ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 52

[EPA–R10–OAR–2022–0115; FRL–9755–01–R10]

Air Plan Partial Approval and Partial Disapproval; AK, Fairbanks North Star Borough; 2006 24-Hour $PM_{2.5}$ Serious Area and 189(d) Plan

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: The Environmental Protection Agency (EPA) is proposing to approve in part and disapprove in part the state implementation plan (SIP) revisions, submitted by the State of Alaska (Alaska or the State) to address Clean Air Act (CAA or Act) requirements for the 2006 24-hour fine particulate matter ($PM_{2.5}$) national ambient air quality standards (NAAQS) in the Fairbanks North Star Borough $PM_{2.5}$ nonattainment area (Fairbanks $PM_{2.5}$ Nonattainment Area). Alaska made these submissions on December 13, 2019, and December 15, 2020.

DATES:

Comments. Written comments must be received on or before March 13, 2023.

Public Hearing. EPA plans to hold one public hearing concerning the proposed rule in Fairbanks, Alaska. The date, time and location will be announced separately.

ADDRESSES: Submit your comments, identified by Docket ID No. EPA–R10–OAR–2022–0115, at *https://www.regulations.gov.* Follow the online instructions for submitting comments. Once submitted, comments cannot be edited or removed from *regulations.gov.* 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 the disclosure of which 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. 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.*

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SUPPLEMENTARY INFORMATION: Throughout this document wherever ''we,'' ''us,'' or ''our'' is used, it is intended to refer to EPA.

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I. Background

In 2009, EPA designated a portion of the Fairbanks North Star Borough as ''nonattainment'' for the 2006 24-hour $PM_{2.5}$ NAAQS, which is set at the level of 35 micrograms per cubic meter (μg/m^3) (Fairbanks $PM_{2.5}$ Nonattainment Area) (74 FR 58688, November 13, 2009).[1] Effective July 2, 2014, EPA classified the area as ''Moderate'' (79 FR 31566, June 2, 2014). Subsequently, Alaska submitted, and EPA approved, a plan to meet Moderate nonattainment area requirements (82 FR 42457, September 8, 2017) (''Fairbanks Moderate Plan'').

On May 10, 2017, EPA determined that the Fairbanks $PM_{2.5}$ Nonattainment Area failed to attain the 2006 24-hour $PM_{2.5}$ NAAQS in the area by the outermost statutory Moderate area attainment date of December 31, 2015 (82 FR 21711). As a result, the Fairbanks $PM_{2.5}$ Nonattainment Area was reclassified as a ''Serious'' nonattainment area by operation of law.

Upon reclassification as a Serious $PM_{2.5}$ nonattainment area, the State was required to submit a Serious area attainment plan satisfying the requirements of CAA sections 172, 189(b), and 189(c) and 40 CFR 51.1003(b). In accordance with CAA section 188(c)(2), the outermost attainment date for a Serious area is no later than the end of the tenth calendar year following designation (*i.e.,* December 31, 2019).

Alaska submitted a plan to address the Serious $PM_{2.5}$ nonattainment area requirements on December 13, 2019 (Fairbanks Serious Plan).[2] Along with the required planning elements, the Fairbanks Serious Plan includes more stringent performance and operating requirements for residential and commercial heating devices, new regulations for wood sellers, and some requirements for stationary sources in the nonattainment area. The Fairbanks Serious Plan is comprised of revisions to Title 18, Chapter 50, of the Alaska Administrative Code (18 AAC 50) and the State Air Quality Control Plan, adopted and incorporated by reference into State law at 18 AAC 50.030(a).[3] On January 9, 2020, in accordance with CAA section 110(k)(1)(B), EPA determined that the Fairbanks Serious

[1] See 40 CFR 81.302.

[2] Alaska SIP revision submitted October 25, 2018, to address the nonattainment NSR element for the Fairbanks Serious area, among other things. EPA approved as meeting the nonattainment NSR element for the Serious Plan on August 29, 2019 (84 FR 45419).

[3] We note that 18 AAC 50.030(a) is not submitted, rather Alaska submits the adopted provisions separately for EPA approval.

Plan was administratively and technically complete (85 FR 7760, February 11, 2020).

Within the Fairbanks Serious Plan, the State sought an extension of the otherwise applicable attainment date through CAA section 188(e). On September 2, 2020, EPA determined that the area failed to attain by the Serious area attainment date and denied the State's Serious area attainment date extension request (85 FR 54509). As a result, Alaska was required to submit a revised SIP submission to meet both the Serious area attainment plan requirements and the additional CAA requirements set forth in CAA section 189(d) by December 31, 2020.[4] Alaska submitted the revised plan on December 15, 2020 (Fairbanks 189(d) Plan). The Fairbanks 189(d) Plan updated a number of chapters of the State Air Quality Control Plan (*i.e.,* narrative portions of the SIP), adopted and incorporated by reference into State law at 18 AAC 50.030(a). Prior to EPA taking action to approve or disapprove the Fairbanks Serious Plan, Alaska withdrew and replaced several chapters of the Fairbanks Serious Plan with the Fairbanks 189(d) Plan submission.[5] In this proposed action, EPA is not proposing to act on the withdrawn elements of the prior Fairbanks Serious Plan, only those elements that remain as revised by Alaska in the Fairbanks 189(d) Plan.

On September 24, 2021, EPA approved as meeting the Serious area planning requirements the 2013 base year emissions inventory and the $PM_{2.5}$ precursor demonstration elements of the Fairbanks Serious Plan (86 FR 52997). In the same action, EPA approved other plan components as SIP strengthening, including (1) the updated Fairbanks Emergency Episode Plan[6] that the State adopted on November 18, 2020 and submitted on December 15, 2020; and (2) emission control measures included in the SIP submissions on October 25, 2018 and November 28, 2018 (in addition to the December 13, 2019 submission).[7] EPA did not determine as part of the September 24, 2021, approval whether these SIP strengthening components met specific nonattainment plan requirements, including control strategy requirements in CAA section 189 and 40 CFR 51.1010 or the contingency measure requirements in CAA section 172(c)(9) and 40 CFR 51.1014. EPA's proposed determination on whether these components meet the nonattainment plan requirements is contained in this document.

Alaska's air quality monitoring network for the Fairbanks $PM_{2.5}$ Nonattainment Area has included four regulatory monitor site locations. Table 1 in this document includes the site names, identification number, monitor data, and design values for the $PM_{2.5}$ monitor site locations in Fairbanks. With EPA approval, the State discontinued the monitor location at the State Office Building and established the A Street monitor as a monitor location in 2019. Alaska established the A Street monitor location as a State or Local Air Monitoring Station (SLAMS) $PM_{2.5}$ monitoring station to characterize $PM_{2.5}$ concentrations in the City of Fairbanks. The Hurst Road monitor measures expected maximum concentrations for the nonattainment area.[8] We note Alaska flagged monitor data in 2019 influenced by wildfire smoke. We discuss in section III.3 of this document how Alaska's demonstration was considered for attainment modeling, but this wildfire-influenced data in 2019 was not regulatory significant under 40 CFR 50.14(a), so the monitor data has not been excluded from the official design value in EPA's Air Quality System (AQS).[9]

TABLE 1—FAIRBANKS $PM_{2.5}$ MONITORING LOCATIONS AND RECENT SITE-LEVEL DESIGN VALUES

Local site name	Site location	AQS ID	98th percentile (μg/m³)			2019–2021 24-hour design value **
			2019 **	2020	2021	
Hurst Road *	3288 Hurst Road, North Pole	02–090–0035	78.3	71.4	65.5	72
A Street	397 Hamilton Ave., Fairbanks	02–090–0040	*** 34.1	36.1	*** 29.6	*** 33
NCore	809 Pioneer Road, Fairbanks	02–090–0034	60.0	26.6	27.5	38
State Office Building	675 7th Avenue, Fairbanks	02–090–0010	*** 34.7	n/a	n/a	*** 35

* Monitor location previously referred to as North Pole Fire Station.

** Data in this table includes state-flagged monitor days in 2019 that were influenced by wildfires.

*** Incomplete monitor data and/or invalid 3-year design value. In July 2019, Alaska shut down the regulatory $PM_{2.5}$ monitor at the State Office Building and established a new maximum impact $PM_{2.5}$ monitoring site at the A Street location. Due to data issues in 2021, an official 98th percentile measurement for A Street could not be calculated.

Source: EPA 2021 AQS Design Value Report.

A. Environmental Justice Considerations

Executive Order 12898 (59 FR 7629, February 16, 1994) requires that Federal agencies, to the greatest extent practicable and permitted by law, identify and address disproportionately high and adverse human health or environmental effects of their actions on minority and low-income populations. Additionally, Executive Order 13985 (86 FR 7009, January 25, 2021) directs Federal government agencies to assess whether, and to what extent, their programs and policies perpetuate systemic barriers to opportunities and benefits for people of color and other underserved groups, and Executive Order 14008 (86 FR 7619, February 1, 2021) directs Federal agencies to develop programs, policies, and activities to address the disproportionate health, environmental, economic, and climate impacts on disadvantaged communities.

To identify environmental burdens and susceptible populations in

[4] 40 CFR 51.1003(c).

[5] See SIP submission cover letter, submitted by Alaska Department of Environmental Conservation (ADEC) Commissioner Jason Brune to EPA Regional Administrator, Chris Hladick, on December 15, 2020.

[6] State Air Quality Control Plan, Vol II, III.D.7.12 (*i.e.,* Alaska's planning chapter related to air quality forecasting and curtailment levels).

[7] For a description of the specific control measures addressed across the State's SIP submissions, see 86 FR 52997, September 24, 2021.

[8] For further details of the air quality monitoring network in the Fairbanks $PM_{2.5}$ Nonattainment Area, EPA's approval letters of Alaska's Annual Monitoring Network Plans for each year between 2019 to 2022 are included in the docket for this action.

[9] Alaska Department of Environmental Conservation. (April 14, 2021). *Exceptional Events Waiver Request, For Exceptional $PM_{2.5}$ Events Between May 26, and July 26, 2019, in the Fairbanks North Star Borough, Alaska.* Alaska Department of Environmental Conservation, Air Quality Division

underserved communities in the Fairbanks Nonattainment Area and to better understand the context of our proposed action on the Fairbanks Serious Plan and Fairbanks 189(d) Plan on these communities, we conducted a screening-level analysis using EPA's environmental justice (EJ) screening and mapping tool (''EJSCREEN'').[10]

There are 12 environmental justice indices available on EJSCREEN,[11] each index combines demographic factors with a single environmental factor. Although the EJSCREEN indices for $PM_{2.5}$ and Ozone are not available for Fairbanks, Alaska, we note that the Fairbanks Nonattainment Area has some of the highest $PM_{2.5}$ concentrations in the country and has been designated a $PM_{2.5}$ nonattainment area since 2009. Residents in Fairbanks and North Pole have been subject to a high pollution burden for many years. Other health and socioeconomic indices, identified in EJSCREEN, that are impacted by elevated $PM_{2.5}$ concentrations include: low life expectancy (95–100 percentile) and asthma (90–95 percentile) in an area south of downtown Fairbanks and population under age 5 (95–100 percentile) in various areas in Fairbanks and North Pole. Most of Alaska, including the Fairbanks area, is considered ''medically underserved.'' [12]

A review of other environmental justice indices in EJSCREEN for the cities of Fairbanks, AK and North Pole, AK are below the 80th percentile, with some areas around downtown Fairbanks in the 80–90th percentile for the following indices: Superfund proximity, Hazardous waste proximity, Underground storage tanks. No indices are above the 90th percentile for the Fairbanks Nonattainment Area. EJSCREEN reports for Fairbanks and North Pole are included in the docket for this action.

As discussed in EPA's EJ technical guidance, people of color and low-income populations often experience greater exposure and disease burdens than the general population, which can increase their susceptibility to adverse health effects from environmental stressors.[13] Underserved communities may have a compromised ability to cope with or recover from such exposures due to a range of physical, chemical, biological, social, and cultural factors.[14]

If EPA were to finalize the proposed disapprovals described in section III of this proposed rulemaking, Alaska would be required to submit a plan revision for the Fairbanks Nonattainment Area to address the identified deficiencies. In addition, as summarized in section IV of this proposed rulemaking, such final action would trigger clocks for the Fairbanks Nonattainment Area for offset sanctions 18 months after the final rule effective date, highway funding sanctions six months after the offset sanctions, and the obligation for EPA to promulgate a Federal implementation plan (FIP) within two years of the final rule effective date. Alaska's expeditious submission of plan revisions that correct the deficiencies identified in this document will ensure the plan meets CAA requirements, and the measures in the plan when implemented achieves attainment as expeditiously as practicable. And in doing so, the plan revisions address harmful and disproportionate health and environmental effects on underserved and overburdened populations, consistent with the principles of environmental justice.

II. Clean Air Act Requirements for $PM_{2.5}$ Serious Area Plans and for $PM_{2.5}$ Serious Areas That Fail To Attain

A. Requirements for $PM_{2.5}$ Serious Area Plans

On August 24, 2016, EPA promulgated the final rule entitled, ''Fine Particulate Matter National Ambient Air Quality Standards: State Implementation Plan Requirements'' ($PM_{2.5}$ SIP Requirements Rule).[15] The $PM_{2.5}$ SIP Requirements Rule is codified at 40 CFR part 51, subpart Z. The $PM_{2.5}$ SIP Requirements Rule establishes regulatory requirements and provides interpretive guidance on the statutory SIP requirements that apply to states with areas designated nonattainment for the $PM_{2.5}$ standards. Because this action addresses planning requirements for Serious nonattainment areas and the planning requirements under CAA section 189(d) for Serious nonattainment areas that failed to attain by the attainment date, both planning requirements will be discussed here.

Upon reclassification of a Moderate nonattainment area as a Serious nonattainment area under subpart 4 of part D, title I of the CAA, the Act requires the State to submit a Serious area nonattainment plan that addresses specific requirements.[16] In accordance with subpart 4 of part D, title I of the CAA and the $PM_{2.5}$ SIP Requirements Rule at 40 CFR 51.1003(b), Serious area nonattainment plans must address the following requirements:

1. Base year emissions inventory meeting the requirements of CAA section 172(c)(3) [17] and 40 CFR 51.1008(b)(1);
2. Attainment projected emissions inventory meeting the requirements of CAA section 172(c)(1) [18] and 40 CFR 51.1008(b)(2);
3. Serious area nonattainment plan control strategy meeting the requirements of CAA section 189(b)(1)(B) [19] and 40 CFR 51.1010, including provisions to assure that the best available control measures (BACM) and best available control technologies (BACT), for the control of direct $PM_{2.5}$ and $PM_{2.5}$ precursors are implemented no later than four years after the area is reclassified (CAA section 189(b)(1)(B) [20]);
4. Attainment demonstration and modeling meeting the requirements of CAA sections 188(c)(2) and 189(b)(1)(A) [21] and 40 CFR 51.1011;
5. Reasonable further progress (RFP) provisions meeting the requirements of CAA section 172(c)(2) [22] and 40 CFR 51.1012;
6. Quantitative milestones meeting the requirements of CAA section 189(c) [23] and 40 CFR 51.1013;

[10] EJSCREEN provides a nationally consistent dataset and approach for combining environmental and demographic indicators. EJSCREEN is available at *https://www.epa.gov/ejscreen/what-ejscreen.*

[11] Environmental indices include: particulate matter $PM_{2.5}$; Ozone; Diesel particulate matter; Air Toxics cancer risk; Air toxics respiratory hazard index; Traffic proximity and volume; Lead paint; Superfund proximity; Risk management plan (RMP) facility proximity; Hazardous waste proximity; Underground storage tanks (UST) and leaking UST (LUST); and Wastewater discharge.

[12] Medically Underserved Areas are defined by the Health Resources and Services Administration as geographic areas with a lack of access to primary care services. For more information see: *https://bhw.hrsa.gov/workforce-shortage-areas/shortage-designation#mups.*

[13] U.S. Environmental Protection Agency. (June 2016). *Technical Guidance for Assessing Environmental Justice in Regulatory Analysis.* Section 4.

[14] *Id.* at section 4.1.

[15] 81 FR 58010, August 24, 2016. Prior to promulgating the $PM_{2.5}$ SIP Requirements Rule, EPA provided its interpretations of the CAA's requirements for particulate matter plans under part D, title I of the Act in the following guidance documents: (1) ''State Implementation Plans; General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990'' (''General Preamble''); (2) ''State Implementation Plans; General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990; Supplemental'' (''General Preamble Supplement''); and (3) ''State Implementation Plans for Serious PM–10 Nonattainment Areas, and Attainment Date Waivers for PM–10 Nonattainment Areas Generally; Addendum to the General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990'' (''General Preamble Addendum'').

[16] CAA section 189(b), 42 U.S.C. 7513a(b); *see also* 81 FR 58010, at pp. 58074–58075, August 24, 2016.

[17] 42 U.S.C. 7502(c)(3).

[18] 42 U.S.C. 7502(c)(1).

[19] 42 U.S.C. 7513a(b)(1)(B).

[20] *Id.*

[21] 42 U.S.C. 7513(c)(2) and 7513a(b)(1)(A).

[22] 42 U.S.C. 7502(c)(2).

[23] 42 U.S.C. 7513a(c).

7. An evaluation by the state of sources of all four $PM_{2.5}$ precursors for regulation, and implementation of controls on all such precursors, unless the state provides an adequate demonstration establishing that it is either not necessary to regulate a particular precursor in the nonattainment area at issue in order to attain by the attainment date, or that emissions of the precursor do not make a significant contribution to $PM_{2.5}$ levels that exceed the standard; [24]

8. Contingency measures meeting the requirements of CAA section 172(c)(9) [25] and 40 CFR 51.1014; and

9. Nonattainment new source review provisions meeting the requirements of CAA section 189(b)(3) and 40 CFR 51.165.

In the Serious area nonattainment plan, a state must also satisfy the requirements for the Moderate area plan in CAA section 189(a), to the extent the state has not already met those requirements in the Moderate area plan submitted for the area (see CAA section 189(b)(1), 40 CFR 51.1003(b), and 81 FR 58010, August 24, 2016, at page 58075). In addition, the Serious area nonattainment plan must meet the general requirements applicable to all SIP submissions under CAA section 110, including the requirement to provide necessary assurances that the implementing agencies have adequate personnel, funding, and authority under CAA section 110(a)(2)(E), and the requirements concerning enforcement provisions in CAA section 110(a)(2)(C).

B. Requirements for $PM_{2.5}$ Serious Areas That Fail To Attain

In the event that a Serious area fails to attain the $PM_{2.5}$ NAAQS by the applicable attainment date, CAA section 189(d) [26] requires that ''the State in which such area is located shall, after notice and opportunity for public comment, submit within 12 months after the applicable attainment date, plan revisions which provide for attainment of the . . . standard . . .'' The attainment plan required under CAA section 189(d) must, among other things, demonstrate expeditious attainment of the NAAQS within the time period provided under CAA section 179(d)(3) [27] and provide for annual reductions in emissions of direct $PM_{2.5}$ or a $PM_{2.5}$ plan precursor pollutant within the area of not less than five percent per year from the most recent emissions inventory for the area until attainment.[28] In addition to the requirement to submit control measures providing for a five percent reduction in emissions of certain pollutants on an annual basis, EPA interprets CAA section 189(d) as requiring a state to submit an attainment plan that includes the same basic statutory plan elements that are required for other attainment plans. Specifically, a state must submit to EPA its plan to meet the requirements of CAA section 189(d) in the form of a complete attainment plan submission that includes the following elements: [29]

1. Base year emissions inventory meeting the requirements of CAA section 172(c)(3) [30] and 40 CFR 51.1008(c)(1);

2. Attainment projected emissions inventory meeting the requirements of CAA section 172(c)(1) [31] and 40 CFR 51.1008(c)(2);

3. Unless previously met, a Serious area nonattainment plan control strategy that ensures that best available control measures (BACM), including best available control technologies (BACT), for the control of direct $PM_{2.5}$ and $PM_{2.5}$ precursors are implemented in the area (CAA section 189(b)(1)(B) [32] and 40 CFR 51.1010(a)).

4. Additional measures (beyond those already adopted in previous nonattainment plan SIP submissions for the area as RACM/RACT, BACM/BACT, and Most Stringent Measures (MSM) [33] (if applicable)) that provide for attainment of the NAAQS as expeditiously as practicable and, from the date of such submission until attainment, demonstrate that the plan will at a minimum achieve an annual five percent reduction in emission of direct $PM_{2.5}$ or any $PM_{2.5}$ plan precursor from the most recent emissions inventory for the area. The state must reconsider and reassess any measures previously rejected by the state during the development of any Moderate area or Serious area attainment plan control strategy for the area. 40 CFR 51.1010(c).

