement schedules; basic smoke management practices for prescribed fire used for agricultural and wildland vegetation management purposes and smoke management programs; and 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. Section 3.2.5 of South Dakota's 2022 SIP submission describes each of the five additional factors.¹²¹ After reviewing South Dakota's 2022 SIP chapters addressing 40 CFR 51.308(f)(2)(ii) through (iv), the EPA

¹²⁰ South Dakota's 2022 SIP submission at 46-177.

¹²¹ *Id.* at 122-126.

finds that South Dakota has satisfied the long-term strategy requirements of 40 CFR 51.308(f)(2)(ii) through (iv).

D. Reasonable Progress Goals

Section 51.308(f)(3)(i) requires a state in which a Class I area is located to establish RPGs—one each for the most impaired and clearest days—reflecting the visibility conditions that will be achieved at the end of the implementation period as a result of the emission limitations, compliance schedules and other measures required under paragraph (f)(2) in states’ long-term strategies, as well as implementation of other CAA requirements.

After establishing its long-term strategy, South Dakota developed reasonable progress goals for each Class I Area for the 20% most impaired days and 20% clearest days based on the results of 2028 WRAP modeling (table 5).¹²²

Table 5. Reasonable Progress Goals for the 20% Most Impaired Days and 20% Clearest Days for South Dakota’s Class I Areas

Class I Area	20% Most Impaired Days			20% Clearest Days	
	Average Baseline Conditions (2000-2004)	2028 Uniform Rate of Progress ¹	2028 Reasonable Progress Goal ²	Average Baseline Conditions (2000-2004)	2028 Reasonable Progress Goal
	Deciviews				
Badlands National Park	15	13	11.53	6.9	5.1
Wind Cave National Park	13.1	11.9	9.76	5.1	3.4

¹ Based on the adjusted glidepath.

² Based on WRAP 2028OTBa2.

The reasonable progress goals are based on South Dakota’s long-term strategy, the long-term strategy of other states that may affect Class I areas in South Dakota, and

¹²² *Id.* at 166.

other CAA requirements. Per 40 CFR 51.308(f)(3)(iv), the EPA must evaluate the demonstrations the State developed pursuant to 40 CFR 51.308(f)(2) to determine whether the State’s reasonable progress goals for visibility improvement provide for reasonable progress towards natural visibility conditions. As previously explained in sections IV.C.2., we are proposing to approve South Dakota’s long-term strategy for meeting the requirements of 40 CFR 51.308(f)(2). Specifically, we find that South Dakota’s reasonable progress goals provide for an improvement in visibility for the most-impaired days since the baseline period and ensure no degradation in visibility on the clearest days since the baseline period.¹²³ Therefore, we propose to approve South Dakota’s reasonable progress goals under 40 CFR 51.308(f)(3).

E. Reasonably Attributable Visibility Impairment (RAVI)

The RHR contains a requirement at 40 CFR 51.308(f)(4) related to any additional monitoring that may be needed to address visibility impairment in Class I areas from a single source or a small group of sources. This is called “reasonably attributable visibility impairment,”¹²⁴ also known as RAVI. Under this provision, if the EPA or the FLM of an affected Class I area has advised a state that additional monitoring is needed to assess RAVI, the state must include in its SIP revision for the second implementation period an appropriate strategy for evaluating such impairment. The EPA has not advised the State to that effect; nor did the State indicate that FLMs for Badlands National Park and Wind Cave National Park identified any RAVI from South Dakota sources. For this reason, the EPA proposes to approve the portions of South Dakota’s 2022 SIP submission relating to

¹²³ *Id.* at 146-176.

¹²⁴ The EPA’s visibility protection regulations define “reasonably attributable visibility impairment” as “visibility impairment that is caused by the emission of air pollutants from one, or a small number of sources.” 40 CFR 51.301.

40 CFR 51.308(f)(4).

F. Monitoring Strategy and Other State Implementation Plan Requirements

Section 51.308(f)(6) specifies that each comprehensive revision of a state's regional haze SIP must contain or provide for certain elements, including monitoring strategies, emissions inventories, and any reporting, recordkeeping and other measures needed to assess and report on visibility. A main requirement of this section is for states with Class I areas to submit monitoring strategies for measuring, characterizing, and reporting on visibility impairment. Compliance with this requirement may be met through participation in the IMPROVE network.