5. Attainment demonstration and modeling meeting the requirements of CAA sections 188(c)(2) and 189(b)(1)(A) [34] and 40 CFR 51.1011;

6. Reasonable further progress (RFP) provisions meeting the requirements of CAA section 172(c)(2) [35] and 40 CFR 51.1012;

7. Quantitative milestones meeting the requirements of CAA section 189(c) [36] and 40 CFR 51.1013;

8. An evaluation by the state of sources of all four $PM_{2.5}$ precursors for regulation, and implementation of controls on all such precursors, unless the state provides an adequate demonstration establishing that it is either not necessary to regulate a particular precursor in the nonattainment area at issue in order to attain by the attainment date, or that emissions of the precursor do not make a significant contribution to $PM_{2.5}$ levels that exceed the standard; [37]

9. Contingency measures meeting the requirements of CAA section 172(c)(9) [38] and 40 CFR 51.1014; and

10. Nonattainment new source review provisions meeting the requirements of CAA section 189(b)(3) [39] and 40 CFR 51.165.

C. Combined Requirements for $PM_{2.5}$ Serious Areas and Serious Areas That Fail To Attain

On September 2, 2020, EPA determined that the Fairbanks $PM_{2.5}$ Nonattainment Area failed to attain the 2006 24-hour $PM_{2.5}$ NAAQS by the Serious area attainment date and denied the State's Serious area attainment date extension request (85 FR 54509). This action triggered the obligation for the State to make a new SIP submission to meet the requirements laid out in Section II.B of this document, including submission of a new plan containing all the elements in 40 CFR 51.1003(c). EPA's determination that Fairbanks $PM_{2.5}$ Nonattainment Area failed to attain the NAAQS did not, however, nullify the State's obligation to meet the still outstanding requirements for $PM_{2.5}$ Serious areas laid out in Section II.A, including the requirement to adopt and submit a plan containing all the elements in 40 CFR 51.1003(b). Moreover, a result of the determination of failure to attain was to require the State to make a SIP submission meeting the requirements of CAA section 189(d) and providing for attainment by a later attainment date. Because CAA section 189(d) does not itself supply a specific date, EPA interprets the CAA to impose the attainment date requirements of CAA section 172 and 179, and as

[24] CAA section 189(e), 42 U.S.C. 7513a(e) and 40 CFR 51.1006, 51.1010.

[25] 42 U.S.C. 7502(c)(9).

[26] 42 U.S.C. 7513a(d).

[27] 42 U.S.C. 7509(d)(3).

[28] 81 FR 58010, at page 58098.

[29] 40 CFR 51.1003(c)(1).

[30] 42 U.S.C. 7502(c)(3).

[31] 42 U.S.C. 7502(c)(1).

[32] 42 U.S.C. 7513a(b)(1)(B).

[33] MSM is applicable if EPA has previously granted an extension of the attainment date under CAA section 188(e) for the nonattainment area and NAAQS at issue. EPA denied Alaska's request to extend the Serious area attainment date for the Fairbanks $PM_{2.5}$ Nonattainment Area. Therefore, MSM is not applicable to the Fairbanks Serious Plan or Fairbanks 189(d) Plan.

[34] 42 U.S.C. 7513(c)(2) and 7513a(b)(1)(A).

[35] 42 U.S.C. 7502(c)(2).

[36] 42 U.S.C. 7513a(c).

[37] 40 CFR 51.1006.

[38] 42 U.S.C. 7502(c)(9).

[39] 42 U.S.C. 7513a(b)(3).

interpreted in 40 CFR 51.1004(a)(3), rather than the date imposed in CAA section 182(c)(2) and as interpreted in 40 CFR 51.1004(a)(2).

Consistent with the deadlines laid out in the CAA, Serious area plans are intended to be submitted and approved or disapproved well before the Serious area attainment date.[40] The Serious plan must be designed to achieve attainment as expeditiously as practicable, but no later than the outermost statutory attainment date, which is the end of the tenth calendar year following the area's designation to nonattainment.[41] If implementation of the Serious Plan fails to achieve attainment by the Serious area attainment date, the state must submit a new plan meeting the requirements for Serious areas that fail to attain in CAA section 189(d).[42] The state must design this new CAA section 189(d)plan to achieve attainment as expeditiously as practicable, but no later than the deadlines in CAA sections 172 and 179.[43] Thus, the CAA requires states to adopt and implement a plan meeting the requirement of CAA section 189(d) only after adopting and implementing a fully-approved Serious area plan.

Accordingly, the CAA does not contain provisions that address precisely how a state should meet all of the planning requirements for a Serious nonattainment area, after such area has already failed to attain the NAAQS, but before the state has met all of the planning requirements for Serious nonattainment areas. By extension, the CAA does not account for potential conflicts between the required plan provisions for Serious area plans and Section 189(d) plans, particularly with respect to the attainment projected inventory, attainment demonstration, RFP, and quantitative milestone (QM) plan provisions. These elements are required for all $PM_{2.5}$ nonattainment plans and are dependent on a single projected attainment date that complies with the statutory requirements governing the area. Thus, in the event that a state is obligated to submit both a Serious area plan and a Section 189(d) plan, a conflict arises between the applicable attainment date by which states should structure these plan provisions and against which EPA should evaluate them. Such conflict exists here.

EPA acknowledges that the complicated series of events and chronology in this situation make it more difficult to evaluate the State's remaining Serious area plan obligations and new section 189(d) plan obligations. Alaska submitted the Serious Area Plan on December 13, 2019, 18 days before the then-applicable attainment date of December 31, 2019. This plan included a request to extend the attainment date from December 31, 2019 to December 31, 2024, pursuant to CAA section 188(e), which EPA denied.[44] EPA also has not fully approved this Plan. Notably, EPA has not approved the attainment projected inventory, attainment demonstration, RFP, and QM plan provisions of the Serious Area Plan submitted on December 13, 2019.

As discussed in this section, on September 2, 2020, EPA determined that the area failed to attain the 2006 24-hour $PM_{2.5}$ NAAQS by December 31, 2019. As a result, the attainment projected inventory, attainment demonstration, RFP, and QM provisions of the December 13, 2019, Serious Area Plan submission did not meet CAA requirements for Serious areas. Moreover, no revisions to these plan provisions could satisfy the Serious area planning requirements because the Serious area attainment date has already passed. Alaska subsequently withdrew these plan provisions and replaced them with the submission of the Fairbanks 189(d) Plan and structured the new plan provisions around the applicable attainment date for Serious areas that fail to attain.

EPA now needs to take action on the nonattainment plan SIP submissions for the Fairbanks Nonattainment Area that are currently before the agency in a way that is logical and most consistent with the statutory and regulatory requirements. Given the impossibility of the State now submitting a Serious area plan designed to achieve an attainment date that has already passed and that the applicable attainment date for the Fairbanks Nonattainment Area is now governed by CAA sections 172 and 179 and 40 CFR 51.1004(a)(3), EPA proposes that it should evaluate any previously unmet Serious area planning obligations based on the current, applicable attainment date under CAA section 189(d), and not the original Serious area attainment date.[45]

Thus, the combined planning requirements EPA is evaluating as part of the Fairbanks Serious Plan and Fairbanks 189(d) Plan submissions are included in Table 2:

TABLE 2—COMBINED FAIRBANKS SERIOUS PLAN AND FAIRBANKS 189(d) PLAN REQUIREMENTS

[CAA planning requirements for $PM_{2.5}$ serious areas and areas that fail to attain]

Description	Legal/ regulatory requirement
Base year emissions inventory for Serious areas subject to CAA section 189(b) *	CAA section 172(c)(3); 40 CFR 51.1008(b)(1).
Base year emissions inventory for areas subject to CAA section 189(d)	CAA section 172(c)(3); 40 CFR 51.1008(c)(1).
Attainment projected emissions inventory	CAA section 172(c)(1); 40 CFR 51.1008(c)(2).
Serious area nonattainment plan control strategy that ensures that best available control measures (BACM), including best available control technologies (BACT), for the control of direct $PM_{2.5}$ and $PM_{2.5}$ precursors are implemented in the area.	CAA section 189(b)(1)(B); 40 CFR 51.1010(a).
Additional measures (beyond those already adopted in previous nonattainment plan SIP submissions for the area as RACM/RACT, BACM/BACT, and Most Stringent Measures (MSM)[46] (if applicable)) that provide for attainment of the NAAQS as expeditiously as practicable and, from the date of such submission until attainment, demonstrate that the plan will at a minimum achieve an annual five percent reduction in emission of direct $PM_{2.5}$ or any $PM_{2.5}$ plan precursor. The state must reconsider and reassess any measures previously rejected by the state during the development of any Moderate area or Serious area attainment plan control strategy for the area.	CAA section 189(d);40 CFR 51.1010(c).

[40] CAA section 189(b)(2) and 40 CFR 51.1003.

[41] CAA section 189(b)(1) and 40 CFR 51.1004(a)(2).

[42] CAA section 189(d) and 40 CFR 51.1003(c).

[43] CAA sections 172 and 179 and 40 CFR 51.1004(a)(3)

[44] 85 FR 54509

[45] 86 FR 53150, September 24, 2021, at p. 53155.

TABLE 2—COMBINED FAIRBANKS SERIOUS PLAN AND FAIRBANKS 189(d) PLAN REQUIREMENTS—Continued

[CAA planning requirements for $PM_{2.5}$ serious areas and areas that fail to attain]

Description	Legal/ regulatory requirement
Attainment demonstration and modeling	CAA sections 188(c)(2) and 189(b)(1)(A); 40 CFR 51.1003(c) and 51.1011.
Reasonable further progress (RFP) provisions	CAA section 172(c)(2); 40 CFR 51.1012.
Quantitative milestones	CAA section 189(c); 40 CFR 51.1013.
An adequate evaluation by the state of sources of all four $PM_{2.5}$ precursors for regulation, and implementation of controls on all such precursors, unless the state provides a demonstration establishing that it is either not necessary to regulate a particular precursor in the nonattainment area at issue in order to attain by the attainment date, or that emissions of the precursor do not make a significant contribution to $PM_{2.5}$ levels that exceed the standard.**	CAA section 189(e);40 CFR 51.1006.
Contingency measures applicable to Serious areas subject to CAA section 189(b)	CAA section 172(c)(9); 40 CFR 51.1014.
Contingency measures applicable to Serious areas subject to CAA section 189(d)	CAA section 172(c)(9); 40 CFR 51.1014.
Nonattainment new source review provisions	CAA section 189(b)(3); 40 CFR 51.165.

* EPA finalized approval of this requirement on September 24, 2021 (86 FR 52997).
** EPA finalized approval of this requirement applicable to Serious areas subject to CAA section 189(b) on September 24, 2021 (86 FR 52997).

As noted in section I of this document, EPA approved parts of the Fairbanks Serious Plan as meeting the base year emission inventory requirements, $PM_{2.5}$ precursor demonstration requirements, and the nonattainment new source review provisions (86 FR 52997, September 24, 2021; *see also* 84 FR 45419, August 29, 2019). Therefore, the ensuing evaluation focuses on the remaining statutory and regulatory requirements applicable to Serious nonattainment plan provisions. Additionally, we are also evaluating whether the December 15, 2020, submission meets the additional planning requirements of a revised Serious area attainment plan under CAA section 189(d) and 40 CFR 51.1003(c).

III. Review of the Fairbanks Serious Plan and Fairbanks 189(d) Plan

A. Emission Inventories

1. Statutory and Regulatory Requirements

CAA section 172(c)(3) requires that states submit a comprehensive, accurate, and current inventory of actual emissions from all sources of the relevant pollutant or pollutants in the nonattainment area as part of a nonattainment plan for such area. The regulation at 40 CFR 51.1008 contains the requirements for emission inventories.[47] EPA has also issued additional guidance concerning emissions inventories for $PM_{2.5}$ nonattainment areas.[48] In accordance with 40 CFR 51.1008, the attainment plan must include a base year emissions inventory and attainment projected emissions inventory.

The base year emissions inventory for a Serious $PM_{2.5}$ nonattainment area must be one of the three years for which EPA used monitored data to reclassify the area to Serious, or another technically appropriate year justified by the state in its Serious area nonattainment plan SIP submission.[49] Similarly, the base year emission inventory for a nonattainment area subject to CAA section 189(d) must be one of the three years for which monitored data were used by EPA to determine the area failed to attain by the $PM_{2.5}$ NAAQS by the applicable Serious area attainment date, or another technically appropriate year justified by the state in its Serious area nonattainment plan SIP submission.[50] The base year emissions inventory should provide a state's best estimate of actual emissions from all sources, *i.e.,* all emissions that contribute to the formation of $PM_{2.5}$. The emissions must be either annual total emissions, average-season day emissions, or both, as appropriate for the relevant annual versus 24-hour $PM_{2.5}$ NAAQS. The state must include a rationale for providing annual or seasonal emission inventories, and justification for the period used for any seasonal emissions calculations.[51]

According to 40 CFR 51.1008, the Serious Plan and 189(d) Plan must include an attainment projected inventory for the nonattainment area. The year of the projected inventory shall be the most expeditious year for which projected emissions show modeled $PM_{2.5}$ concentrations below the level of the NAAQS. The emissions values shall be projected emissions of the same sources included in the base year inventory for the nonattainment area (*i.e.,* those only within the nonattainment area) and any new sources. The state shall include in this inventory projected emissions growth and contraction from both controls and other causes during the relevant period. The temporal period of emissions shall be the same temporal period (annual, average-season-day, or both) as the base year inventory for the nonattainment area. The same sources reported as point sources in the base year inventory for the nonattainment area shall be included as point sources in the attainment projected inventory for the nonattainment area. Stationary nonpoint and mobile source projected emissions shall be provided using the same detail

[46] MSM is applicable if EPA has previously granted an extension of the attainment date under CAA section 188(e) for the nonattainment area and NAAQS at issue. EPA denied Alaska's request to extend the Serious area attainment date for the Fairbanks Serious Nonattainment Area.

[47] 81 FR 58010, August 24, 2016, at pp. 58078–58079.

[48] ''Emissions Inventory Guidance for Implementation of Ozone and Particulate Matter National Ambient Air Quality Standards (NAAQS) and Regional Haze Regulations,'' EPA, May 2017 (''Emissions Inventory Guidance''), available at: *https://www.epa.gov/air-emissions-inventories/air-emissions-inventory-guidance-implementation-ozone-and-particulate.*

[49] 40 CFR 51.1008(b)(1).

[50] 40 CFR 51.1008(c)(1).

[51] 40 CFR 51.1008.

(*e.g.,* state, county, and process codes) as the base year inventory for the nonattainment area. The same detail of the emissions included shall be consistent with the level of detail and data elements as in the base year inventory for the nonattainment area (*i.e.,* as required by 40 CFR part 51, subpart A). Consistent with the base year inventory for the nonattainment area, the inventory shall include direct $PM_{2.5}$ emissions, separately reported $PM_{2.5}$ filterable and condensable emissions, and emissions of the scientific $PM_{2.5}$ precursors, including precursors that are not significant $PM_{2.5}$ plan precursors pursuant to a precursor demonstration under 40 CFR 51.1006.

A state's SIP submission must include documentation explaining how it calculated emissions data for the inventory and be consistent with the data elements required by 40 CFR part 51, subpart A. In estimating mobile source emissions, a state must use the latest emissions models and planning assumptions available at the time the SIP is developed.[52] States are also required to use EPA's ''Compilation of Air Pollutant Emission Factors'' (''AP–42'') road dust method for calculating re-entrained road dust emissions from paved roads.[53] [54]

2. Summary of State's Submission

The base year planning emissions inventory for direct $PM_{2.5}$ and $PM_{2.5}$ precursors (nitrogen oxides (NO_X), sulfur dioxide (SO_2), volatile organic compounds (VOC), and ammonia (NH_3)) and the documentation for the inventory for the Fairbanks $PM_{2.5}$ Nonattainment Area are located in *State Air Quality Control Plan,* Chapter III.D.7.6 (''Emissions Inventory Data'') and Appendix III.D.7.6 of the Fairbanks 189(d) Plan.[55]

The State developed the inventory using data sources and emission calculation methodologies from the approved Fairbanks Serious Plan, 2013 base year emissions inventory, as its starting point and then updated the emissions totals based on additional source and activity data collected since preparation of that inventory. The State based the 2019 base year inventory included in the Fairbanks 189(d) Plan on historical source activity data in calendar year 2019 for all source sectors. EPA's MOVES2014b model was used for on-road vehicles (including effects of the on-going Federal Motor Vehicle Control Program and Tier 3 fuel standards, coupled with Alaska Ultra Low Sulfur Diesel standards) and non-road vehicles and equipment (including the effect of Federal fuel and Alaska ultra-low sulfur diesel (ULSD) programs for non-road fuel).

TABLE 3—2019 BASELINE EPISODE AVERAGE DAILY EMISSIONS (TONS PER DAY) BY SOURCE SECTOR

Source sector	2019 Base year emissions inventory (tons/day)				
	$PM_{2.5}$	NO_X	SO_2	VOC	NH_3
Point Sources	0.57	10.31	5.68	0.03	0.073
Area, Space Heating	1.91	2.43	3.88	8.60	0.132
Area, Space Heat, Wood	1.77	0.39	0.16	8.38	0.086
Area, Space Heat, Oil	0.06	1.82	3.62	0.10	0.004
Area, Space Heat, Coal	0.07	0.05	0.09	0.11	0.014
Area, Space Heat, Other	0.01	0.17	0.02	0.01	0.029
Area, Other	0.22	0.36	0.03	2.10	0.046
On-Road Mobile	0.22	1.70	0.01	3.83	0.040
Non-Road Mobile	0.26	0.94	5.41	4.16	0.002
Totals	3.17	15.73	15.01	18.72	0.293

Source: State Air Quality Control Plan, Vol II, III.D.7.6, Table 7.6–7

The State focused on what it identified as the three most important source types in the airshed: stationary point sources; space heating area (nonpoint) sources; and on-road mobile sources. At the time the State developed the emissions inventory, these three source types were the major contributors to both direct $PM_{2.5}$ emissions as well as emissions of $PM_{2.5}$ precursor pollutants gases SO_2, NO_X, VOC, and NH_3 within the nonattainment area.

The emission sources with the highest relative direct $PM_{2.5}$ contributions were:

- 55.8% for wood-fired space heating;
- 17.9% stationary sources;
- 8.1% non-road mobile; and
- 6.8% on-road mobile.

The emission sources with the highest relative SO_2 contributions were:

- 37.9% stationary sources;
- 36% non-road mobile; and
- 24.1% oil-fired space heating.

The emission sources with the highest relative NO_X contributions were:

- 65.5% stationary sources;
- 11.6% oil-fired space heating;
- 10.8% on-road mobile; and
- 6% non-road mobile.

The emission sources with the highest relative VOC contributions were:

- 44.8% for wood-fired space heating;
- 22.2% non-road mobile; and
- 20.5% on-road mobile.

The emission sources with the highest relative NH_3 contributions were:

- 29.3% for wood-fired space heating;
- 25% stationary sources;
- 15.8% other area sources; and
- 13.5% on-road mobile.[56]

EPA's technical evaluation of Alaska's Emissions Inventory planning sections is included in the docket for this action.[57]

[52] See CAA section 172(c)(3).

[53] EPA released an update to AP–42 in January 2011 that revised the equation for estimating paved road dust emissions based on an updated data regression that included new emission tests results. 76 FR 6328 (February 4, 2011).

[54] AP–42 has been published since 1972 as the primary source of EPA's emission factor information. *https://www.epa.gov/air-emissionsfactors-and-quantification/ap-42-compilation-airemissions-factors.* It contains emission factors and process information for more than 200 air pollution source categories. A source category is a specific industry sector or group of similar emitting sources. The emission factors have been developed and compiled from source test data, material balance studies, and engineering estimates.

[55] Adopted November 18, 2020.

[56] State Air Quality Control Plan, Vol II, III.D.7.6, Figures 7.6–8—7.6–12.

[57] Kotchenruther, B. (August 24, 2022). *Technical support document for Alaska Department of Environmental Conservation's amendments to: State Air Quality Control Plan, Emission Inventory Data (version adopted November 18, 2020).* U.S. Environmental Protection Agency, Region 10, Laboratory Services and Applied Sciences Division.

a. 2024 Attainment Projected Inventory

The Fairbanks 189(d) Plan includes an attainment projected inventory for 2024.[58] Previously Alaska stated that attainment by 2024 was not practicable and estimated that 2029 was the most expeditious attainment date.[59] EPA did not take action on the attainment projected emissions inventory submitted as part of the Fairbanks Serious Plan (see 86 FR 52997, September 24, 2021). Alaska has subsequently withdrawn and replaced the applicable planning chapter from that SIP submission with a revised attainment projected emission inventory included in the Fairbanks 189(d) Plan. Consistent with these statements, EPA is proposing to evaluate any previously unmet Serious area planning obligations based on the current, applicable attainment date appropriate under CAA section 189(d) and not the original Serious area attainment date.

Thus, EPA views the 2024 attainment projected inventory included in the Fairbanks 189(d) Plan as the applicable projected inventory, which is based on the 2019 base year inventory of actual emissions. The 2024 emissions projection follows two steps. First, the State projected the 2019 base year emissions to 2024 based on forecasted source activity changes coupled with changes in emission factors due to already adopted Federal, state, and local control measures that existed prior to the development of the Fairbanks 189(d) Plan. Second, the State modified these initial 2024 emissions projections based on the suite of additional emission reductions from measures the State will be implementing under the Fairbanks 189(d) Plan.

The State forecasted emissions reductions from the ongoing Wood Stove Change Out Program[60] and the Oil-To-Gas Conversion Program[61] in Fairbanks beyond 2019 based on an analysis of the historical change out program activity and existing funding available for future changeouts, as well as certifying that no new staffing will be required to handle projected changeouts through 2024. Alaska projected the additional emissions reductions in $PM_{2.5}$ and SO_2 from these measures to be 0.6941 tons per day and 0.0083 tons per day, respectively, in 2024.

The State based emissions reductions for the Solid-Fuel Burning Appliance Curtailment Program[62] in Fairbanks on Alaska's revisions in the Fairbanks 189(d) Plan that increases the stringency of the existing curtailment program. Under the latest regulations, the State lowered the curtailment program's two air quality alert stages to 20 $\mu g/m^3$ and 30 $\mu g/m^3$, respectively, for Stage 1 and Stage 2 alerts (down from 25 $\mu g/m^3$ and 35 $\mu g/m^3$, respectively). In addition, Alaska plans to utilize 2019–2020 Targeted Airshed Grant (TAG) funding to install several dynamic highway message signs, purchase an infrared camera, and expand staffing to increase compliance. As a result, Alaska estimated that the curtailment program compliance rate will increase from 30% in 2019 to 45% by 2024. Alaska projected the additional emissions reductions in $PM_{2.5}$ and SO_2 from these measures to be 0.351 tons per day and –0.058 tons per day, respectively, in 2024 (an increase in SO_2 results from the projected increase in conversions to liquid-fueled heating devices).

The State also incorporated point source SO_2 emissions reductions under the Fairbanks Serious Plan into the 2024 attainment projected inventory. For a detailed summary of the attainment projected inventory, see EPA's Fairbanks Emissions Inventory Technical Support Document in the docket for this action.[63]

3. EPA's Evaluation and Proposed Action

a. 2019 Base Year Emissions Inventory

EPA proposes to find that the 2019 base year emissions inventory meets the requirements of CAA section 172(c)(3) and 40 CFR 51.1008. Calendar year 2019 is an appropriate base year for the Fairbanks 189(d) Plan because it is one of the three years for which EPA used monitored data to determine that the area failed to attain the $PM_{2.5}$ NAAQS by the applicable Serious area attainment date.[64] The base year emissions inventory is a seasonal inventory, based on two historical meteorological episodes considered by EPA to be representative of the range of meteorological conditions that lead to exceedances of the 24-hour NAAQS. This is an appropriate temporal scope for a base year emissions inventory where anthropogenic exceedances of the 24-hour NAAQS occur exclusively in winter.

The emissions inventory is of actual emissions in 2019, as required in the $PM_{2.5}$ SIP Requirements Rule and guidance.[65] The emissions inventory also includes separate reporting for filterable and condensible $PM_{2.5}$ for the relevant emissions sectors and SCC codes. The base year 2019 emissions inventory, reported as average season day emissions, is based on methodologies used by the State and vetted by EPA in the Fairbanks Moderate and Serious Plans and applied to the new base year of 2019. Therefore, the inventory reports emissions consistent with the Air Emissions Reporting Rule (AERR) and contains the detail and data elements required by 40 CFR part 51, subpart A. For these reasons, we are proposing to approve the 2019 base year emissions inventory in the Fairbanks 189(d) Plan as meeting the requirements of CAA section 172(c)(3) and 40 CFR 51.1008.[66]

b. 2024 Attainment Projected Inventory

EPA proposes to find that the Fairbanks 189(d) Plan does not satisfy the requirement of 40 CFR 51.1008(c)(2) to include an attainment projected emission inventory for the most expeditious attainment date. The Fairbanks 189(d) Plan contains an attainment projected emissions inventory, and Alaska projects attainment by December 31, 2024. The updated State Air Quality Control Plan

[58] State Air Quality Control Plan, Vol II, Chapter III.D.7.9.

[59] The State included an attainment projected emissions inventory in the Fairbanks Serious Plan, submitted on December 13, 2019, which also projected attainment in 2024. However, the Attainment Demonstration chapter in the Fairbanks Serious Plan stated that attainment by 2024 was not practicable. Instead, the State estimated the most expeditious attainment date is 2029. However, Alaska did not identify a 2029 inventory in the Emissions Inventory chapter nor adequately demonstrate that 2029 was the most expeditious attainment date. The State did, however, produce a 2029 inventory for the Reasonable Further Progress plan.

[60] The Woodstove Changeout Program, administered by the Fairbanks North Star Borough Air Quality Program, is primarily funded through EPA's Targeted Airshed Grant, along with local and state funding. The program has received $32 million in total funding since 2010. The program upgrades or removes solid fuel-fired and oil-fired heating devices. Since 2010, the change out program has evolved to ensure the best emission outcomes by narrowing eligibility, and what types of devices may be installed.

[61] Funded and managed by the Fairbanks North Star Borough Air Quality Program, residential oil heating appliances are changed out for natural gas-fired heating devices to support natural gas expansion through conversion of to gas heating appliances. The program has received $2 million in total funding since 2019.

[62] Fairbanks Emergency Episode Plan, State Air Quality Control Plan, Vol. II, Chapter III.D.7.12; 18 AAC 50.030(a); 18 AAC 50.075(e).

[63] Kotchenruther, B. (August 24, 2022). *Technical support document for Alaska Department of Environmental Conservation's amendments to: State Air Quality Control Plan, Emission Inventory Data (version adopted November 18, 2020).* U.S. Environmental Protection Agency, Region 10, Laboratory Services and Applied Sciences Division.

[64] 85 FR 54509.

[65] 40 CFR 51.1008(a)(1)(ii).

[66] We note that EPA approved as meeting the Serious area planning requirements the 2013 base year emissions inventory on September 24, 2021 (86 FR 52997).

contains the revisions and methodology for the 2024 projected inventory.[67] These chapters supersede the chapters that contain the prior attainment projected inventory. As discussed further in section III.D of this document, regarding the Attainment Demonstration, Alaska's proposed attainment date of 2024 is predicated on a modeling platform that is outdated and lacks the quantitative performance evaluation and speciated information at the air quality monitor (Hurst Road in North Pole) with highest $PM_{2.5}$ concentrations. Alaska is currently in the process of updating the modeling using the latest model. Therefore, December 31, 2024, may not be the most expeditious year for which projected emissions show modeled concentrations below the level of the NAAQS. Moreover, as discussed further in section III.C in this document, the control strategy does not contain all required control measures. Therefore, the attainment projected emissions inventory does not necessarily take into consideration all required emissions reductions, so we propose to disapprove the projected emissions inventory.

B. Pollutants Addressed

1. Statutory and Regulatory Requirements

Under subpart 4 of part D, title I of the CAA and the $PM_{2.5}$ SIP Requirements Rule, each state containing a $PM_{2.5}$ nonattainment area must evaluate all $PM_{2.5}$ precursors for regulation unless, for any given $PM_{2.5}$ precursor, the state demonstrates to the Administrator's satisfaction that such precursor does not contribute significantly to $PM_{2.5}$ levels that exceed the NAAQS in the nonattainment area.[68] The provisions of subpart 4 do not define the term ''precursor'' for purposes of $PM_{2.5}$, nor do they explicitly require the control of any specifically identified $PM_{2.5}$ precursor. The statutory definition of ''air pollutant,'' however, provides that the term ''includes any precursors to the formation of any air pollutant, to the extent the Administrator has identified such precursor or precursors for the particular purpose for which the term 'air pollutant' is used.'' [69] EPA has identified SO_2, NO_X, VOCs, and NH_3 as precursors to the formation of $PM_{2.5}$.[70] Accordingly, the attainment plan requirements of part D, title I of the CAA and the $PM_{2.5}$ SIP Requirements Rule apply to emissions of all four precursors and direct $PM_{2.5}$ from all types of stationary, area, and mobile sources, except as otherwise provided in CAA section 189(e).

A large number of chemical reactions, often non-linear in nature, can convert gaseous SO_2, NO_X, VOCs, and NH_3 to $PM_{2.5}$, making them precursors to $PM_{2.5}$.[71] Formation of secondary $PM_{2.5}$ also depends on atmospheric conditions, including solar radiation, temperature, and relative humidity, and the interactions of precursors with particles and with cloud or fog droplets.[72] According to the State, in the Fairbanks Serious Plan, total wintertime $PM_{2.5}$ concentrations in the Fairbanks $PM_{2.5}$ Nonattainment Area are a function of both primary $PM_{2.5}$ emissions and secondary $PM_{2.5}$ formed from precursors (see State Air Quality Control Plan, Vol II, Chapter III.D.7.8, section 7.8.1 of the Fairbanks Serious Plan in the docket for this action).

CAA section 189(e) requires that the control requirements for major stationary sources of direct PM_{10} [73] and $PM_{2.5}$ [74] also apply to major stationary sources of PM_{10} and $PM_{2.5}$ precursors, except where the Administrator determines that such sources do not contribute significantly to PM_{10} or $PM_{2.5}$ levels that exceed the standard in the area. CAA section 189(e) contains the only express exception to the control requirements under subpart 4 (*e.g.,* requirements for reasonably available control measures (RACM) and reasonably available control technology (RACT), BACM and BACT, Most Stringent Measures (MSM), and New Source Review (NSR) for sources of direct $PM_{2.5}$ and $PM_{2.5}$ precursor emissions). Although section 189(e) explicitly addresses only major stationary sources, EPA interprets this provision as authorizing it also to determine, under appropriate circumstances, that regulation of specific PM_{10} or $PM_{2.5}$ precursors from other source categories in a given nonattainment area is not necessary.[75] For example, under EPA's longstanding interpretation of the control requirements that apply to stationary, area, and mobile sources of PM_{10} precursors in the nonattainment area under CAA section 172(c)(1) and subpart 4,[76] a state may demonstrate in a SIP submission that control of a certain precursor pollutant is not necessary in light of its insignificant contribution to ambient PM_{10} or $PM_{2.5}$ levels in the nonattainment area.[77]

Under the $PM_{2.5}$ SIP Requirements Rule, a state may elect to submit to EPA a ''comprehensive precursor demonstration'' for a specific nonattainment area to show that emissions of a particular precursor from all existing sources located in the nonattainment area do not contribute significantly to $PM_{2.5}$ levels that exceed the NAAQS at issue in the nonattainment in the area.[78] If EPA determines that the contribution of the precursor to $PM_{2.5}$ levels in the area is not significant and approves the demonstration, then the state is not required to control emissions of the relevant precursor from existing sources in the attainment plan.[79]

In addition, in May 2019, EPA issued the ''$PM_{2.5}$ Precursor Demonstration Guidance'' (''$PM_{2.5}$ Precursor Guidance''), which provides recommendations to states for analyzing nonattainment area $PM_{2.5}$ emissions and developing such optional precursor demonstrations, consistent with the $PM_{2.5}$ SIP Requirements Rule.[80]

EPA is evaluating both the remaining elements of the Fairbanks Serious Plan before the agency and the Fairbanks 189(d) Plan in accordance with the presumption embodied within subpart 4 that the State must address all $PM_{2.5}$ precursors in the evaluation and implementation of potential control measures, unless the State adequately demonstrates that emissions of a particular precursor or precursors do not contribute significantly to ambient

[67] State Air Quality Control Plan, Vol. II, Chapter III.D.7.6.7–8.

[68] 40 CFR 51.1006, 51.1010; *See* 81 FR 58010, August 24, 2016, at pp. 58017–58020.

[69] CAA section 302(g).

[70] 81 FR 58010, August 24, 2016, at p. 58015.

[71] ''Air Quality Criteria for Particulate Matter'' (EPA/600/P–99/002aF), EPA, October 2004, Ch. 3.

[72] ''Regulatory Impact Analysis for the Final Revisions to the National Ambient Air Quality Standards for Particulate Matter'' (EPA/452/R–12–005), EPA, December 2012), 2–1.

[73] The requirements for attainment plans for the 2006 24-hour $PM_{2.5}$ NAAQS include the general nonattainment area planning requirements in CAA section 172 of title I, part D, subpart 1 and the additional planning requirements specific to particulate matter in CAA sections 188 and 189 of title I, part D, subpart 4. 81 FR 58010, August 24, 2016, at pp. 58012–58014.

[74] The general attainment plan requirements of subpart 1, part D, of Title I of the CAA in addition to the specific requirements in subpart 4, part D, of Title I of the CAA apply to both PM_{10} and $PM_{2.5}$. *See* 81 FR 58010, August 24, 2016, at pp. 58013.

[75] 81 FR 58010, August 24, 2016, at pp. 58018–58019.

[76] General Preamble, 57 FR 13498, April 16, 1992, at pp. 13539–42.

[77] 40 CFR 51.1006. *See also* 81 FR 58010, 58033. Courts have upheld this approach to the requirements of subpart 4 for PM_{10}. *See, e.g.,* Assoc. of Irritated Residents v. EPA, et al., 423 F.3d 989 (9th Cir. 2005).

[78] 40 CFR 51.1006(a)(1).

[79] 40 CFR 51.1006(a)(1).

[80] ''$PM_{2.5}$ Precursor Demonstration Guidance,'' EPA–454/R–19–004, May 2019, including Memo dated May 30, 2019, from Scott Mathias, Acting Director, Air Quality Policy Division and Richard Wayland, Director, Air Quality Assessment Division, Office of Air Quality Planning and Standards (OAQPS), EPA to Regional Air Division Directors, Regions 1–10, EPA.

$PM_{2.5}$ levels that exceed the $PM_{2.5}$ NAAQS in the nonattainment area. In reviewing any determination by the state to exclude a $PM_{2.5}$ precursor from the required evaluation of potential control measures, we considered both the magnitude of the precursor's contribution to ambient $PM_{2.5}$ concentrations in the nonattainment area and the sensitivity of ambient $PM_{2.5}$ concentrations in the area to reductions in emissions of that precursor.[81]

2. Summary of State's Submission

On September 24, 2021, EPA approved Alaska's $PM_{2.5}$ precursor demonstration submitted as part of the Fairbanks Serious Plan for purposes of NO_X and VOC emissions as it relates to control measure requirements (86 FR 52997). Alaska included its updated $PM_{2.5}$ precursor analysis in the SIP submission to meet CAA 189(d) requirements.[82] This submission included a new NO_X model run that replaced a quantitative analysis conducted as part of the Fairbanks Serious Plan submission. Because there were no significant changes to the modeling platform during the short time period between the Fairbanks Serious Plan and 189(d) Plan submissions, the State reasoned that the other model runs and precursor analysis from the Fairbanks Serious Plan are still applicable as part of the updated precursor demonstration.

Alaska's precursor demonstration provided both concentration-based and sensitivity-based analyses of precursor contributions to ambient $PM_{2.5}$ concentrations in the Fairbanks $PM_{2.5}$ Nonattainment Area. For VOC emissions, Alaska's demonstration was based on a comprehensive precursor analysis where a baseline model run was compared to a control model run with a 100% reduction of VOC emissions from anthropogenic sources. These results are well below the 1.5 μg/m³ significance threshold. For NO_X emissions, Alaska included a baseline model run in the Fairbanks 189(d) Plan evaluating a 50% reduction in NO_X as part of the 189(d) Plan. According to the State, this provides further evidence that NO_X does not contribute significantly to $PM_{2.5}$ formation in the Fairbanks Nonattainment Area. The sensitivity precursor analysis showed that the maximum 24-hour average $PM_{2.5}$ concentrations due to anthropogenic NO_X emissions were less than or equal to 1.22 μg/m³ in 2019 for all model grid cells containing regulatory monitors, and therefore were below the 1.5 μg/m³ threshold.

These analyses led the State to conclude that SO_2 and NH_3 emissions contribute significantly to ambient $PM_{2.5}$ levels that exceed the $PM_{2.5}$ NAAQS in the Fairbanks Nonattainment Area, while NO_X and VOC do not contribute significantly to such exceedances. Consistent with this conclusion, the State focused the control strategy and attainment demonstration on sources of $PM_{2.5}$, SO_2, and NH_3 emissions. A technical summary of Alaska's updated $PM_{2.5}$ precursor demonstration is included in the docket for this action.[83]

Importantly, Alaska's precursor analysis in the 189(d) Plan did not address nonattainment NSR requirements. The State previously made the determination to regulate all four EPA-identified legal precursors to $PM_{2.5}$ in the nonattainment NSR regulations applicable to the Fairbanks $PM_{2.5}$ Nonattainment Area. EPA approved Alaska's October 25, 2018, SIP revision as meeting the nonattainment NSR requirements triggered upon reclassification of the area to Serious (84 FR 45419, August 29, 2019).

3. EPA's Evaluation and Proposed Action

EPA has evaluated the State's precursor demonstration included in the Fairbanks 189(d) Plan consistent with the $PM_{2.5}$ SIP Requirements Rule and the recommendations in the $PM_{2.5}$ Precursor Guidance. Noting that Alaska did not submit a precursor determination for SO_2 and NH_3 emissions,[84] EPA agrees that SO_2 and NH_3 emission sources, therefore, remain subject to control requirements under subparts 1 and 4 of part D, title I of the Act.

EPA proposes to approve the State's demonstration that NO_X and VOC emissions do not contribute significantly to ambient $PM_{2.5}$ levels that exceed the 2006 $PM_{2.5}$ NAAQS in the Fairbanks $PM_{2.5}$ Nonattainment Area for purposes other than NSR program requirements. If EPA finalizes this proposed approval, Alaska would not be required to identify and impose control measures for NO_X and VOC emission sources in Fairbanks other than for NSR purposes or to impose motor vehicle emission budgets for NO_X and VOC emissions. Our proposed approval of Alaska's precursor demonstration does not extend to nonattainment NSR requirements for the area. Alaska previously determined that it was appropriate to regulate NO_X, SO_2, VOCs, and NH_3 as precursors to $PM_{2.5}$ with respect to nonattainment NSR and submitted rule changes to that effect on October 25, 2018. EPA approved the submitted revised program as meeting nonattainment NSR requirements triggered upon reclassification of the Fairbanks $PM_{2.5}$ Nonattainment Area to Serious (84 FR 45419, August 29, 2019).

Regarding the State's analytical approach, EPA proposes to find that the State used appropriate methods and data to evaluate $PM_{2.5}$ formation in the Fairbanks $PM_{2.5}$ Nonattainment Area from precursor emissions. Alaska began with concentration-based analyses for the precursors and proceeded with sensitivity-based analyses if necessary, which is an acceptable progression of analyses under the $PM_{2.5}$ SIP Requirements Rule. The State utilized the appropriate threshold recommended in EPA's guidance (1.5 μg/m³) in evaluating the significance of precursor emissions to the formation of 24-hour $PM_{2.5}$ and utilized data from all four monitors in the Fairbanks $PM_{2.5}$ Nonattainment Area (see Table 1 of this document).

Regarding the results of the State's analysis, the concentration-based modeling analysis of VOC emissions demonstrates that anthropogenic VOCs have impacts on $PM_{2.5}$ concentrations in the Fairbanks $PM_{2.5}$ Nonattainment Area that are well below the 1.5 μg/m³ significance threshold. Therefore, we propose to concur with the State's conclusion that VOCs are not significant for $PM_{2.5}$ formation in the Fairbanks $PM_{2.5}$ Nonattainment Area.

Further, we propose to find that the weight of evidence presented in the Fairbanks Serious Plan and Fairbanks 189(d) Plan suggests that NO_X emitted from all sources is an insignificant contributor to local $PM_{2.5}$ concentrations. Additional details of EPA's evaluation of Alaska's precursor $PM_{2.5}$ analyses are included in EPA's $PM_{2.5}$ precursor Technical Support Document in the docket for this action.[85]

[81] 40 CFR 51.1006(a)(1)(i) and (ii).

[82] State Air Quality Control Plan, Vol II, Chapter III.D.7.8, section 7.8.14.3.

[83] Briggs and Kotchenruther. (August 24, 2022). *Review of Fairbanks Nonattainment Area Precursor Demonstrations for Volatile Organic Compounds and Nitrogen Oxides in the 2020 State Implementation Plan Submission.* U.S. Environmental Protection Agency, Region 10, Laboratory Services and Applied Science Division.

[84] According to Alaska, there is a negligible amount of NH_3 associated with coal-fired boilers, fuel oil-fired turbines or diesel engine emissions and this amount is not in the emissions inventory. *See* State Air Quality Control Plan, Vol II, Chapter III.D.7.7.8.1.

[85] Briggs and Kotchenruther. (August 24, 2022). *Review of Fairbanks Nonattainment Area Precursor Demonstrations for Volatile Organic Compounds and Nitrogen Oxides in the 2020 State Implementation Plan Submission.* U.S.

Continued

C. Control Strategy

1. Statutory and Regulatory Requirements

CAA section 189(b) and 40 CFR 51.1010(a) contain the control measure requirements for Serious areas. CAA section 189(d) and 40 CFR 51.1010(c) contain the control measure requirements for Serious areas that fail to attain. EPA summarizes these statutory and regulatory provisions in this section.