Under 40 CFR 51.308(f)(6)(i), States must provide for the establishment of 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. For states with Class I areas (including South Dakota), § 51.308(f)(6)(ii) requires SIPs to provide for 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. Section 51.308(f)(6)(iv) requires the SIP to provide for the reporting of all visibility monitoring data to the Administrator at least annually for each Class I area in the state. Section 51.308(f)(6)(v) requires SIPs to provide for a statewide inventory of emissions of pollutants that are reasonably anticipated to cause or contribute to visibility impairment, including emissions for the most recent year for which data are available. Section 51.308(f)(6)(v) also requires states to include estimates of future projected emissions. Finally, 40 CFR 51.308(f)(6)(vi) requires the SIP to provide for any other elements,

including reporting, recordkeeping, and other measures, that are necessary for states to assess and report on visibility.

South Dakota describes its participation in the IMPROVE network, which is comprised of 110 monitoring sites across the Nation, two of which are in South Dakota. The State relied on the IMPROVE monitoring network to assess visibility at Class I areas across South Dakota¹²⁵ and considered the two monitoring sites, BADL1 and WICA1, to be adequate for assessing reasonable progress goals at the State's two Class I areas.¹²⁶ Using the monitoring data procedures described in its 2022 SIP submission along with other technical information supplied by WRAP,^{127,128} the State determined the contribution of in-State emissions to Class I areas inside and outside South Dakota.¹²⁹ In addition, the State also provided a statewide inventory of emissions that are reasonably anticipated to cause or contribute to visibility impairment in Class I areas; the State relied primarily on 2019 data but also estimated future projected emissions for 2028.¹³⁰

The EPA finds that South Dakota has met the requirements of 40 CFR 51.308(f)(6), including through its continued participation in the IMPROVE network and WRAP RPO and its ongoing compliance with the Air Emissions Reporting Requirements (AERR). There is no indication that further SIP elements are necessary at this time for South Dakota to assess and report on visibility. Therefore, the EPA proposes to approve

¹²⁵ South Dakota 2022 SIP submission at 177-178.

¹²⁶ *Id.* at 21-23 and 177-178.

¹²⁷ *Id.* at 179-180.

¹²⁸ South Dakota relied on the WRAP Technical Support System (TSS) "Analysis and Planning" section to determine baseline, natural, and current conditions for Class I areas in South Dakota.

<https://views.cira.colostate.edu/tssv2/>.

¹²⁹ South Dakota 2022 SIP submission at 181-188.

¹³⁰ *Id.* at 181-182.

the monitoring strategy and other state implementation plan elements of South Dakota's 2022 SIP submission as meeting the requirements of 40 CFR 51.308(f)(6).

G. Requirements for Periodic Reports Describing Progress Towards the Reasonable Progress Goals

Section 51.308(f)(5) requires that periodic comprehensive revisions of states' regional haze plans also address the progress report requirements of 40 CFR 51.308(g)(1) through (5). The purpose of these requirements is to evaluate progress towards the applicable RPGs for each Class I area within the state and each Class I area outside the state that may be affected by emissions from within that state. Section 51.308(g)(1) and (2) apply to all states and require a description of the status of implementation of all measures included in a state's first implementation period regional haze plan and a summary of the emission reductions achieved through implementation of those measures. Section 51.308(g)(3) applies only to states with Class I areas within their borders and requires such states to assess current visibility conditions, changes in visibility relative to baseline (2000-2004) visibility conditions, and changes in visibility conditions relative to the period addressed in the first implementation period progress report. Section 51.308(g)(4) applies to all states and requires an analysis tracking changes in emissions of pollutants contributing to visibility impairment from all sources and sectors since the period addressed by the first implementation period progress report. This provision further specifies the year or years through which the analysis must extend depending on the type of source and the platform through which its emission information is reported. Finally, 40 CFR 51.308(g)(5), which also applies to all states, requires an assessment of any significant changes in anthropogenic emissions within or outside the state that have

occurred since the period addressed by the first implementation period progress report, including whether such changes were anticipated and whether they have limited or impeded expected progress towards reducing emissions and improving visibility.