Pursuant to CAA section 189(b) and 40 CFR 51.1010(a), the state must identify, adopt, and implement best available control measures, including best available control technologies, on sources of direct $PM_{2.5}$ emissions and sources of emissions of $PM_{2.5}$ plan precursors located in any Serious $PM_{2.5}$ nonattainment area or portion thereof located within the state. This level of control stringency is commonly called ''BACM'' and ''BACT.'' The regulation at 40 CFR 51.1010(a) specifies the requirements states must meet to identify potential control measures and in determining the measures states must include in the control strategy as BACM or BACT for the nonattainment area:

The state must identify all sources of direct $PM_{2.5}$ emissions and sources of emissions of $PM_{2.5}$ precursors in the nonattainment area, in accordance with the emissions inventory requirements in 40 CFR 51.1008(b).

The state must identify all potential control measures to reduce emissions from all sources of direct $PM_{2.5}$ emissions and sources of emissions of $PM_{2.5}$ plan precursors in the nonattainment area. The state must survey other NAAQS nonattainment areas in the U.S. and identify any measures for direct $PM_{2.5}$ and $PM_{2.5}$ plan precursors not previously identified by the state during the development of the Moderate area attainment plan for the area.

The state must identify, adopt, and implement the best available control measures for each emission source. However, the state may demonstrate that any measure identified under 40 CFR 51.1010(a)(2) is not technologically or economically feasible to implement in whole or in part by the end of the tenth calendar year following the effective date of designation of the area and may eliminate such whole or partial measure from further consideration. Overall, economic feasibility is a less significant factor in the BACM and BACT determination process.[86] There are considerations for technological feasibility of a potential control measure, where a state may consider factors including but not limited to a source's processes and operating procedures, raw materials, physical plant layout, and potential environmental impacts such as increased water pollution, waste disposal, and energy requirements.[87] There are also considerations for economic feasibility of a potential control measure where a state may consider capital costs, operating and maintenance costs, and cost effectiveness of the measure.[88] In assessing whether a control measure or technology is BACM or BACT, the state must consider emission reduction measures with higher costs per ton compared to the economic feasibility criteria applied in their RACM or RACT analysis.[89] With respect to determining BACT pursuant to CAA section 189(b), EPA expects that states use the top-down BACT analysis process used in the Prevention of Significant Deterioration Program.[90]

Pursuant to CAA section 189(b), a state with a Serious nonattainment area must include provisions to assure that the implementation of BACM and BACT level controls on sources of direct $PM_{2.5}$ and $PM_{2.5}$ plan precursors no later than 4 years after the date the area is classified (or reclassified) as a Serious area.

In the preamble to the final $PM_{2.5}$ SIP Requirements Rule, EPA recommended the following 5-Step BACM/BACT selection process states should follow to satisfy the analytical and substantive requirements of 40 CFR 51.1010(a) and CAA section 189(b): [91]

Step 1: Develop a comprehensive inventory of sources and source categories of directly emitted $PM_{2.5}$ and $PM_{2.5}$ precursors.

Step 2: Identify potential control measures for all such sources.

Step 3: Determine whether an available control measure or technology is technologically feasible.

Step 4: Determine whether an available control measure or technology is economically feasible.

Step 5: Determine the earliest date by which a control measure or technology can be implemented in whole or in part in the area.

EPA's interprets CAA section 189(b) to require the state to determine what is BACM or BACT for a particular source or source category.[92] EPA's longstanding interpretation of the CAA is that BACM and BACT determinations are to be generally independent of attainment for purposes of implementing the $PM_{2.5}$ NAAQS.[93] EPA interprets the CAA requirement to impose BACM/BACT level control as requiring more emphasis on what controls are the best for the relevant source and whether those controls are feasible rather than on the attainment needs of the area.[94] States also may not decline to evaluate, or to control as necessary, sources or source categories on the basis that they are de minimis.[95]

Subsequently, for a state with a Serious $PM_{2.5}$ nonattainment area that has failed to attain by the applicable attainment date, the state must submit a revised attainment plan with a control strategy that demonstrates that each year the area will achieve at least a 5 percent reduction in emissions of direct $PM_{2.5}$ or a 5 percent reduction in emissions of a $PM_{2.5}$ plan precursor based on the most recent emissions inventory for the area; and that the area will attain the standard as expeditiously as practicable consistent with the attainment date requirements under 40 CFR 51.1004(a)(3).[96] The regulation at 40 CFR 51.1010(c) specifies the following process the state must follow in determining which measures must be included in the control strategy:

The state shall identify all sources of direct $PM_{2.5}$ emissions and sources of emissions of $PM_{2.5}$ precursors in the nonattainment area in accordance with the emissions inventory requirements in 40 CFR 51.1008(b).

The state shall identify all potential control measures to reduce emissions from all sources of direct $PM_{2.5}$ emissions and sources of emissions of $PM_{2.5}$ plan precursors in the nonattainment area. For the sources and source categories represented in the emission inventory for the nonattainment area, the state shall identify the most stringent measures for reducing direct $PM_{2.5}$ and $PM_{2.5}$ plan precursors adopted into any SIP or used in practice to control emissions in any state, as applicable.

The state shall also reconsider and reassess any measures previously

Environmental Protection Agency, Region 10, Laboratory Services and Applied Science Division.

[86] *Id.*

[87] 40 CFR 51.1010(a)(3)(i); 81 FR 58010, 58084.

[88] 40 CFR 51.1010(a)(3)(ii); 81 FR 58010, 58085.

[89] 81 FR 58010, 58085.

[90] *Id.* 58010, 58080 (''Consistent with past policy, BACT determinations for $PM_{2.5}$ NAAQS implementation are to follow the same process and criteria that are applied to the BACT determination process for the PSD program.'').

[91] 81 FR 58010, 58084–85.

[92] 81 FR 58010, 58081.

[93] Addendum to the General Preamble, 59 FR 41998, 42011 (August 16, 1994); 81 FR 58010, 58081.

[94] *Id.*

[95] *Id.* 58010, 58082.

[96] CAA section 189(d), 42 U.S.C. 7513a(d), and 40 CFR 51.1010(c).

rejected by the state during the development of any Moderate area or Serious area attainment plan control strategy for the area.

Similar to the requirements for Serious area plans, the state may make a demonstration for a 189(d) plan that a measure is not technologically or economically feasible to implement in whole or in part within 5 years or such longer period as EPA may determine is appropriate after EPA's determination that the area failed to attain by the Serious area attainment date and may eliminate such whole or partial measure from further consideration. There are considerations for technological feasibility of a potential control measure, as described under 40 CFR 51.1010(c)(3)(i), where a state may consider factors including but not limited to a source's processes and operating procedures, raw materials, physical plant layout, and potential environmental impacts such as increased water pollution, waste disposal, and energy requirements. There are also considerations for economic feasibility of a potential control measure, under 40 CFR 51.1010(c)(3)(ii), where a state may consider capital costs, operating and maintenance costs, and cost effectiveness of the measure.

Unless the state has demonstrated that the measure is not technologically or economically feasible, the state shall adopt and implement all potential control measures identified.

Finally, control measures adopted as part of the state's control strategy must be permanent, enforceable as a practical matter, and quantifiable.[97] In order to be enforceable as a practical matter, the state must adopt into the SIP not only the control measure or emission limit itself but also appropriate monitoring, recordkeeping, and reporting requirements to ensure compliance with the control measure.[98] Without appropriate monitoring, recordkeeping, and reporting requirements, violations of the control measure could go undetected.[99]

Therefore, we will evaluate whether Alaska met the applicable planning requirements as part of the Fairbanks Serious Plan and Fairbanks 189(d) Plan.

2. Summary of State's Submission

a. Identification and Adoption of BACM

We note that Alaska included its initial BACM analysis in the Fairbanks Serious Plan, submitted in 2019. EPA approved a number of specific control measures as SIP strengthening but did not approve them as meeting the BACM/BACT requirement at that time.[100] Subsequently, Alaska updated its BACM analysis and resubmitted the updated analysis in 2020 as part of the Fairbanks 189(d) Plan, to meet Serious area and 189(d) requirements. Even though the State made a SIP submission intended to meet the requirements of CAA section 189(d), it remains obligated to meet the BACM/BACT level controls required as part of a Serious area nonattainment plan for the area. The State did not withdraw some parts of the Serious area plan with respect to the BACM/BACT requirements for certain sources. Accordingly, we are evaluating the Fairbanks 189(d) Plan submission where the State has updated parts of the BACM analysis, and otherwise evaluating the information the State initially included in the Fairbanks Serious Plan.

Alaska followed EPA's recommended 5-step process to evaluate BACM-level controls for sources of $PM_{2.5}$ and $PM_{2.5}$ precursors. Alaska also analyzed controls for stationary sources of $PM_{2.5}$ and $PM_{2.5}$ precursors to satisfy BACT requirements. Alaska's process for analyzing BACT-level controls is discussed separately in this section following the BACM discussion.

For Step 1, Alaska developed a comprehensive inventory of sources and source categories of $PM_{2.5}$ and $PM_{2.5}$ precursors.[101] Alaska identified the following source categories in the Fairbanks nonattainment area: solid fuel burning (outdoor hydronic heaters, solid fuel-fired heaters, fireplaces, burn barrels and open burning, and agricultural and forest burns); residential and commercial fuel oil combustion; transportation (automobiles and heavy-duty vehicles); and small area/commercial sources (coffee roasters, charbroilers, incinerators, and used oil burners).

For Step 2, Alaska identified potential control measures for the source categories identified in Step 1. First, Alaska reviewed the control measures that were implemented under the Fairbanks Moderate Plan and discussed their implementation status.[102] Alaska then reconsidered and reassessed the measures that the State rejected as potential RACM/RACT for the Fairbanks Moderate Plan. As a means of identifying additional potential BACM/BACT measures for the Fairbanks area, Alaska surveyed rules and regulations in other states and local governments and identified measures for reducing direct $PM_{2.5}$ and $PM_{2.5}$ plan precursors adopted into any nonattainment plan or used in practice to control emissions. Alaska also created a stakeholder group to identify, evaluate, and recommend community-based solutions to bring the area into compliance with Federal air quality standards for $PM_{2.5}$, *see* State Air Quality Control Plan, Vol II, Chapter III.D.7.7, Table 7.7–3 and Table 7.7–4. Overall, Alaska identified 84 control measures for analysis which are included in State Air Quality Control Plan, Vol III, Appendix III.D.7.7. EPA's review of each of the 84 control measures is included as a Technical Support Document in the docket for this action.[103]

With respect to controls for NH_3 emissions, Alaska stated that processes that emit NH_3 (biomass burning, mobile, home heating) differ in Fairbanks from those in the rest of the country, where NH_3 from agricultural activities, vehicles, and other industrial activities form ammonium nitrate. Alaska conducted a literature review to identify potential controls for the sources of NH_3 in the emissions inventory. Alaska was unable to identify any potential controls to control NH_3 emissions specifically.[104] As discussed further in this section, Alaska included in the Fairbanks 189(d) Plan an analysis that demonstrates that certain measures and technologies designed to reduce emissions of direct $PM_{2.5}$ have the co-benefit of reducing emissions of NH_3.

For Step 3, Alaska evaluated technical feasibility for the potential control measures and identified and rejected certain control measures that the State determined to be technically infeasible.[105]

[97] Control measures must be incorporated by reference into the regulatory portion of the SIP (52.70(c) and (d)) with appropriate monitoring and reporting requirements. *See* CAA section 110(a)(2)(A); 42 U.S.C. 7410(a)(2)(A); 81 FR 58010, at pp. 58046–47; 57 FR 13498, at pp.13567–68.

[98] 81 FR at 58046–47; 57 FR 13498, at p. 13567–68; 67 FR 22168, at p. 22170; 80 FR 33840 at pp. 33843, 33865; *Montana Sulphur & Chemical Co.* v. *EPA,* 666 F.3d 1174, at pp. 1189–1190 (9th Cir. 2012).

[99] 67 FR 22168, at p. 22170; *Montana Sulphur & Chemical Co.* v. *EPA,* 666 F.3d 1174, at pp. 1189–1190 (9th Cir. 2012).

[100] 86 FR 52997.

[101] State Air Quality Control Plan, Vol II, Chapter III.D.7.6.6.

[102] *See* State Air Quality Control Plan, Vol II, Chapter III.D.7.7, Table 7.7–1

[103] Jentgen, M. (September 27, 2022). *Technical support document for Alaska Department of Environmental Conservation's (ADEC) control measure analysis, under 40 CFR 1010(a) and (c).* U.S. Environmental Protection Agency, Region 10, Air and Radiation Division.

[104] *See* State Air Quality Control Plan, Vol III, Appendix III.D.7.7 at 5354. Alaska also notes that in the Fairbanks Nonattainment Area, there is only a limited amount of particulate matter-nitrate measured at the monitors.

[105] State Air Quality Control Plan, Vol III, Appendix III.D.7.7–5355.

For Step 4, Alaska evaluated the economic feasibility of the control measures that it determined to be technically feasible. Alaska included these economic evaluations of potential emission control technologies in the Fairbanks 189(d) Plan.[106]

For Step 5, Alaska determined whether it could implement a control measure or technology in whole or in part no later than four years after reclassification of the area to Serious nonattainment, which would be June 2021.[107]

Below is a summary of the regulations adopted by Alaska, organized by source category, resulting from the BACM analyses included in the Fairbanks Serious Plan and Fairbanks 189(d) Plan, included in State Air Quality Control Plan, Vol II, Chapter III.D.7.7 and State Air Quality Control Plan, Vol III, Appendix III.D.7.7.

i. Solid-Fuel Burning

The solid-fuel burning source category includes a number of measures that the State adopted as part of the Fairbanks Serious Plan. These measures address direct $PM_{2.5}$ SO_2, and NH_3 emissions. As discussed in Step 2, Alaska researched potential controls measures for NH_3 for this source category and did not identify any ammonia-specific controls.[108] However, according to Alaska, some measures identified and adopted by the State to control emissions of direct $PM_{2.5}$ have the co-benefit of reducing emissions of NH_3.

- The owner, vendor, or dealer of a wood-fired heating device must register the device with Alaska upon the occurrence of events such as new device sale, home sale, or participating in a curtailment waiver program. 18 AAC 50.077(h).
- Commercial wood sellers must register with Alaska and ensure that wood being sold must have a moisture content less than 20 percent. Non-commercial wood sellers are not permitted to sell wet wood. 18 AAC 50.076(d), (e), (g), (j), (k), and (l). According to the Fairbanks 189(d) Plan, this measure reduces both direct $PM_{2.5}$ emissions as well as SO_2 and NH_3 emissions.
- Wood-fired heating devices are prohibited in the nonattainment area unless specific device performance criteria are met, and outdoor hydronic heaters are not permitted except for pellet-fueled hydronic heaters that also meet specific performance criteria. New woodstoves and pellet-fueled woodstoves must be EPA-certified and meet specific performance criteria. A person may not install a new pellet-fueled hydronic heaters within 300 feet from the closest property line or within 660 feet from a school, clinic, hospital, or senior housing unit. 18 AAC 50.077(a), (b), (c), (d), and (j). According to the Fairbanks 189(d) Plan, this measure reduces both direct $PM_{2.5}$ and NH_3 emissions as well as accounting for SO_2 emissions. Alaska acknowledges that there is a resulting increase in SO_2 emissions since measures designed to reduce direct $PM_{2.5}$ through removal, curtailment, or replacement of solid-fuel devices trigger a shift in heating energy to heating oil, which has greater SO_2 emissions compared to wood fuels.[109]
- Regulations that give Alaska the authority to review manufacturer test results and place a model on the department's list of devices, which identifies what devices that are approved for operation in the Fairbanks $PM_{2.5}$ Nonattainment Area. 18 AAC 50.077(e). According to the Fairbanks 189(d) Plan, this measure reduces both direct $PM_{2.5}$ emissions as well as SO_2 and NH_3 emissions.
- Alaska revised the woodstove curtailment program rules to lower curtailment thresholds and further restrict curtailment waivers. Specifically, Alaska revised the requirements for the exemption process to ensure a waiver is temporary and objective criteria are used to determine economic hardship. Alaska continues to implement this program. Fairbanks Emergency Episode Plan, State Air Quality Control Plan, Vol. II, Chapter III.D.7.12; 18 AAC 50.030(a) and 18 AAC 50.075(e).
- When Alaska issues a curtailment alert, fuel to non-exempt devices must be withheld, and combustion in these devices—as evidenced by visible smoke from a chimney—must cease within three hours after the effective time of a curtailment of operation under an emergency episode. Solid fuel fired heating device shall be operated so that visible emissions do not cross property lines.18 AAC 50.075(e)(3) and (f)(2). Alaska has revised the requirements for curtailment program advisories and alerts. Now, an advisory is called when $PM_{2.5}$ concentrations are expected to reach 15 $\mu g/m^3$. A stage 1 alert is called when $PM_{2.5}$ concentrations are expected to reach 20 $\mu g/m^3$ (this alert stage allows for specific exemptions). A stage 2 alert is called when $PM_{2.5}$ concentrations are expected to reach 30 $\mu g/m^3$. Fairbanks Emergency Episode Plan, State Air Quality Control Plan, Vol. II, Chapter III.D.7.12. According to the Fairbanks 189(d) Plan, this measure reduces both direct $PM_{2.5}$ and NH_3 emissions as well as accounting for SO_2 emissions. Alaska acknowledges that there is a resulting increase in SO_2 emissions since measures designed to reduce direct $PM_{2.5}$ through removal, curtailment, or replacement of solid-fuel devices trigger a shift in heating energy to heating oil, which has greater SO_2 emissions compared to wood fuels.[110]
- Wood-fired heating devices and wood fired retrofit control devices must be professionally sized and professionally installed with confirmation of proper installation and location. 18 AAC 50.077(i).
- New woodstoves cannot serve as the primary or only source of heat, unless the device is installed in a ''dry cabin'' or existing rental units that have qualified for No Other Adequate Source of Heat (NOASH) waivers. 18 AAC 50.077(j). According to the Fairbanks 189(d) Plan, this measure reduces both direct $PM_{2.5}$ emissions as well as SO_2 and NH_3 emissions.
- Wood-fired device vendors in the nonattainment area are required to provide curtailment information to the buyer at time of sale and review proper operating instructions. Wood-fired device vendors may not advertise devices prohibited for sale within the nonattainment area. 18 AAC 50.077(l).
- All EPA uncertified devices, non-pellet fueled hydronic heaters, and coal-fired heating devices must be removed or replaced by December 31, 2024, or upon sale, lease, or conveyance of an existing building, whichever is earlier; and these devices that may not be reinstalled within the area shall be rendered inoperable. 18 AAC 50.077(l) and (m); 18 AAC 50.079(f). According to the Fairbanks 189(d) Plan, this measure reduces both direct $PM_{2.5}$ emissions as well as SO_2 and NH_3 emissions.

ii. Residential and Commercial Fuel Oil Combustion

The State developed and adopted these measures to address fuel oil combustion to reduce SO_2 emissions. The State researched potential controls measures for NH_3 for this source category and did not identify any ammonia-specific controls. Starting September 1, 2022, an individual or

[106] State Air Quality Control Plan, Vol III, Appendix III.D.7.7–5440.

[107] State Air Quality Control Plan, Vol III, Appendix III.D.7.7–5442; State Air Quality Control Plan, Vol III, Appendix III.D.7.7–174.

[108] State Air Quality Control Plan, Vol III, Appendix III.D.7.7–5353–5354; State Air Quality Control Plan, Vol. II, Chapter III.D.7.10–5—10–7.

[109] State Air Quality Control Plan, Vol II, Chapter III.D.7.10.3.3.

[110] State Air Quality Control Plan, Vol. II, Chapter III.D.7.10.3.3.

business may only sell or purchase fuel oil containing no more than 1,000 parts per million (ppm) sulfur may be sold for use in fuel oil-fired equipment, including space heating devices.[111] As part of its BACM analysis included in the Fairbanks Serious Plan and updated in the Fairbanks 189(d) Plan, Alaska evaluated requirements to use ULSD heating oil in homes.[112] Alaska determined that the switch to ULSD is technologically feasible, while the economic analysis showed this change would result in a cost of $1,819 per ton of SO_2 removed. As described in detail in the ''Pollutants Addressed'' section III.B of this document, SO_2 is a significant precursor of $PM_{2.5}$ concentrations in the Fairbanks $PM_{2.5}$ Nonattainment Area. After completing the BACM analysis, Alaska stated that, while the ULSD measure appears to be technically and economically feasible, Alaska declined to adopt and implement the measure.

Rather than mandate an area-wide fuel switch from Diesel #2 (2,566 ppm) to ULSD (15 ppm), Alaska elected to mandate a fuel switch to Diesel #1 (1,000 ppm) by September 1, 2022. The State determined that this initial step down, meant to be more economically feasible for local residents, reduced the environmental risks associated with the transport of an increased volume of fuel into the community and still provides a large sulfur reduction. As support for its rejection of mandating ULSD as BACM, Alaska cited a University of Alaska Fairbanks/Alaska cost analysis. This analysis estimated an increase in annual household heating expenditures of $68.31 (a 3 percent increase) under the selected measure, while the same cost analysis estimated an increase between $311.96 and $374.86 (a 13.5 to 16.5 percent increase) in annual household heating expenditures if Alaska mandated a switch to ULSD.[113] Alaska also cited concerns from local residents that the increased cost in fuel oil could drive more residents to burning less expensive and higher PM emitting solid fuels.

Alaska determined that the earliest date to implement the fuel switch to #1 Diesel was September 1, 2022. Alaska selected this date, in part, due to comments received during the public comment period. Also, Alaska stated that there is an inadequate supply of locally produced Diesel #1 and additional time was required to allow for the local refinery to modify its processes. Alaska also noted that the additional time allows residents to budget and prepare for the increased cost. Alaska received requests through the comment process to delay the conversion until 2024, but Alaska felt that was too long a delay and that the approximate two years provided should be sufficient to allow the local refinery and residents to plan and prepare for the change in fuel oil.

Alaska did not reevaluate its rejection of mandating switching to use of ULSD as part of the Fairbanks 189(d) Plan submission. Alaska reasoned that circumstances did not change sufficiently between submission of the Fairbanks Serious Plan to warrant revisiting its decision. Alaska noted that after implementation of the fuel switch to Diesel #1 in 2022, Alaska will evaluate whether the fuel switch results in significant sulfur reduction and whether the additional expense to homeowners of requiring the use of ULSD heating oil is needed to further address the air pollution problem.[114]

iii. Small Commercial Area Sources

The State evaluated potential measures from these sources to address direct $PM_{2.5}$, SO_2, and NH_3 emissions. After a literature review, Alaska did not identify any NH_3-specific controls for this source category.[115] Thus, Alaska identified and evaluated potential measures from these sources to address direct $PM_{2.5}$ and SO_2. For small area sources, Alaska identified coffee roasters, charbroilers, incinerators, and waste oil burners. Initially, as part of the Fairbanks Serious Plan, Alaska adopted regulations 18 AAC 50.078(c) and (d) that required information from charbroilers, incinerators, and waste oil burners. Coffee roasters, per 18 AAC 50.078(d), are required to install a pollution control device on any unit that emits 24 pounds or more of particulate matter in a 12-month period and either install controls or demonstrate technological or economic infeasibility, not later than one year from effective date of regulation. As an update in the Fairbanks 189(d) Plan, Alaska conducted an economic evaluation of charbroilers (catalyst oxidizers) and found the cost to be $47,786 per ton of $PM_{2.5}$ removed, concluding that installing catalyst oxidizers on charbroiling facilities is not cost effective. Regarding incinerators, Alaska states that, in fact, there are no incinerators within the Fairbanks $PM_{2.5}$ Nonattainment Area so no additional controls are required. For used oil burners, Alaska presented a technological infeasibility determination in the 189(d) Plan. According to the State, the only acceptable disposal method available in the nonattainment area is through burning. Shipping the used oil to the continental United States, another potential disposal method, would require risky overland transport and cost $2.51 per gallon to pick up, ship, and dispose. Another factor the State considered is that restricting burning of used oil would likely lead to dumping the used oil on land or water. Therefore, the State determined that this measure is technologically infeasible in the Fairbanks $PM_{2.5}$ Nonattainment Area.

iv. Mobile Emissions

The State evaluated measures from mobile sources to address direct $PM_{2.5}$, SO_2, and NH_3 emissions. After a literature review, Alaska did not identify any NH_3-specific controls for this source category.[116] Thus, Alaska identified and evaluated potential measures from these sources to address direct $PM_{2.5}$, SO_2. Alaska considered mobile sources and transportation measures as part of the BACM analysis, including high occupancy vehicle (HOV) lanes, traffic flow improvement, vehicle inspection and maintenance (I/M) programs, low-emission vehicle (LEV) program, retrofit diesel program, and van pools.[117] Alaska noted that Fairbanks has expanded the availability of plug-ins and required electrification of certain parking lots. Fairbanks has also expanded transit service and a commuter van pool program. Alaska also has an anti-idle program. Alaska concluded that, due to relatively light traffic congestion in Fairbanks, low population and employment density, any additional transportation control measures would provide limited emission reduction benefits.

b. Summary of Control Measures Selected by Alaska To Meet BACM Requirements

Based on the BACM analysis, Alaska identified and implemented emissions controls, as described in Table 4.

[111] 18 AAC 50.078(b).

[112] State Air Quality Control Plan, Vol II, Chapter III.D.7.7; State Air Quality Control Plan, Vol. III, Appendix III.D.7.7.

[113] Alaska Department of Environmental Conservation. (February 2019). *Residential Fuel Expenditure Assessment of a Transition to Ultra-Low Sulfur and High Sulfur No. 1 Heating Oil for the Fairbanks PM-2.5 Serious Nonattainment Area.* State Air Quality Control Plan, Vol II, Appendix III.D.7.7, at p. III.D.7.7–226.

[114] State Air Quality Control Plan, Vol. II, Chapter III.D.7.7, at pp. III.D.7.7–129—III.D.7.7–131.

[115] State Air Quality Control Plan, Vol. III, Appendix III.7.7–5353–5354.

[116] State Air Quality Control Plan, Vol. III, Appendix III.7.7–5353–5354.

[117] State Air Quality Control Plan, Vol III, Appendix III.D.7.7, Measures 57, 59, and R20.

Alaska's identification and adoption of BACT is discussed in the next section.

TABLE 4—ALASKA'S LIST OF EMISSION CONTROL MEASURES WITH QUANTIFIABLE EMISSION BENEFITS AND PROJECTED EMISSIONS REDUCTIONS IN 2024

[First year all control measures are implemented]

Control measure	State rule	2024 emission reductions (tons per day)	Implementation date	
			$PM_{2.5}$	SO_2
Woodstove changeout program	Targeted Airshed Grant terms and conditions 18 AAC 50.077(a), (b), (c), (d), (e), (j), (m).	0.68	0.01	Ongoing, through 2025.
Solid fuel burning curtailment program (Stage 1 and Stage 2 Alerts).	Fairbanks Emergency Episode Plan, State Air Quality Control Plan, Vol. II, Chapter III.D.7.12; 18 AAC 50.030(a); 18 AAC 50.075(e).	0.68	SO_2: −0.23	Ongoing.
Shift from #2 to #1 oil for residential/commercial space heating.	18 AAC 50.078(b)	0.01	1.95	2023.
Dry wood requirements for commercial wood sales.	18 AAC 50.076(d), (e), (g), (j), (k), and (l)	0.10	<0.01	2022.
Removal of all uncertified device and cordwood outdoor hydronic heaters.	18 AAC 50.077(l) and (m)	0.16	<0.01	2024.
New wood-fired device requirements (*i.e.,* 2.0 g/hr).	18 AAC 50.077(c)	0.39	0.01	2020.
Removal of coal heaters	18 AAC 50.079(f)	0.02	0.02	2024.
Wood-fired devices may not be primary or only heating source.	18 AAC 50.077(j)	0.35	−0.01	2020.
NOASH/exemption requirements	Fairbanks Emergency Episode Plan, State Air Quality Control Plan, Vol. II, Chapter III.D.7.12; 18 AAC 50.077(g).	<0.01	<0.01	2020.
Combined BACM emissions reductions		2.39	1.74	

Source: State Air Quality Control Plan, Vol II, Chapter III.D.7.7, Tables 7.7–28 and 7.7–29.

c. Alaska's Identification and Adoption of BACT

Alaska noted that large stationary sources are a subgroup of emissions sources that have specific requirements in the BACM analysis. Alaska evaluated all stationary sources with potential to emit (PTE) greater than 70 tons per year (tpy) of $PM_{2.5}$ or $PM_{2.5}$ precursors for potential BACT-level controls. According to Alaska, sources with emissions below the 70 tpy threshold only require evaluation for BACM. Alaska states that this emissions threshold is in place to distinguish between the planning requirements for certain sources emitting above and below this threshold and is consistent with an emissions threshold in the 2016 $PM_{2.5}$ Implementation Rule.[118]

We note that EPA disagrees with this assessment. All emissions sources identified in the emissions inventory are subject to BACM requirements, and the BACT evaluation process is merely a sub-set of BACM that includes a process to evaluate emissions control technologies that are the best available control measures for the emission source category. Accordingly, all sources of direct $PM_{2.5}$ and $PM_{2.5}$ precursors are subject to BACM and BACT requirements regardless of PTE. There is no PTE threshold below which BACT requirements do not apply. The 70 tons per year PTE threshold cited by Alaska only has relevance in determining whether a new stationary source proposed to be constructed in a nonattainment area meets the definition of a major stationary source pursuant to the nonattainment new source review provisions.[119]

Alaska identified five stationary sources that it evaluated for potential BACT controls, see State Air Quality Control Plan, Vol II, Chapter III.D.7, section 7.7.8. Table 5 includes the annual emissions (tons/year) for each of the facilities:

TABLE 5—ANNUAL EMISSIONS (TONS/YEAR), BY FACILITY, IN 2019

Facility	$PM_{2.5}$	SO_2	NO_X	VOC	NH_3
Chena Power Plant	55.63	507.39	623.70	1.96	0.06
Fort Wainwright	66.58	481.13	485.30	4.91	0.06
UAF Campus Power Plant	9.08	154.52	246.51	1.56	.....
GVEA Zehnder	1.04	27.98	76.32	0.04	0.50
GVEA North Pole	26.45	247.31	1,046.50	0.90	14.98

Source: State Air Quality Control Plan, Vol III, Appendix III.D.7.7–6–9–10–2020 fairbanks-5-percent-plan-sip-sector-emission-summary-calculation-spreadsheet.

Below is a summary of Alaska's BACT analysis for each source. Each source is comprised of multiple emission units, and the State performed the BACT analysis for each emission unit. After a literature review, Alaska did not identify any NH_3-specific controls for this source category.[120] Thus, Alaska identified and evaluated potential measures from these sources to address direct $PM_{2.5}$ and SO_2 emissions. Alaska's BACT determinations are evaluated by EPA on an independent basis. Details of EPA's analysis of Alaska's BACT evaluation and determination are included as BACT

[118] We note that Alaska applied this threshold to emissions sources at the GVEA Zehnder facility.

[119] 40 CFR 51.165(a)(1)(iv)(A)(*1*).

[120] State Air Quality Control Plan, Vol. III, Appendix III.7.7–5353–5354.

Technical Support Documents in the docket for this action.[121]

i. Chena Power Plant

Chena Power Plant is an existing stationary source owned and operated by Aurora Energy, LLC, which consists of four existing coal-fired boilers: three 76 million British Thermal Units (MMBtu)/hour overfeed traveling grate stoker type boilers and one 269 MMBtu/hr spreader-stoker type boiler that burn coal to produce steam for heating and power (497 MMBtu/hr combined).

The State's BACT Determination for the Chena Power Plant evaluated potential controls to reduce NO_X, $PM_{2.5}$, and SO_2 emissions from its four coal-fired boilers.[122]

TABLE 6—CHENA POWER PLANT BACT SUMMARY

Chena Power Plant, Aurora Energy, LLC	
Pollutant	Alaska's BACT determination, by source category
Coal-fired boilers (EUs 4–7)—3 boilers rated 76 MMBtu per hour and 1 boiler rated 269 MMBtu per hour	
$PM_{2.5}$	N/A (Alaska claims installed single full steam baghouse is highest rated control available, but no $PM_{2.5}$ BACT analysis or emission limitation was submitted).
SO_2*	By June 9, 2021, Aurora Energy shall limit the sulfur content of coal to 0.25% sulfur by weight and limit SO_2 emissions from the coal-fired boilers to no more than 0.301 lb/MMBtu.

* Alaska found it economically infeasible for Aurora Energy to implement retrofit SO_2 controls on emission units at the Chena Power Plant.
Source: State Air Quality Control Plan, Vol II, Chapter III.D.7.7, Table 7.7–10 and Section 7.7.8.2.5.

Regarding $PM_{2.5}$ controls, Alaska claimed that, because the Chena Power Plant has direct $PM_{2.5}$ emissions less than 70 tons per year, a $PM_{2.5}$ BACT analysis was not prepared or submitted by the State. EPA notes our disagreement with this interpretation. Nevertheless, Alaska states that the Chena Power Plant is already equipped with a single full stream baghouse for controlling particulate emissions from the four coal-fired boilers. Baghouses/fabric filters are the highest rated control available (99.9% control efficiency) for $PM_{2.5}$ emissions from coal-fired boilers. As noted in the paragraph above, while this would appear to be an efficient control measure for $PM_{2.5}$ emissions, Alaska did not submit any further information regarding the $PM_{2.5}$ BACT requirement for the Chena Power Plant or any further documentation to ensure use of the existing single full stream baghouse is adopted as a permanent and enforceable requirement of the EPA-approved SIP.

Alaska identified SO_2 as a significant precursor to $PM_{2.5}$ formation in Fairbanks. Accordingly, the state evaluated potential SO_2 controls for the Chena Power Plant. Alaska identified five technologies as technologically feasible for reduction of SO_2 emissions from the industrial coal-fired boilers: (1) wet scrubbers; (2) spray dry absorber (SDA); (3) dry sorbent injection (DSI); (4) low sulfur coal; and (5) good combustion practices. Neither Alaska nor Aurora evaluated the circulating dry scrubber (CDS) technology, as EPA suggested in comments.[123] For a detailed summary and evaluation of Alaska's BACT submission, see EPA's Technical Support Document.[124]

On November 19, 2018, Aurora proposed a BACT alternative to the State, contending that DSI, the least expensive SO_2 control option, should not be required as BACT because Aurora cannot afford this control technology despite the fact it has been demonstrated to be economically feasible.] Aurora included information regarding the economic impact of requiring DSI based on the following financial indicators, consistent with the $PM_{2.5}$ Implementation Rule and longstanding EPA policy:[125] (1) fixed and variable production costs; (2) product supply and demand elasticity; (3) product prices (cost absorption vs. cost pass-through); (4) expected costs incurred by competitors; (5) company profits; (6) employment costs; (7) and other costs (*e.g.,* for BACM implemented by public sector entities).[126] Aurora concluded that even installing the least expensive SO_2 control, DSI, is economically infeasible and would do very little to solve the air quality problem in the nonattainment area.[127]

Ultimately, Alaska determined that it would be economically infeasible for Aurora Energy to implement retrofit SO_2 controls on its emission units at the Chena Power Plant. Alaska instead identified BACT for this source as the existing requirements to operate good combustion practices and to use a low sulfur coal as a fuel source. Alaska also

[121] *See* Hedgpeth and Sorrels. (August 24, 2022). *Review of Best Available Control Technology analyses submitted for the Aurora Energy, LLC Chena Power Plant as part of the Fairbanks $PM_{2.5}$ Nonattainment SIP*. U.S. Environmental Protection Agency, Region 10, Laboratory Services and Applied Science Division; Hedgpeth, Z. (August 24, 2022). *Review of Best Available Control Technology analyses submitted for Fort Wainwright-US Army Garrison Alaska (FWA) and Doyon Utilities, LLC (DU) as part of the Fairbanks $PM_{2.5}$ Nonattainment SIP*. U.S. Environmental Protection Agency, Region 10, Laboratory Services and Applied Science Division; Hedgpeth and Sorrels. (August 24, 2022). *Review of Best Available Control Technology analyses submitted for the University of Alaska, Fairbanks as part of the Fairbanks $PM_{2.5}$ Nonattainment SIP*. U.S. Environmental Protection Agency, Region 10, Laboratory Services and Applied Science Division; Hedgpeth, Z. (August 24, 2022). *Review of Best Available Control Technology analyses submitted for the Golden Valley Electric Association (GVEA) Zehnder and North Pole Power Plants as part of the Fairbanks $PM_{2.5}$ Nonattainment SIP*. U.S. Environmental Protection Agency, Region 10, Laboratory Services and Applied Science Division.

[122] Alaska evaluated potential NO_X controls for each emission unit, but because Alaska determined and EPA is proposing to approve in this proposed action that NO_X emissions are not significant for $PM_{2.5}$ formation in the Fairbanks nonattainment area, ADEC does not plan to require implementation of BACT for NO_X. Thus, EPA is not discussing ADEC's BACT analysis for NO_X here.

[123] *See* EPA comments regarding site-specific quotes for high performing SO_2 control technologies, such as a wet scrubber (WFGD), spray dry absorber (SDA), and circulating dry scrubber (CDS); ''EPA Comments on 2020 Department of Environmental Conservation (DEC) Proposed Regulations and SIP Amendments'' Letter from Krishna Viswanathan, Director, EPA Region 10 Air and Radiation Division to Alice Edwards, Director, ADEC Division of Air Quality, October 29, 2020; ''EPA Comments on 2019 DEC Proposed Regulations and SIP—Fairbanks North Star Borough Fine Particulate Matter'' Letter from Krishna Viswanathan, Director, EPA Region 10 Air and Radiation Division to Alice Edwards, Director, ADEC Division of Air Quality, July 19, 2019.

[124] Hedgpeth and Sorrels. (August 24, 2022). *Review of Best Available Control Technology analyses submitted for the Aurora Energy, LLC Chena Power Plant as part of the Fairbanks $PM_{2.5}$ Nonattainment SIP*. U.S. Environmental Protection Agency, Region 10, Laboratory Services and Applied Science Division.

[125] 57 FR 18070, April 28, 1992.

[126] Proposed BACT Alternative, Aurora Energy, November 19, 2018, State Air Quality Control Plan, Appendix III.D.7.7–4851 (PDF page 995).

[127] Proposed BACT Alternative, Aurora Energy, November 19, 2018, State Air Quality Control Plan, Appendix III.D.7.7–4869 (PDF page 1014).

required as BACT that, by June 9, 2021, Aurora Energy shall limit the sulfur content of coal to 0.25% sulfur by weight and limit SO_2 emissions from the coal-fired boilers to no more than 0.301 lb/MMBtu.

ii. Fort Wainwright

Fort Wainwright is an existing U.S. Army installation. Emission units located within the military installation include units such as boilers and generators that are owned and operated by the U.S. Army Garrison Alaska (referred to as FWA). The Central Heating and Power Plant (CHPP), also located within the installation footprint, is owned and operated by Doyon Utilities, LLC (DU), the regional Alaska Native corporation for Interior Alaska. The two entities, DU and FWA, comprise a single stationary source operating under two permits.

In addition to the CHPP, the source contains additional emission units comprised of small and large emergency engines, fire pumps, and generators, diesel-fired boilers, and material handling equipment. Alaska included a BACT analysis for the CHPP and all other emission units at the Fort Wainwright source as part of the Fairbanks Serious Plan under State Air Quality Control Plan, Vol II, Chapter III.D.7.7 and Appendix III.D.7.7, Part 2. The CHPP is comprised of six spreader-stoker type coal-fired boilers each rated at 230 MMBtu/hr, that burn coal to produce steam for stationary source-wide heating and power. Alaska's BACT analysis for Fort Wainwright source evaluated potential controls to reduce NO_X, $PM_{2.5}$, and SO_2 emissions from each of these emissions units at the stationary source.[128]

TABLE 7—FORT WAINWRIGHT BACT SUMMARY

Fort Wainwright, Doyon Utilities	
Pollutant	Alaska's BACT determination, by source category
Coal-fired boilers (EUs 1–6)—each unit rated 230 MMBtu per hour	
$PM_{2.5}$	• Operate and maintain a full stream baghouse at all times the units are in operation; • $PM_{2.5}$ emissions from DU EUs 1 through 6 shall not exceed 0.045 lb/MMBtu over a 3-hour averaging period; and • Conduct an initial performance test to obtain an emission rate.
SO_2	• On or before June 9, 2021, DU shall limit the gross as received sulfur content of coal to no greater than 0.25% sulfur by weight. • On or before June 9, 2021, DU shall submit a Title I permit application to DEC that requires the permittee to install and operate a DSI pollution control system on the coal-fired boilers at CHPP effective no later than October 1, 2023. • DEC intends to issue the minor permit and incorporate the Title I requirements into the operating permit within one year of receiving a complete application. • On or before October 1, 2023, DU shall install and operate a DSI pollution control system on the coal-fired boilers at CHPP. • The SO_2 BACT limit for EUs 1 through 6 shall not exceed 0.12 lb/MMBtu averaged over a 3-hour period.
Diesel-fired oil boilers (27 emissions units)	
$PM_{2.5}$	• $PM_{2.5}$ emissions from the diesel-fired boilers shall not exceed 0.012 lb/MMBtu averaged over a 3-hour period, with the exception of the waste fuel boilers which must comply with the State particulate matter emissions standard of 0.05 grains per dry standard cubic foot under 18 AAC 50.055(b)(1); • Limit combined operation of FWA EUs 8, 9, and 10 to 600 hours per year; and • Maintain good combustion practices by following the manufacturer's maintenance procedures at all times of operation.
SO_2	• SO_2 emissions from the diesel-fired boilers shall be controlled by only combusting ULSD, with the exception of the waste fuel boilers; • Combined operating limit of 600 hours per year for FWA EUs 8, 9, and 10; and • Maintain good combustion practices by following the manufacturer's operating and maintenance procedures at all times of operation.
Large diesel-fired engines, fire pumps, and generators (8 emissions units; greater than 500 horsepower)	
$PM_{2.5}$	• Limit combined operation of FWA EUs 11, 12, and 13 to 600 hours per year; • Limit operation of DU EU 8 to 500 hours per year; • $PM_{2.5}$ emissions from DU EU 8, FWA EUs 50, 51, and 53 shall not exceed 0.15 g/hp-hr; • $PM_{2.5}$ emissions from FWA EUs 11 through 13 and 54 shall not exceed 0.32 g/hp-hr; • Limit non-emergency operation of FWA EUs 50, 51, 53, and 54 to no more than 100 hours each per year; • Combust only ULSD; and • Maintain good combustion practices by following the manufacturer's operating and maintenance procedures at all times of operation.
SO_2	• SO_2 emissions from DU EU 8, and FWA EUs 11, 12, 13, 50, 51, 53, and 54 shall be controlled by only combusting ULSD; • Limit operation of DU EU 8 to 500 hours per year; • Combined operating limit of 600 hours per year for FWA EUs 11, 12, and 13; • Limit non-emergency operation of FWA EUs 50, 51, 53, and 54 to no more than 100 hours each per year; and • Maintain good combustion practices by following the manufacturer's operating and maintenance procedures at all times of operation.