In its 2022 SIP submission, South Dakota included the elements of the periodic progress report specified in 40 CFR 51.308(f)(5) and (g)(1) through (5). South Dakota summarized the facility improvements made during and after the first implementation period, including emission control measures installed and emission reductions achieved by the Big Stone Power Plant.¹³¹ In addition, the State summarized the implementation status of ongoing air pollution control rules for fugitive emissions and requirements for new major sources and modifications to major sources to conduct a visibility analysis.¹³² The State also provided emissions inventories for NO_x, SO₂, PM, and CO that identify the type of source, activity, and pollutant representing 2014 actual emissions and 2014-2018 representative baseline emissions.¹³³

Visibility conditions (in deciviews) are reported in South Dakota's 2022 SIP submission for the most impaired and clearest days. Visibility conditions are expressed in terms of 5-year averages for the baseline period (2000-2004), and current period (2014-2018), as well as the progress made since the baseline period (2000-2004–2014-2018) and during the last implementation period (2008-2012–2014-2018) for each Class I area.¹³⁴ South Dakota also provided an assessment and discussion of the significant changes in anthropogenic emissions since the first implementation period.¹³⁵

¹³¹ South Dakota 2022 SIP submission at 198-199.

¹³² *Id.* at 122-125.

¹³³ *Id.* at 181-189.

¹³⁴ *Id.* at 203-216.

¹³⁵ *Id.* at 214-216.

Because South Dakota's 2022 SIP submission addresses the requirements of 40 CFR 51.308(g)(1) through (5), the EPA finds that South Dakota has met the progress report requirements of 40 CFR 51.308(f)(5). Therefore, we propose to approve South Dakota's 2022 SIP submission as meeting the requirements of 40 CFR 51.308(f)(5) and (g) for periodic progress reports.

H. Requirements for State and Federal Land Manager Coordination

Section 169A(d) of the CAA requires states to consult with FLMs before holding the public hearing on a proposed regional haze SIP, and to include a summary of the FLMs' conclusions and recommendations in the notice to the public. In addition, the 40 CFR 51.308(i)(2) FLM consultation provision requires a state to provide FLMs with an opportunity for consultation that is early enough in the state's policy analyses of its emission reduction obligation so that information and recommendations provided by the FLMs can meaningfully inform the state's decisions on its long-term strategy. If the consultation has taken place at least 120 days before a public hearing or public comment period, the opportunity for consultation will be deemed early enough. Regardless, the opportunity for consultation must be provided at least sixty days before a public hearing or public comment period at the state level. Section 51.308(i)(2) also lists two substantive topics on which FLMs must be provided an opportunity to discuss with states: assessment of visibility impairment in any Class I area and recommendations on the development and implementation of strategies to address visibility impairment. Section 51.308(i)(3) requires states, in developing their implementation plans, to include a description of how they addressed FLMs' comments.

South Dakota's 2022 SIP submission summarizes the State's consultation and coordination with the FLMs. South Dakota consulted and coordinated with the FLMs during the development of its regional haze SIP through WRAP participation and direct FLM engagement.¹³⁶ On September 15, 2021, South Dakota submitted the State's draft regional haze plan to the FLMs for consultation and received comments thereafter. South Dakota subsequently analyzed the FLMs comments, modified the draft regional haze plan, summarized and responded to each comment, and included the information in an appendix to its SIP submission which was made available for public comment.¹³⁷ The State explained how it is committed to coordinating and consulting with the FLMs during the development of future progress reports and SIP submissions, as well as during the implementation of programs having the potential to contribute to visibility impairment in Class I areas.¹³⁸

Compliance with 40 CFR 51.308(i) is dependent on compliance with 40 CFR 51.308(f)(2)'s long-term strategy provisions and 40 CFR 51.308(f)(3)'s reasonable progress goals provisions. Because the EPA is proposing to approve South Dakota's long-term strategy under 40 CFR 51.308(f)(2) and the reasonable progress goals under 40 CFR 51.308(f)(3), the EPA is also proposing to approve the State's FLM consultation under 40 CFR 51.308(i). South Dakota took administrative steps to provide the FLMs the opportunity to review and provide feedback on the State's draft regional haze plan. Therefore, the EPA proposes to approve the FLM consultation component of South

¹³⁶ *Id.* at 189-91.

¹³⁷ South Dakota 2022 SIP submission at 190-191, appendix A.