[128] Alaska evaluated potential NO_X controls for each emission unit, but because Alaska determined and EPA proposed to approve in this action that NO_X emissions are not significant for $PM_{2.5}$ formation in the Fairbanks nonattainment area, ADEC does not plan to require implementation of BACT for NO_X. Thus, EPA is not discussing ADEC's BACT analysis for NO_X here.

TABLE 7—FORT WAINWRIGHT BACT SUMMARY—Continued

Fort Wainwright, Doyon Utilities	
Pollutant	Alaska's BACT determination, by source category
Small emergency engines, fire pumps, and generators (41 emissions units)	
$PM_{2.5}$	• Combust only ULSD; • Limit non-emergency operation of DU EUs 9, 12, 14, 22, 23, 29a, 30, 31a, 32, 33, 34, 35, 36, FWA EUs 26 through 39, and 55 through 65 to no more than 100 hours each per year; • For engines manufactured after the applicability dates of 40 CFR part 60 subpart IIII, comply with the applicable particulate matter emission standards in 40 CFR part 60 subpart IIII; • Maintain good combustion practices by following the manufacturer's operating procedures at all times of operation; and • Demonstrate compliance with the numerical BACT emission limits (emission limit of 0.015 – 1 g/hp-hr (3-hour average) varies by emission unit, listed in the State Air Quality Control Plan, Vol II, Chapter III.D.7.7, Table 7.7–13) by maintaining records of maintenance procedures conducted in accordance with 40 CFR subparts 60 and 63, and the EU operating manuals.
SO_2	• Limit non-emergency operation of DU EUs 9, 12, 14, 22, 23, 29a, 30, 31a, 32, 33, 34, 35, 36, FWA EUs 26 through 39, and 55 through 65 to no more than 100 hours each per year; • Combust only ULSD; and • Maintain good combustion practices by following the manufacturer's operating and maintenance procedures at all times of operation.
Material handling sources (6 emissions units; coal prep and ash handling)	
$PM_{2.5}$	• $PM_{2.5}$ emissions from the material handling equipment EUs 7a–7c, 51a, and 51b shall be controlled by operating and maintaining fabric filters at all times the units are in operation; • $PM_{2.5}$ emissions from DU EU 7a shall not exceed 0.0025 gr/dscf; • $PM_{2.5}$ emissions from DU EUs 7b, 7c, 51a, and 51 b shall not exceed 0.02 gr/dscf; • $PM_{2.5}$ emissions from DU EU 52 shall not exceed 1.42 tpy. Continuous compliance with the $PM_{2.5}$ emissions limit shall be demonstrated by complying with the fugitive dust control plan identified in the applicable operating permit issued to the source in accordance with 18 AAC 50 and AS 46.14; and • Compliance with the $PM_{2.5}$ emission rates for the material handling units shall be demonstrated by following the fugitive dust control plan and the manufacturer's operating and maintenance procedures at all times of operation.
SO_2	n/a.

Source: State Air Quality Control Plan, Vol II, Chapter III.D.7.7, Table 7.7–11 and Chapter III.D.7.7.8.3.4.

For the coal-fired boilers, Alaska stated that three SO_2 emission controls were evaluated: wet scrubbers, spray dry absorber (SDA), and DSI. Alaska estimated the economic cost of installing wet scrubbers to be $16,356 per SO_2 ton removed. Alaska estimated the economic cost of installing SDA to be $16,748 per SO_2 ton removed. Lastly, Alaska estimated the economic cost of installing DSI to be $11,383 per SO_2 ton removed. Based on this evaluation, Alaska selected DSI as BACT and required DSI to be installed at Fort Wainwright by October 1, 2023. Alaska also included in the SIP submission the emission limits, emission controls, and operational limitations the State determined constituted BACT for the emission units in Fort Wainwright. However, Alaska did not submit as part of the Fairbanks Serious Plan all the monitoring, recordkeeping, and reporting (MRR) requirements for determining compliance with these BACT limits or requirements. Rather, Alaska indicated that such detailed requirements are already embodied in state-issued construction or operating permits or would be embodied in a state-issued Title I permit separate from the SIP. For a detailed summary and evaluation of Alaska's BACT submission, see EPA's Technical Support Document.[129]

iii. University of Alaska Fairbanks Campus Power Plant

The Fairbanks Campus Power Plant is an existing stationary source owned and operated by University of Alaska Fairbanks, which consists of two coal-fired boilers installed in 1962 that were later replaced by a circulating fluidized bed (CFB) dual fuel-fired boiler (coal and biomass) rated at 295.6 MMBtu/hr. Other emission units at the source include a 13,266 hp backup diesel generator, 13 diesel-fired boilers, one classroom engine, one diesel engine permitted but not yet installed, and a coal handling system for the new dual-fuel fired boiler.

The State's BACT determination for the Fairbanks Campus Power Plant evaluated potential controls to reduce NO_X, $PM_{2.5}$, and SO_2 emissions from each of the emissions units at the source.[130]

[129] Hedgpeth, Z. (August 24, 2022). *Review of Best Available Control Technology analyses submitted for Fort Wainwright-US Army Garrison Alaska (FWA) and Doyon Utilities, LLC (DU) as part of the Fairbanks $PM_{2.5}$ Nonattainment SIP*. U.S. Environmental Protection Agency, Region 10, Laboratory Services and Applied Science Division.

[130] Alaska evaluated potential NO_X controls for each emission unit, but because Alaska determined and EPA proposed to approve in this action that NO_X emissions are not significant for $PM_{2.5}$ formation in the Fairbanks nonattainment area, ADEC does not plan to require implementation of BACT for NO_X. Thus, EPA is not discussing ADEC's BACT analysis for NO_X here.

TABLE 8—UNIVERSITY OF ALASKA FAIRBANKS CAMPUS POWER PLANT—BACT SUMMARY

University of Alaska Fairbanks	
Pollutant	Alaska's BACT determination, by source category
Dual fuel-fired boiler (EU 113)—unit rated at 295 MMBtu per hour; coal and woody biomass fuel; constructed in 2019	
$PM_{2.5}$	• Operate and maintain fabric filters at all times the unit is in operation; • $PM_{2.5}$ emissions from EU 113 shall not exceed 0.012 lb/MMBtu over a 3-hour averaging period; and • Maintain good combustion practices at all times of operation by following the manufacturer's operating and maintenance procedures. • Conduct an initial performance test to obtain an emission rate.
SO_2*	• Maintaining good combustion practices by following the manufacturer's operating and maintenance procedures, combustion of low sulfur coal as a fuel source, and the existing SO_2 emission limit of 0.20 lb/MMBtu determined on a 30-day rolling average. • By June 9, 2021, UAF shall limit the gross as received sulfur content of coal delivered to the stationary source to 0.25% sulfur by weight.
Mid-sized diesel-fired boilers (EUs 3 and 4)—each unit rated 180 MMBtu per hour	
$PM_{2.5}$	• $PM_{2.5}$ emissions from EUs 3 and 4 shall not exceed 0.012 lb/MMBtu averaged over a 3-hour period while firing diesel fuel; • $PM_{2.5}$ emissions from EU 4 shall not exceed 0.0075 lb/MMBtu averaged over a 3-hour period while firing natural gas; • Maintain good combustion practices at all times of operation by following the manufacturer's operating and maintenance procedures; and • Limit NO_X emissions from EUs 4 and 8 to no more than 40 tons per year combined.
SO_2	• On or before June 9, 2020, UAF shall also submit a Title I permit application to Alaska that includes a BACT requirement to limit the sulfur content of fuel oil combusted in its diesel-fired boilers to no greater than 1,000 parts per million weight (ppmw) (S1000) from October 1 through March 31 with an effective date of no later than October 1, 2020. • On or before June 9, 2021, UAF shall also submit a Title I permit application to DEC that includes a BACT requirement to limit the sulfur content of fuel oil combusted in its diesel-fired boilers to no greater than 15 ppmw (ULSD) from October 1 through March 31 with an effective date of no later than October 1, 2023; • SO_2 emissions from EU 4 will be limited by complying with the combined annual SO_2 emission limit of 40 tons per 12 month rolling period for EUs 4 and 8; • SO_2 emissions from EU 4 while firing natural gas shall not exceed 0.60 lb/MMscf; • Maintain good combustion practices by following the manufacturer's maintenance procedures at all times of operation; and • Compliance with the proposed SO_2 emission limit will be demonstrated through fuel shipment receipts and/or fuel testing for sulfur content.
Small-sized diesel-fired boilers (EUs 19–21)—each unit rated 6 MMBtu per hour	
$PM_{2.5}$	• Combined boilers operating limit of no more than 19,650 hours per year; • $PM_{2.5}$ emissions from EUs 19–21 shall not exceed 0.012 lb/MMBtu; and • Maintain good combustion practices by following the manufacturer's operating and maintenance procedures at all times of operation.
SO_2	• On or before June 9, 2020, UAF shall also submit a Title I permit application to DEC that includes a BACT requirement to limit the sulfur content of fuel oil combusted in its diesel-fired boilers to no greater than 1,000 ppmw (S1000) from October 1 through March 31 with an effective date of no later than October 1, 2020. • On or before June 9, 2021, UAF shall also submit a Title I permit application to DEC that includes a BACT requirement to limit the sulfur content of fuel oil combusted in its diesel-fired boilers to no greater than 15 ppmw (ULSD) from October 1 through March 31 with an effective date of no later than October 1, 2023; • Combined boilers operating limit of no more than 19,650 hours per year; • Maintain good combustion practices by following the manufacturer's maintenance procedures at all times of operation; and • Compliance with the proposed SO_2 emission limit will be demonstrated through fuel shipment receipts and/or fuel testing for sulfur content.
Large diesel-fired engine (EU 8)—unit rated 13,266 horsepower	
$PM_{2.5}$	• $PM_{2.5}$ emissions from EU 8 shall be controlled by operating positive crankcase ventilation and combusting only low ash diesel at all times of operation; • Limit NO_X emissions from EUs 4 and 8 to no more than 40 tons per year combined; • Limit non-emergency operation of EU 8 to no more than 100 hours per year; and • $PM_{2.5}$ emissions from EU 8 shall not exceed 0.32 g/hp-hr averaged over a 3-hour period.
SO_2	• On or before June 9, 2020, UAF shall submit a Title I permit application to Alaska that includes a BACT requirement to combust only ULSD in its diesel-fired engines no later than June 9, 2021; • Limit SO_2 emissions from EUs 4 and 8 to no more than 40 tons per year combined; • Limit non-emergency operation of EU 8 to no more than 100 hours per year; • Maintain good combustion practices by following the manufacturer's maintenance procedures at all times of operation; and • Compliance with the proposed SO_2 emission limit will be demonstrated through fuel shipment receipts and/or fuel testing for sulfur content.
Small diesel-fired engines (EUs 23–24, 26–29)	
$PM_{2.5}$	• Limit the operation of EU 27 to no more than 4,380 hours per year; • Limit non-emergency operation of EUs 24, 28, and 29 to no more than 100 hours per year each; • EU 27 shall comply with the Federal emission standards of NSPS Subpart IIII, Tier 3;

TABLE 8—UNIVERSITY OF ALASKA FAIRBANKS CAMPUS POWER PLANT—BACT SUMMARY—Continued

University of Alaska Fairbanks	
Pollutant	Alaska's BACT determination, by source category
SO_2	• Maintain good combustion practices at all times of operation by following the manufacturer's operating and maintenance procedures; and Demonstrate compliance with the numerical BACT emission limits (emission limit of 0.015 – 1 g/hp-hr (3-hour average) varies by emission unit, listed in State Air Quality Control Plan, Vol II, Chapter III.D.7.7, Table 7.7–18) by maintaining records of maintenance procedures conducted in accordance with 40 C.F.R. Subparts 60 and 63, and the EU operating manuals. • On or before June 9, 2020, UAF shall submit a Title I permit application to Alaska that includes a BACT requirement to combust only ULSD in its diesel-fired engines no later than June 9, 2021. • Limit the operation of EU 27 to no more than 4,380 hours per year; • Limit non-emergency operation of EUs 24, 28, and 29 to no more than 100 hours per year each; • Maintain good combustion practices at all times of operation by following the manufacturer's operating and maintenance procedures; • Compliance will be demonstrated with fuel shipment receipts and/or fuel tests for sulfur content; and • Compliance with the operating hours limit will be demonstrated by monitoring and recording the number of hours operated on a monthly basis.
Pathogenic waste incinerator (EU 9a)—unit rated 533 lb per hour	
$PM_{2.5}$	• $PM_{2.5}$ emissions from EU 9A shall be controlled with a multiple chamber design; • Limit the operation of EU 9A to no more than 109 tons of waste combusted per year; • $PM_{2.5}$ emissions from EU 9A shall not exceed 4.67 lb/ton; • Maintain good combustion practices at all times of operation by following the manufacturer's operating and maintenance procedures; and • Compliance with the proposed operational limit will be demonstrated by recording pounds of waste combusted for the pathogenic waste incinerator.
SO_2	• Limit the operation of EU 9A to no more than 109 tons of waste combusted per year; • SO_2 emissions from the operation of EU 9A shall be controlled by combusting ULSD at all times of operation; • Maintain good combustion practices by following the manufacturer's operational procedures at all times of operation; and • Compliance shall be demonstrated by obtaining fuel shipment receipts and/or fuel tests for sulfur content.
Material handling sources (EUs 105, 107, 109–111, 114, 128–130); coal prep and ash handling	
$PM_{2.5}$	• $PM_{2.5}$ emissions from EUs 105, 107, 109 through 111, 114, and 128 through 130 will be controlled by enclosing each EU; • $PM_{2.5}$ emissions from the operation of the material handling units, except EU 111, will be controlled by installing, operating, and maintaining fabric filters and vents; • Initial compliance with the emission rates for the material handling units, except EU 111, will be demonstrated with a performance test to obtain an emission rate; and • Comply with the numerical emission limits (emission limit of 0.003–0.050 gr/dscf and .00005 lb/ton (EU 111) varies by emission unit listed in State Air Quality Control Plan, Vol II, Chapter III.D.7.7, Table 7.7–18—note double citation)
SO_2	n/a.

* Alaska finds it economically infeasible for the University of Alaska Fairbanks to implement retrofit SO_2 controls on emission units at the Campus Power Plant.
Source: State Air Quality Control Plan, Vol II, Chapter III.D.7.7, Table 7.7–16 and Chapter III.D.7.7.8.6.

Alaska included in the SIP submission most of the emission limits, emission controls, and operational limitations the State determined constituted BACT for the emission units at the UAF Campus Power Plant. However, Alaska did not submit as part of the Fairbanks Serious Plan the emission limits corresponding to Alaska's SO_2 BACT findings for several emission units [131] nor all the MRR requirements for determining compliance with BACT limits or requirements. Rather, Alaska indicated that such requirements are already embodied in state-issued construction or operating permits or would be embodied in a state-issued Title I permit separate from the SIP.

Alaska identified SO_2 as a significant precursor to $PM_{2.5}$ formation in Fairbanks. Accordingly, Alaska identified six potential control measures as technologically feasible for reduction of SO_2 emissions from the industrial dual-fired boiler (EU–113) at this source: (1) wet scrubbers; (2) SDA; (3) DSI; (4) low sulfur coal; and (5) good combustion practices. Notably, neither Alaska nor UAF evaluated the circulating dry scrubber (CDS) technology that EPA has commented is a proven technology for coal boilers that the State should analyze for BACT.[132]

On April 29, 2019, UAF submitted an economic infeasibility assessment to the State, contending that UAF could not afford to install DSI, the technology Alaska identified as BACT. UAF's assessment is based on the following financial indicators, consistent with the $PM_{2.5}$ Implementation Rule and longstanding EPA policy:[133] (1) fixed and variable production costs; (2) product supply and demand elasticity; (3) product prices (cost absorption vs. cost pass-through); (4) expected costs incurred by competitors; (5) company

[131] Mid-sized diesel-fired boilers (EUs 3 and 4); Small-sized diesel-fired boilers (EUs 19–21); Large diesel-fired engine (EU 8); Small diesel-fired engines (EUs 23–24, 26–29).

[132] *See* EPA Comments regarding site-specific quotes for high performing SO_2 control technologies, such as a wet scrubber (WFGD), spray dry absorber (SDA), and circulating dry scrubber (CDS); ''EPA Comments on 2020 DEC Proposed Regulations and SIP Amendments'' Letter from Krishna Viswanathan, Director, EPA Region 10 Air and Radiation Division to Alice Edwards, Director, ADEC Division of Air Quality, October 29, 2020; ''EPA Comments on 2019 DEC Proposed Regulations and SIP- Fairbanks North Star Borough Fine Particulate Matter'' Letter from Krishna Viswanathan, Director, EPA Region 10 Air and Radiation Division to Alice Edwards, Director, ADEC Division of Air Quality, July 19, 2019.

[133] 57 FR 18070, April 28, 1992.

profits; (6) employment costs; (7) and other costs (*e.g.,* for BACM implemented by public sector entities).[134] UAF contended that the Alaska proposed BACT is not financially feasible, given the proposed budget cuts in state funding impacting the university and that the duel fuel-fired boiler (EU–113) is an efficient and clean approach to generating electric power and heat from a single fuel source.[135]

Alaska ultimately found that it is economically infeasible for UAF to implement retrofit SO_2 controls on the dual fuel-fired boiler at the Fairbanks Campus Power Plant. Regarding the other emission sources at the UAF Campus Power Plant, we note that ULSD was identified as BACT for the diesel-fired boilers (EUs 3, 4, and 19–21), but Alaska delayed implementation of the requirement until 2023 and imposed an interim requirement (1000 ppmw sulfur content). Additionally, certain diesel-fired engines do not have hourly operation limits (EUs 23 and 26). For a detailed summary and evaluation of Alaska's BACT submission, see EPA's Technical Support Document.[136]

iv. Zehnder Facility

The Zehnder Facility (Zehnder) is an electric generating facility that combusts distillate fuel in combustion turbines to provide power to the Golden Valley Electric Association (GVEA) grid. The power plant contains two fuel oil-fired simple cycle gas combustion turbines and two diesel-fired generators (electromotive diesels) used for emergency power and to serve as black start engines for the GVEA generation system. The primary fuel is stored in two 50,000 gallon above ground storage tanks. Turbine startup fuel and electromotive diesels primary fuel is stored in a 12,000 gallon above ground storage tank.

Alaska's BACT analysis for the Zehnder evaluated potential controls to reduce NO_X, $PM_{2.5}$, and SO_2 emissions from its simple cycle gas turbines, large diesel-fired engines, and diesel-fired boilers.[137]

TABLE 9—ZEHNDER FACILITY BACT SUMMARY

Zehnder facility, Golden Valley Electric Authority	
Pollutant	Alaska's BACT determination, by source category
Fuel oil-fired simple cycle gas turbine (EUs 1 and 2)—each unit rated 268 MMBtu per hour	
$PM_{2.5}$	• Combust only low ash fuel; • $PM_{2.5}$ emissions from EUs 1 & 2 shall not exceed 0.012 lb/MMBtu over a 3-hour averaging period; • Initial compliance with the proposed $PM_{2.5}$ emission limit will be demonstrated by conducting a performance test to obtain an emission rate; and • Maintain good combustion practices by following the manufacturer's operating and maintenance procedures at all times of operation.
SO_2*	• On or before June 9, 2020, GVEA shall submit a Title I permit application to DEC limiting the PTE for SO_2 emissions from the Zehnder Facility to less than 70 tons per year. ○ According to Alaska, the facility will then be subject to the following requirement: After September 1, 2022, only fuel oil, containing no more than 1,000 parts per million sulfur, may be sold or purchased for use in fuel oil-fired equipment, in accordance with 18 AAC 50.078(b). • Maintain good combustion practices by following the manufacturer's operating and maintenance procedures at all times of operation; and • Compliance with the proposed fuel sulfur content limit will be demonstrated with fuel shipment receipts and/or fuel test results for sulfur content.
Diesel-fired emergency generators (EUs 3 and 4)—each unit rated 28 MMBtu per hour	
$PM_{2.5}$	• Limit non-emergency operation of the large diesel-fired engines to no more than 100 hours per year each; • $PM_{2.5}$ emissions from EUs 3 and 4 shall not exceed 0.32 g/hp-hr over a 3-hour averaging period; • Demonstrate compliance with the numerical BACT emission limit by complying with 40 CFR 63 Subpart ZZZZ; and • Maintain good combustion practices by following the manufacturer's operating and maintenance procedures at all times of operation.
SO_2*	• On or before June 9, 2020, GVEA shall submit a Title I permit application to DEC limiting the PTE for SO_2 emissions from the Zehnder Facility to less than 70 tons per year. ○ According to Alaska, the facility will then be subject to the following requirement: After September 1, 2022, only fuel oil, containing no more than 1,000 parts per million sulfur, may be sold or purchased for use in fuel oil-fired equipment, in accordance with 18 AAC 50.078(b). • Limit non-emergency operation of the large diesel-fired engines to no more than 100 hours per year each; • Maintain good combustion practices by following the manufacturer's operating maintenance procedures at all times of operation; and • Compliance with the proposed fuel sulfur content limit will be demonstrated with fuel shipment receipts and/or fuel test results for sulfur content.

[134] Alaska Department of Environmental Conservation. (April 23, 2019). *Fairbanks Serious $PM_{2.5}$ Nonattainment Area Best Available Control Technology (BACT) Determination—Economic Infeasibility of Sulfur Dioxide (SO_2) Emission Controls, University of Alaska Fairbanks,* State Air Quality Control Plan, Appendix, Part 3, III.D.7.7–1479 (PDF page 497).

[135] Alaska Department of Environmental Conservation. (April 23, 2019). *Fairbanks Serious $PM_{2.5}$ Nonattainment Area Best Available Control Technology (BACT) Determination—Economic Infeasibility of Sulfur Dioxide (SO_2) Emission Controls, University of Alaska Fairbanks.* State Air Quality Control Plan, Appendix, Part 3, III.D.7.7–1481 (PDF page 499).

[136] Hedgpeth and Sorrels. (August 24, 2022). *Review of Best Available Control Technology analyses submitted for the University of Alaska, Fairbanks as part of the Fairbanks $PM_{2.5}$ Nonattainment SIP.* U.S. Environmental Protection Agency, Region 10, Laboratory Services and Applied Science Division.

[137] Alaska evaluated potential NO_X controls for each emission unit, but because Alaska determined and EPA proposed to approve in this action that NO_X emissions are not significant for $PM_{2.5}$ formation in the Fairbanks nonattainment area, ADEC does not plan to require implementation of BACT for NO_X. Thus, EPA is not discussing ADEC's BACT analysis for NO_X here.

TABLE 9—ZEHNDER FACILITY BACT SUMMARY—Continued

Zehnder facility, Golden Valley Electric Authority	
Pollutant	Alaska's BACT determination, by source category
Diesel-fired boilers (EUs 10 and 11)—each unit rated 1.7 MMBtu per hour	
$PM_{2.5}$	• $PM_{2.5}$ emissions shall not exceed 0.012 lb/MMBtu over a 3-hour averaging period; • Demonstrate compliance with the numerical BACT emission limit by complying with 40 CFR 63 Subpart JJJJJJ; and • Maintain good combustion practices by following the manufacturer's operating and maintenance procedures at all times of operation.
SO_2*	• On or before June 9, 2020, GVEA shall submit a Title I permit application to DEC limiting the PTE for SO_2 emissions from the Zehnder Facility to less than 70 tons per year. ○ According to Alaska, the facility will then be subject to the following requirement: After September 1, 2022, only fuel oil, containing no more than 1,000 parts per million sulfur, may be sold or purchased for use in fuel oil-fired equipment, in accordance with 18 AAC 50.078(b). • Maintain good combustion practices by following the manufacturer's operating and maintenance procedures at all times of operation; and • Compliance with the proposed fuel sulfur content limit will be demonstrated with fuel shipment receipts and/or fuel test results for sulfur content.

* Alaska's initial BACT finding: SO_2 emissions from EUs 1 and 2 shall be controlled by limiting the sulfur content of fuel combusted in the turbines to no more than 0.0015 percent by weight; requirements for the other emission units were to combust only ULSD.

Source: State Air Quality Control Plan, Vol II, Chapter III.D.7.7, Table 7.7–14 and Chapter III.D.7.7.8.4.

Alaska included in the SIP submission the emission limits, emission controls, and operational limitations the State determined constituted BACT for the emission units at the Zehnder facility. However, Alaska did not submit as part of the Fairbanks Serious Plan all the associated MRR requirements for determining compliance with these BACT limits or requirements. Rather, Alaska indicated that such requirements are already embodied in state-issued construction or operating permits. Regarding SO_2 controls for each of the emission sources at this facility, Alaska evaluated four technologically feasible SO_2 controls: ultra-low sulfur diesel (99.7 percent control of SO_2 emissions); low-sulfur diesel (93 percent control of SO_2 emissions); good combustion practices (less than 40 percent control of SO_2 emissions); limited operation (0 percent control of SO_2 emissions). Alaska reviewed the cost information provided by GVEA to evaluate appropriately the total capital investment of installing two new 1.5 million gallon ULSD storage tanks at GVEA's North Pole Facility.[138] Alaska concluded that the level of SO_2 reduction justifies the required use of ULSD as BACT for the fuel oil-fired simple cycle gas turbines at an economic cost of $8,753 per ton of SO_2 removed.

However, GVEA provided updated and supplemental information in an alternative BACT proposal submitted to Alaska on November 28, 2018.[139] GVEA proposed to limit emissions from the Zehnder Facility to less than 70 tons per year in place of BACT for SO_2, and, according to Alaska, eliminating the Zehnder Facility as a major source of SO_2. EPA notes here our disagreement with this approach. BACT is a subset of BACM requirements. All sources of direct $PM_{2.5}$ and $PM_{2.5}$ precursors are subject to BACM and BACT requirements regardless of PTE. There is no PTE threshold below which BACT requirements do not apply. The 70 tons per year PTE threshold cited by Alaska only has relevance in determining whether a new stationary source proposed to be constructed in a nonattainment area meets the definition of a major stationary source pursuant to the nonattainment new source review provisions.[140] Thus, as part of selecting and adopting BACM for existing sources in Fairbanks, Alaska would need to select the best available measure that is technologically and economically feasible, which in this case is a requirement to use ULSD fuel. Nonetheless, Alaska relied on the approach to classify the Zehnder Facility as a ''non-major'' source and required GVEA to submit a Title I permit application no later than June 9, 2020, limiting the potential to emit of the Zehnder Facility to less than 70 tons per year. Once the Zehnder Facility's SO_2 limit goes into effect, Alaska will not consider the facility, including all emissions units, to be a major stationary source for SO_2 emissions subject to BACT limits. Instead, the Zehnder Facility will be subject to the BACM measures contained in Alaska regulations 18 AAC 50.078(b), that stipulate that after September 1, 2022, only fuel oil containing no more than 1,000 parts per million sulfur (*i.e.,* diesel #1), may be sold or purchased for use in fuel oil-fired equipment. We again note our disagreement with this approach, regardless of BACM or BACT distinction, the best available control measure should be adopted. For a detailed summary and evaluation of Alaska's BACT submission, see EPA Technical Support Document.[141]

v. North Pole Power Plant

The North Pole Power Plant is an electric generating facility that combusts distillate fuel in combustion turbines to provide power to the Golden Valley Electric Association (GVEA) grid. The power plant contains two fuel oil-fired simple cycle gas combustion turbines, two fuel oil-fired combined cycle gas combustion turbines, one fuel oil-fired emergency generator, and two propane-fired boilers. The State's BACT determination for the North Pole Power Plant evaluated potential controls to reduce NO_X, $PM_{2.5}$, and SO_2 emissions from its simple cycle gas turbines, combined cycle gas turbines, large

[138] Alaska Department of Environmental Conservation. (November 19, 2019). *Golden Valley Electric Association North Pole Power Plant and Zehnder Facility BACT Appendix.* State Air Quality Control Plan, Appendix, Part 4, III.D.7.7–1657 through 3855.

[139] Alaska Department of Environmental Conservation. (November 19, 2019). *Golden Valley Electric Association North Pole Power Plant and Zehnder Facility BACT Appendix.* State Air Quality Control Plan, Appendix, Part 4, III.D.7.7–3636 (PDF page 1979).

[140] 40 CFR 51.165(a)(1)(iv)(A)(*1*).

[141] Hedgpeth, Z. (August 24, 2022). *Review of Best Available Control Technology analyses submitted for the Golden Valley Electric Association (GVEA) Zehnder and North Pole Power Plants as part of the Fairbanks $PM_{2.5}$ Nonattainment SIP.* U.S. Environmental Protection Agency, Region 10, Laboratory Services and Applied Science Division

diesel-fired engines, and propane-fired boilers.[142]

TABLE 10—NORTH POLE POWER PLANT BACT SUMMARY

North Pole Power Plant, Golden Valley Electric Authority	
Pollutant	Alaska's BACT determination, by source category
Fuel oil-fired simple cycle gas turbine (EUs 1 and 2)—each unit rated 672 MMBtu	
$PM_{2.5}$	• Combust only low ash fuel; • Maintain good combustion practices at all times of operation by following the manufacturer's operating and maintenance procedures; • $PM_{2.5}$ emissions from EUs 1 & 2 shall not exceed 0.012 lb/MMBtu over a 3-hour averaging period; and • Initial compliance with the proposed $PM_{2.5}$ emission limit will be demonstrated by conducting a performance test to obtain an emission rate.
SO_2*	• By October 1, 2020, BACT for EUs 1 and 2 is to begin taking delivery of fuel oil with a sulfur content no greater than 1,000 ppmw (S1000) immediately after the Air Quality Stage Alert 1 and 2 are announced and remain taking deliveries of exclusively S1000 for as long as the air episode exists. • On or before June 9, 2022, GVEA shall submit a Title I permit application to DEC that includes a BACT requirement to limit the sulfur content of fuel combusted in EUs 1 and 2 to no greater than 15 ppmw (ULSD) from October 1 through March 31 to be effective no later than October 1, 2023. • Compliance with the proposed fuel sulfur content limit will be demonstrated with fuel shipment receipts and/or fuel test results for sulfur content; and • Maintain good combustion practices by following the manufacturer's operating and maintenance procedures at all times of operation.
Fuel oil-fired combined cycle gas turbine (EUs 5 and 6)—each unit rated 455 MMBtu per hour	
$PM_{2.5}$	• $PM_{2.5}$ emissions from EUs 5 and 6 shall be limited by complying with the combined annual NO_X limit listed in Operating Permit AQ0110TVP03 Conditions 13 and 12, respectively; • $PM_{2.5}$ emissions from EUs 5 & 6 shall not exceed 0.012 lb/MMBtu over a 3-hour averaging period; • Initial compliance with the proposed $PM_{2.5}$ emission limit will be demonstrated by conducting a performance test to obtain an emission rate; and • Maintain good combustion practices at all times of operation by following the manufacturer's operating and maintenance procedures.
SO_2	• Except during startup, SO_2 emissions from EUs 5 and 6 shall be controlled by limiting the fuel combusted in the turbines to light straight run turbine fuel (50 ppm sulfur in fuel); • Maintain good combustion practices by following the manufacturer's operating and maintenance procedures at all times of operation; and • Compliance with the proposed fuel sulfur content limit will be demonstrated with fuel shipment receipts and/or fuel test results for sulfur content.
Large diesel-fired engine (EU 7)—unit rated 400 kW/619 horsepower	
$PM_{2.5}$	• $PM_{2.5}$ emissions from EU 7 shall be controlled by operating with positive crankcase ventilation; • $PM_{2.5}$ emissions from EU 7 shall be controlled by limiting operation to no more than 52 hours per 12 month rolling period; • $PM_{2.5}$ emissions from EU 7 shall not exceed 0.32 g/hp-hr over a 3-hour averaging period; and • Maintain good combustion practices by following the manufacturer's operating and maintenance procedures at all times of operation.
SO_2	• SO_2 emissions from EU 7 shall be controlled by combusting fuel that does not exceed 0.05 weight percent sulfur at all time the unit is in operation; • SO_2 emissions from EU 7 shall be controlled by limiting operation to no more than 52 hours per 12-month rolling period; • Compliance with the SO_2 emission limit while firing diesel fuel will be demonstrated by fuel shipment receipts and/or fuel test results for sulfur content; and • Maintain good combustion practices by following the manufacturer's operating and maintenance procedures at all times of operation.
Propane-fired boiler (EUs 11 and 12)—each unit rated 5 MMBtu per hour	
$PM_{2.5}$	• Burn only propane as fuel in EUs 11 and 12; • $PM_{2.5}$ emissions from EUs 11 and 12 shall not exceed 0.008 lb/MMBtu over a 3-hour averaging period; and • Compliance with the emission limit will be demonstrated with records of maintenance following original equipment manufacturer recommendations for operation and maintenance and periodic measurements of O2 balance. • Maintain good combustion practices by following the manufacturer's operating and maintenance procedures at all times of operation.
SO_2	• SO_2 emissions from EUs 11 and 12 shall be controlled by only combusting gas fuel (propane) with a total sulfur content of no more than 120 parts per million volume (ppmv), or direct emissions of 0.75 lb/1,000 gal; • Maintain good combustion practices by following the manufacturer's operating and maintenance procedures at all times of operation; and

[142] Alaska evaluated potential NO_X controls for each emission unit, but because Alaska determined and EPA proposed to approve in this action that NO_X emissions are not significant for $PM_{2.5}$ formation in the Fairbanks nonattainment area, ADEC does not plan to require implementation of BACT for NO_X. Thus, EPA is not discussing ADEC's BACT analysis for NO_X here.

TABLE 10—NORTH POLE POWER PLANT BACT SUMMARY—Continued

North Pole Power Plant, Golden Valley Electric Authority	
Pollutant	Alaska's BACT determination, by source category
	• Compliance with the preliminary emission rate limit will be demonstrated with fuel shipment receipts and/or fuel tests for sulfur content.

* Alaska's initial BACT finding: SO_2 emissions from EUs 1 and 2 shall be controlled by limiting the sulfur content of the fuel combusted in the turbines to no more than 0.0015 percent by weight (ULSD).
Source: State Air Quality Control Plan, Vol II, Chapter III.D.7.7, Table 7.7–14 and Chapter III.D.7.7.8.5.

Alaska included in the SIP submission most of the emission limits, emission controls, and operational limitations the State determined constituted BACT for the emission units at the North Pole Power Plant. However, Alaska did not submit as part of the Fairbanks Serious Plan the emission limits corresponding to Alaska's SO_2 or $PM_{2.5}$ BACT findings for some emission units [143] nor the MRR requirements for determining compliance with all BACT limits or requirements. Rather, Alaska indicated that such requirements are already embodied in state-issued construction or operating permits or would be embodied in a state-issued Title I permit separate from the SIP. Alaska did not submit as part of the Fairbanks Serious Plan the MRR requirements for determining compliance with these BACT limits or requirements.

For SO_2 controls, Alaska evaluated four technologies as potential BACT for the simple cycle gas turbines: ultra-low sulfur diesel (controls 99.7 percent SO_2 emissions); low sulfur fuel (controls 93 percent SO_2 emissions); good combustion practices (controls less than 40 percent SO_2 emissions) and limited operation (controls 0 percent SO_2 emissions). Alaska reviewed the cost information provided by GVEA to evaluate the total capital investment of installing two new 1.5 million gallon ultra-low sulfur diesel storage tanks at GVEA's North Pole Power Plant. Alaska concluded that the economic analysis indicates the level of SO_2 reduction justifies the use of ultra-low sulfur diesel as BACT for the two simple cycle gas turbine emissions units at $13,838 per ton and $13,923 per ton respectively. We note that GVEA provided updated and supplemental information in an alternative BACT proposal submitted on November 28, 2018.[144] GVEA proposed as BACT for SO_2 to combust diesel #1 (1,000 ppm sulfur) in the simple cycle gas turbines when curtailment days are called in Fairbanks.

However, Alaska found that it was economically infeasible for GVEA to immediately switch to ULSD for the simple cycle gas turbines at the North Pole Power Plant. Therefore, the State concluded that BACT for this emission unit would be that starting October 1, 2020, GVEA must begin taking delivery of fuel oil with a sulfur content no greater than 1,000 ppmw immediately after an air quality curtailment (Air Quality Stage Alert 1 and 2) is announced and remain taking deliveries of exclusively S1000 for as long as the air episode exists. On or before June 9, 2022, GVEA shall submit a Title I permit application to Alaska that includes a BACT requirement to limit the sulfur content of fuel combusted in the simple cycle gas turbines to no greater than 15 ppmw (ULSD) from October 1 through March 31 to be effective no later than October 1, 2023.

For the combined cycle gas turbines, Alaska evaluated similar control measures as the simple cycle gas turbines but noted lower control efficiency of ULSD (controls 50 percent SO_2 emissions) and, according to Alaska, the light straight run turbine fuel currently in use has similar sulfur content as low sulfur fuel (light straight run turbine fuel has a sulfur content of 50 ppm, while the sulfur content for ULSD is 15 ppm). Alaska concluded that the economic analysis indicates the level of SO_2 reduction does not justify the use of ULSD as BACT for EUs 5 and 6 at $1,040,822 per ton. Instead, Alaska identified BACT as requiring light straight run fuel (sulfur content approximately 50 ppm) and maintaining good combustion practices. We note that a fuel requirement during startup was not specified for the combined cycle turbines (EUs 5 and 6). Regarding the other emission sources, we note that ULSD was not required for the large diesel-fired engine (EU 7), rather a requirement to use fuel not exceeding 0.05 weight percent sulfur. We again note that Alaska did not submit as part of the Fairbanks Serious Plan or Fairbanks 189(d) Plan MRR requirements associated with these SO_2 BACT requirements. For a detailed summary and evaluation of Alaska's BACT submission, see EPA's Technical Support Document.[145]

d. Alaska's Identification and Adoption of Additional Measures and Demonstration of 5% Reduction in Emissions Pursuant to CAA section 189(d)

The Fairbanks 189(d) Plan includes a reevaluation of previously rejected control measures.[146] Alaska also made two revisions to the Fairbanks Emergency Episode Plan, Vol II Chapter III.D.7.12. First, Alaska added a burn down period of 3 hours for solid-fuel heating devices that begins upon the effective date and time of a curtailment announcement. Alaska states that this further clarifies existing state regulation at 18 AAC 50.075(e)(3). Second, Alaska added specific requirements to document economic hardship as part of a No Other Adequate Source of Heat (NOASH) curtailment program waiver for solid-fuel devices.

As part of its reevaluation of control measures, Alaska provided additional information for a number of control measures considered in the BACM analysis. The Fairbanks 189(d) Plan submission included additional consideration of banning installation of solid-fuel devices in new construction, limiting heating oil to ultra-low sulfur diesel, dry wood requirements, emissions controls for small area sources, mobile sources, and most stringent measures.[147] However, Alaska did not include a reevaluation of BACT-

[143] Fuel oil-fired simple cycle gas turbine (EUs 1 and 2); Fuel oil-fired combined cycle gas turbine (EUs 5 and 6).

[144] Alaska Department of Environmental Conservation. (November 19, 2019. *Golden Valley Electric Association North Pole Power Plant and Zehnder Facility BACT Appendix.* State Air Quality Control Plan, Appendix, Part 4, III.D.7.7–3636 (PDF page 1979).

[145] Hedgpeth, Z. (August 24, 2022). *Review of Best Available Control Technology analyses submitted for the Golden Valley Electric Association (GVEA) Zehnder and North Pole Power Plants as part of the Fairbanks $PM_{2.5}$ Nonattainment SIP.* U.S. Environmental Protection Agency, Region 10, Laboratory Services and Applied Science Division

[146] State Air Quality Control Plan, Vol II, Chapter III.D.7.7, Table 7.7–26.

[147] State Air Quality Control Plan, Vol II, Chapter III.D.7.7.12.

level controls for the stationary sources discussed in Section III.C.2.e of this document.

Regarding the requirement to demonstrate five percent annual reductions, Alaska included in the Fairbanks 189(d) Plan a control strategy analysis that demonstrates projected annual reductions of direct $PM_{2.5}$ emissions will be greater than five percent of the 2019 base year emissions inventory for each year through 2024, Alaska's projected attainment year.[148] Alaska compared the annual $PM_{2.5}$ reductions required to attain to the annual $PM_{2.5}$ reductions resulting from implementing the control strategy. We note that Alaska projects that SO_2 emissions will not achieve annual reductions greater than five percent of the base year inventory until 2024.