¹³⁸ *Id.* at 191-193.

Dakota's SIP submission, which meets the requirements of 40 CFR 51.308(i), as outlined in this section.

V. Proposed Action

The EPA is proposing approval of South Dakota's 2022 SIP submission addressing the requirements of the second implementation period of the RHR. Specifically, the EPA is proposing approval of South Dakota's 2022 SIP submission relating to 40 CFR 51.308(f)(1): calculations of baseline, current, and natural visibility conditions, progress to date, and the uniform rate of progress; 40 CFR 51.308(f)(2): long-term strategy; 40 CFR 51.308 (f)(3): reasonable progress goals; 40 CFR 51.308(f)(4): reasonably attributable visibility impairment; 40 CFR 51.308(f)(5) and (g): progress report requirements; 40 CFR 51.308(f)(6): monitoring strategy and other implementation plan requirements; and 40 CFR 51.308(i): FLM consultation.

VI. Statutory and Executive Order Reviews

Under the CAA, the Administrator is required to approve a SIP submission that complies with the provisions of the CAA and applicable Federal regulations. 42 U.S.C. 7410(k); 40 CFR 52.02(a). Thus, in reviewing SIP submissions, EPA's role is to approve state choices, provided that they meet the criteria of the CAA. Accordingly, this action merely proposes to approve state law as meeting Federal requirements and does not impose additional requirements beyond those imposed by state law. For that reason, this action:

- Is not a significant regulatory action subject to review by the Office of Management and Budget under Executive Orders 12866 (58 FR 51735, October 4, 1993);

- Is not subject to Executive Order 14192 (90 FR 9065, February 6, 2025) because State Implementation Plan approvals under the CAA are exempt from review under Executive Order 12866;
- Does not impose an information collection burden under the provisions of the Paperwork Reduction Act (44 U.S.C. 3501 *et seq.*);
- Is certified as not having a significant economic impact on a substantial number of small entities under the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*);
- Does not contain any unfunded mandate or significantly or uniquely affect small governments, as described in the Unfunded Mandates Reform Act of 1995 (Pub. L. 104-4);
- Does not have federalism implications as specified in Executive Order 13132 (64 FR 43255, August 10, 1999);
- Is not subject to Executive Order 13045 (62 FR 19885, April 23, 1997) because it approves a state program;
- Is not a significant regulatory action subject to Executive Order 13211 (66 FR 28355, May 22, 2001); and
- Is not subject to requirements of section 12(d) of the National Technology Transfer and Advancement Act of 1995 (15 U.S.C. 272 note) because application of those requirements would be inconsistent with the CAA.

In addition, the SIP is not approved to apply on any Indian reservation land or in any other area where EPA or an Indian Tribe has demonstrated that a Tribe has jurisdiction. In those areas of Indian country, the rule does not have Tribal implications and will not

impose substantial direct costs on Tribal governments or preempt Tribal law as specified by Executive Order 13175 (65 FR 67249, November 9, 2000).

List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Carbon monoxide, Greenhouse gases, Incorporation by reference, Intergovernmental relations, Lead, Nitrogen dioxide, Ozone, Particulate matter, Reporting and recordkeeping requirements, Sulfur oxides, Volatile organic compounds.

Dated: April 28, 2025.

Cyrus M. Western,

Regional Administrator,

Region 8.

For the reasons stated in the preamble, the Environmental Protection Agency is proposing to amend 40 CFR part 52 as follows:

PART 52—APPROVAL AND PROMULGATION OF IMPLEMENTATION PLANS

1. The authority citation for part 52 continues to read as follows:

Authority: 42 U.S.C. 7401 *et seq.*

Subpart QQ—South Dakota

2. In § 52.2170, the table in paragraph (e) is amended by adding the entry “XXVIII. South Dakota Regional Haze State Implementation Plan” at the end of the table to read as follows:

§ 52.2170 Identification of plan.

* * * * *

(e) * * *

Rule title	State effective date	EPA effective date	Final rule citation, date	Comments
* * *	* *	* *	* *	* *
XXVIII. South Dakota Regional Haze State Implementation Plan	4/21/2022	[date 30 days after date of publication of the final rule in the Federal Register]	90 FR [Federal Register page where the document begins of the final rule], [date of publication of the final rule in the Federal Register]	

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