3. EPA's Evaluation and Proposed Action

This section contains a summary of EPA's evaluation and proposed action with regards to meeting the BACM and BACT requirements and the control strategy requirements for areas subject to CAA section 189(d). For EPA's complete evaluation and basis for this proposal, see EPA's Technical Support Document.[149]

a. Residential and Commercial Sources

With respect to NH_3-specific controls, EPA researched potential NH_3 controls for sources in the emissions inventory. EPA did not identify any potential NH_3 controls. According to available literature, most NH_3 controls are designed for the NH_3 manufacturing, fertilizer, coke manufacturing, livestock management industries, as well as to address NH_3 emissions from the use of NO_X controls such as selective catalytic reduction and selective noncatalytic reduction.[150]

EPA similarly reviewed Alaska's determination regarding the NH_3 emissions co-benefits of measures designed to reduce emissions of direct $PM_{2.5}$. First, EPA agrees that measures designed to eliminate all emissions from a source category, such as the wood-stove curtailment program and the requirement to remove or replace uncertified devices, non-pellet fueled hydronic heaters, and coal-fired heating devices by December 31, 2024, or upon sale, lease, or conveyance of an existing building, whichever is earlier, will reduce emissions of direct $PM_{2.5}$ and all plan precursors, including NH_3. Second, EPA reviewed literature regarding NH_3 emissions factors for various sources in the Space Heating source category.[151] Based on this review, EPA confirms Alaska's findings that the solid-fuel fired curtailment program, the woodstove change out program, and measures requiring the removal of uncertified devices and coal heaters, installation of certified woodstoves that meet specific performance standards, sale of dry wood, and conversions of woodstoves to liquid-fuel fired stoves, will reduce NH_3 emissions from the Space Heating source category. Thus, as specified in this section, EPA is proposing to approve certain measures as meeting the BACM/BACT requirement for NH_3 emissions. In other cases, we are proposing to approve ADEC's BACM/BACT analysis that concluded there are no NH_3-specific controls for the emission source categories contributing to $PM_{2.5}$ formation in the Fairbanks Nonattainment Area, but that there are likely to be NH_3 emissions co-benefits of measures designed to reduce emissions of direct $PM_{2.5}$.

i. Solid-Fuel Burning

Alaska adopted a number of regulations based on the BACM review for this source category.[152] We propose to find that Alaska's analysis and adoption of control measures for this source category meet BACM requirements for $PM_{2.5}$ and SO_2 emissions. We also propose to approve Alaska's analysis that found no NH_3-specific emission controls for this source category, We note that we approved as SIP strengthening and federally enforceable many of the control measures submitted as part of the Fairbanks Serious Plan and prior SIP submissions in 2018 as part of a separate action (86 FR 52997, September 24, 2021).

Alaska identified a number of solid-fuel burning control measures that have been adopted by other states and local authorities to identify the full range of potential BACM/BACT measures for this source category. This analysis took into account technical and economic feasibility and other considerations included in the $PM_{2.5}$ Implementation Rule.

Alaska's two-stage woodstove curtailment program, included in the Fairbanks Emergency Episode Plan, adopts the air quality threshold that are at least as stringent as comparable curtailment programs in Idaho, Utah, and California. Alaska accounts for the differences in natural gas availability, seasonal climate conditions, and woodstove changeout incentives in establishing the two-stage thresholds at 20 $\mu g/m^3$ (Stage 1) and 30 $\mu g/m^3$ (Stage 2), respectively. Alaska also has an advisory level set at 15 $\mu g/m^3$ as part of the curtailment program. Alaska has placed further limitations on the NOASH waiver that limit applicability to those that have economic needs based on objective criteria and limited the number of years NOASH waivers are available. Therefore, we propose to approve of the wood stove curtailment program and associated updates to the NOASH waivers/temporary exemption as BACM for the solid-fuel burning source category (*i.e.,* Alaska state regulations 18 AAC 50.075 (e)(3), (f)(2) for $PM_{2.5}$ and SO_2 emissions.

Alaska identified and evaluated as BACM heating device performance standards adopted previously by Missoula County, Montana. Alaska adopted a regulation modeled after the rule in Missoula County. Under 18 AAC 50.077(c), Alaska's regulations require that woodstoves meet emissions standards that are more stringent than EPA's NSPS requirement and also include 1-hour testing requirements to ensure only the lowest-emitting woodstoves are allowed to be sold and installed in the nonattainment area. We propose to find that Alaska adopted measures sufficient to meet BACM for the solid-fuel burning source category (*i.e.,* 18 AAC 50.077 (a–j) for $PM_{2.5}$ and SO_2 emissions.

Alaska's regulation 18 AAC 50.075(f), applicable to the Fairbanks Nonattainment Area, prohibits the operation of a solid fuel-fired heating device emissions when visible emissions exceed 20 percent opacity for more than six minutes in any one hour, except during the first 15 minutes after

[148] State Air Quality Control Plan, Vol II, Chapter III.D.7.9, Table 7.9–6.

[149] Jentgen, M. (September 27, 2022). *Technical support document for Alaska Department of Environmental Conservation's (ADEC) control measure analysis, under 40 CFR 1010(a) and (c).* U.S. Environmental Protection Agency, Region 10, Air and Radiation Division.

[150] U.S. Environmental Protection Agency. (April 1995). *Control and Pollution Prevention Options for Ammonia Emissions.* U.S. EPA Control Technology Center, Document No. EPA–456/R–95–002, available at *https://www3.epa.gov/ttncatc1/dir1/ammonia.pdf#:~:text=The%20various%20control%20technologies%20available%20to%20control%20ammonia,ammonia%20emissions%2C%20demonstrating%20control%20efficiencies%20up%20to%2099%25; see also* Pinder, et al. ''Ammonia emission controls as a cost-effective strategy for reducing atmospheric particulate matter in the Eastern United States,'' *Environmental Science & Technology,* 2007, Volume 41, Number 2, pages 380–86, available at: *https://pubs.acs.org/doi/10.1021/es060379a.*

[151] S. M. Roe et al. (April 2004) *Estimating Ammonia Emissions from Anthropogenic Nonagricultural Sources—Draft Final Report,* available at *https://www.epa.gov/sites/default/files/2015-08/documents/eiip_areasourcesnh3.pdf.*

[152] Alaska state regulations 18 AAC 50.075 (e)(3), (f)(2); 18 AAC 50.076 (d–e), (g), (j–l); 18 AAC 50.077(a–m); 18 AAC 50.078(b); 18 AAC 50.079(f).

initial firing of the device, when the opacity limit must be less than 50 percent. The rule also prohibits visible emissions from crossing property lines. These opacity limits provide a visual indicator for the proper operation of a solid-fuel heating device. EPA is proposing to approve this measure as BACM.

With respect to the alternative emission limit during periods of startup, shutdown, and malfunction, on June 12, 2015, pursuant to CAA section 110(k)(5), EPA finalized ''State Implementation Plans: Response to Petition for Rulemaking; Restatement and Update of EPA's SSM Policy Applicable to SIPs; Findings of Substantial Inadequacy; and SIP Calls to Amend Provisions Applying to Excess Emissions During Periods of Startup, Shutdown and Malfunction,'' hereafter referred to as the ''2015 SSM SIP Action.'' [153] The 2015 SSM SIP Action clarified, restated, and updated EPA's interpretation that SSM exemptions and affirmative defense SIP provisions are inconsistent with CAA requirements. The 2015 SSM SIP Action found that certain SIP provisions in 36 states were substantially inadequate to meet CAA requirements and issued a SIP call to those states to submit SIP revisions to address the inadequacies. EPA established an 18-month deadline by which the affected states had to submit such SIP revisions. States were required to submit corrective revisions to their SIPs in response to the SIP calls by November 22, 2016. In the 2015 SSM SIP Action, EPA recommended States consider seven criteria when developing alternative emission limitations to replace automatic or discretionary exemptions from otherwise applicable SIP requirements. These recommended criteria assure the alternative emission limitations meet basic CAA requirements.

EPA evaluated whether the alternative requirements provided under the Alaska SIP are consistent with the Agency's 2015 SSM SIP Action, including the seven criteria recommended therein. For the reasons explained in this section, EPA finds that the opacity limits are consistent with the recommended criteria set forth in that policy and proposes to approve these provisions into the Alaska SIP as part of this action.

First, the opacity limit for residential woodstoves apply to a narrow subset of source categories (solid fuel-fired heating devices) that use specific control strategies (limits on opacity). Second, application of the 20 percent opacity limit to startup (initial firing) would be technically infeasible because lower temperatures during these periods result in less complete combustion and, therefore, higher opacity. Third, for this source category, EPA believes the startup period is minimized to the greatest extent practicable. The startup period is limited to just fifteen minutes to account for starting the solid fuel-fired burning device. Fifteen minutes represents a reasonable minimum time necessary to adequately start a fire in a solid fuel burning device, while also accounting for the extreme cold temperatures experienced during the winter in Fairbanks.

With respect to the fourth factor, EPA believes that Alaska's control strategy, specifically the episodic curtailment program, would effectively prohibit the use of solid fuel burning devices when poor air quality is anticipated.

Fifth, the 50 percent opacity limit applicable during startup, the requirements for wood sellers to sell dry wood under 18 AAC 50.076, and the solid fuel-fired heating device standards applicable to the Fairbanks Nonattainment Area under 18 AAC 50.077 are designed to ensure that all feasible steps are taken to minimize the impact of emissions during the startup period. With respect to this factor, EPA again notes that the emission source at issue here is subject to curtailment requirements during periods of anticipated high $PM_{2.5}$ ambient air concentration, which would further minimize potential air quality impacts from initial firing.

Similarly, EPA believes the sixth factor—that the alternative emission limit requires operation of the facility in a manner consistent with good practices for minimizing emissions and best efforts regarding planning, design, and operating procedures—supports approval of the State's chosen control strategy. As noted, dry wood requirements and the solid fuel-fired device standards used in conjunction with emission curtailment during air quality episodes represent the best practices available in this context.

With respect to the last criterion for alternative emission limits, Alaska has not included a requirement that affected sources document startup periods using properly signed, contemporaneous logs or other evidence. Given that the rule at issue here generally applies to individual homeowners, rather than industrial sources accustomed to complying with such recordkeeping requirements, EPA believes a recordkeeping requirement would impose an unreasonable burden on both regulators implementing the rule and the regulated community, with virtually no enforcement benefit justifying the burden.

For all of these reasons, EPA proposes to approve (and incorporate by reference) Alaska's rule 18 AAC 50.075(f) as BACM because it is a permanent and enforceable measure that contributes to attainment of the 2006 $PM_{2.5}$ 24-hour NAAQS. This provision includes limits on emissions that apply during all modes of source operation and impose continuous emission controls on solid-fuel heating devices consistent with the requirements of the CAA applicable to SIP provisions. In addition, the provision supports progress toward attainment of the $PM_{2.5}$ NAAQS in the Fairbanks Nonattainment Area.

We also propose to find that the additional removal or render inoperable restrictions placed on non-certified EPA woodstoves, non-pellet outdoor hydronic heaters, coal-fired heating devices, and EPA-certified woodstoves greater than 25 years old meet BACM requirements for $PM_{2.5}$ and SO_2 emissions. These devices will need to be removed or rendered inoperable by December 31, 2024, or if a building or residence with such a device is sold prior to that date (or if a woodfired heating device is 25 years old prior to that date). These include Alaska state regulations 18 AAC 50.077 (l–m). We propose to find that the other solid-fuel burning regulations adopted by Alaska, including device registration under 18 AAC 50.077(h) and dry wood requirements for wood sellers 18 AAC 50.076 are at least as stringent as similar regulations adopted by other states and local authorities, and therefore represent BACM for $PM_{2.5}$ and SO_2 emissions for the solid-fuel burning source category. These include Alaska state regulations 18 AAC 50.076 (d–e), (g), (j–l).

Collectively, we propose to find that Alaska met the BACM requirements for the solid-fuel burning source category for $PM_{2.5}$ and SO_2 emissions. We also propose to approve Alaska's analysis that found no NH_3-specific emission controls for this source category.

ii. Residential and Commercial Fuel Oil Combustion

Based on its BACM analysis, Alaska adopted the regulation at 18 AAC 50.078(b) that imposes a limit of 1,000 parts per million sulfur (diesel #1) for residential and commercial heating. This is a switch from diesel #2 (approximately 2,000 parts per million sulfur) to diesel #1. However, as part of its BACM analysis, Alaska identified 10 states plus large municipal areas that have instituted ULSD home heating requirements and found this measure to

[153] 80 FR 33839.

be technologically feasible and economically feasible at a cost of $1,819 per ton SO_2 removed (SO_2 is a significant precursor in the Fairbanks nonattainment area). Alaska provided a number of community-based considerations were Fairbanks to undergo the switch from diesel #2 to ULSD. These considerations included potential environmental impacts caused by greater transportation requirements required to maintain an adequate ULSD supply through the winter in Fairbanks.

A state must adopt and implement an identified BACM unless the state demonstrates the BACM is either technologically or economically infeasible. Alaska identified the ULSD requirement as BACM for this source category and its own analysis indicates this requirement is feasible. While EPA acknowledges that implementing a fuel switch from #2 to ULSD may be challenging, the challenges identified by Alaska are insufficient to support an infeasibility demonstration. This is particularly so when many jurisdictions have successfully required ULSD. EPA also notes that reducing SO_2 emissions from this source category is particularly important to achieving expeditious attainment because conversions to liquid-fueled heating devices constitute the vast majority of activity in the woodstove changeout program (*see* Emissions Inventory, section III.A of this document). Thus, we propose to disapprove Alaska's determination that the less stringent control measure under 18 AAC 50.078(b) meets BACM requirements for $PM_{2.5}$ and SO_2 emissions. However, we propose to approve Alaska's analysis that found no NH_3-specific emission controls for this source category.[154]

iii. Small Commercial Area Sources

Alaska identified initial BACM requirements for small area source categories as part of the Fairbanks Serious Plan and then updated those findings as part of the Fairbanks 189(d) Plan. Below is a discussion for each of the small area sources identified in the Fairbanks nonattainment area.

Alaska adopted a control measure for coffee roasters at 18 AAC 50.078(d) that required installation of an emissions control device unless the coffee roaster can demonstrate technological or economical infeasibility. As written, the state rule purporting to implement this measure does not appear to be enforceable as a practical matter. The rule does not require use of emissions controls once installed, specify any emission limits, nor monitoring requirements with which the subject sources must comply. In addition, the rule contains a waiver provision based on the facility providing information demonstrating that the control technology is technologically or economically infeasible. This provision is not adequately specific or bounded and, thus, may bar effective enforcement (see 81 FR 58010, 58047, August 24, 2016). In addition, the State must adopt permanent and enforceable control measures for this source category even if certain sources within the source category have existing emissions controls. Therefore, EPA proposes to disapprove Alaska's determination that 18 AAC 50.078(d) satisfies BACM for coffee roasters.

Alaska required commercial charbroilers to submit information to Alaska related to the type, operation, and performance of the device as part of the Fairbanks Serious Plan.[155] Based on the information provided, Alaska then conducted an economic analysis as part of the Fairbanks 189(d) Plan that assessed the cost of installing an available control measure, catalytic oxidizers, on each of the charbroilers in the nonattainment area. The State estimated the cost of installing catalytic oxidizers at $47,786 per ton of $PM_{2.5}$ removed (adjusted to 2019 dollars). Thus, Alaska ultimately determined that BACM is economically infeasible for this source.

While we find that Alaska's economic analysis is a reasonable estimate of the cost of installing one potential emission control device, Alaska did not evaluate all available control measures. Currently available emission control devices include electrostatic precipitators (ESP), wet scrubbers, and filtration.[156] Moreover, Alaska did not explain whether there are chain-driven or underfire charbroilers in the Fairbanks Nonattainment Area, which have different considerations for emission controls.[157] Therefore we propose to disapprove Alaska's evaluation of and BACM determination for charbroilers.

Alaska identified and evaluated the prohibition of used oil burners as a potential BACM-level control measure. Alaska issued a regulation at 18 AAC 50.078(c) requiring owners and operators of used oil burners to provide certain information to assist Alaska in evaluating the feasibility of imposing the prohibition. Ultimately, Alaska did not adopt and submit any controls on used oil burners as part of the Fairbanks Serious Plan or Fairbanks 189(d) Plan.

Alaska updated the BACM analysis in the Fairbanks 189(d) Plan to address environmental impacts if used oil burning were restricted in the Fairbanks nonattainment area. According to the State, the only way to dispose of used oil in the nonattainment area is through burning and that limiting this disposal method would likely lead to dumping the used oil on land or water. While one factor the State may consider in demonstrating the technological infeasibility of a measure is environmental impacts, Alaska's evaluation is insufficient to demonstrate that prohibiting used oil burners is technologically infeasible. Notably, illegal dumping of used oil is prohibited under state and Federal laws.[158] Thus, the State and EPA have a basis for preventing or mitigating any environmental impacts that may result from prohibiting used oil burning. Requiring used oil generators to collect and ship used oil to a central disposal facility appears feasible. Since Alaska did not adequately demonstrate that that BACM for this emission source is technologically or economically infeasible, we propose to disapprove Alaska's BACM evaluation and determination for use oil burners.

Similarly, incinerators are another source subject to the information requirements under 18 AAC 50.078(c). However, after receiving information related to this source category, Alaska determined that there are no permitted sources identified as incinerators in the Fairbanks nonattainment area and thus, evaluation of emissions controls is not necessary. We propose to find that Alaska reasonably determined that there were no affected sources for this source category, so BACM does not need to be identified for this source category in the Fairbanks nonattainment area.

[154] We note that Alaska state regulations 18 AAC 50.078 (a–b) were approved as SIP strengthening in our previous action (86 FR 52997, September 24, 2021).

[155] 18 AAC 50.078(c)

[156] *See* Gysel, et al. ''Particulate matter emissions and gaseous air toxic pollutants from commercial meat cooking operations.'' *Journal of Environmental Sciences,*'' 65, 162–170; Yang, et al, ''Transient plasma-enhanced remediation of nanoscale particulate matter in restaurant smoke emissions via electrostatic precipitation'' Particuology 55 (2021): pages 43–37; New York City Department of Environmental Protection (February 2021). *Certified Emission Control Devices for Commercial Under-Fired Char Broilers.* Available at *https://www1.nyc.gov/assets/dep/downloads/pdf/air/approved-under-fired-technology.pdf;* Francis & R.E. Lipinski ''Control of Air Pollution from Restaurant Charbroilers,'' *Journal of the Air Pollution Control Association,* 27:7, pages 643–647, available at: *https://doi.org/10.1080/00022470.1977.10470466.*

[157] Yang, et al, ''Transient plasma-enhanced remediation of nanoscale particulate matter in restaurant smoke emissions via electrostatic precipitation'' Particuology 55 (2021): pages 43–37.

[158] 18 AAC 60.020; 33 U.S.C. 1321; 40 CFR 279.12.

In conclusion, we propose to approve of Alaska's BACM determination for incinerators (18 AAC 50.078(c)(2)). We propose to disapprove Alaska's BACM determination for coffee roasters, charbroilers, and used oil burners for the reasons stated in this section (18 AAC 50.078(c)(1); 18 AAC 50.078(c)(3); 18 AAC 50.078(d)).

iv. Emissions From Mobile Sources

The Fairbanks Moderate Plan and the Fairbanks Serious Plan considered several transportation control measures and other mobile source emission reduction measures, including: HOV lanes; traffic flow improvement program; non-motorized traffic zones; employer-sponsored flexible work schedules; retrofitting the diesel fleet (school buses, transit fleets); on-road vehicle I/M program; heavy-duty vehicle I/M program; State LEV program. Fairbanks has expanded the availability of plug-ins and required electrification of certain parking lots. Fairbanks has also expanded transit service and a commuter van pool program. Alaska also has an anti-idle program. We note that none of these transportation programs have been submitted for SIP approval.

Alaska stated in the Fairbanks Serious Plan and Fairbanks 189(d) Plan submissions that independent studies by NCHRP (a division of the Transportation Research Board) and ASHTO (the American Association of State Highway and Transportation Officials) have documented that while states and communities continue to adopt them, where funding is available, growing experience in lower-48 states has demonstrated emissions benefits are limited. As a result, credit for Transportation Control Measures in SIPs has diminished and additional transportation control measures would provide limited emission reduction benefits. However, this appears to argue that mobile sources are a de minimis source category, which EPA has determined is not a valid basis for dismissing a source category or related control measures from consideration.[159] Alaska did not provide a technological or economic infeasibility demonstration to reject these measures. Therefore, we propose to disapprove Alaska's rejection of available control measures for the mobile source category for $PM_{2.5}$ and SO_2 emissions. However, we propose to approve Alaska's analysis that found no NH_3-specific emission controls for this source category,

b. Summary of EPA's Evaluation of Alaska's Identification and Adoption of BACM

The BACM analysis submitted in the Fairbanks Serious Plan and updated in the Fairbanks 189(d) Plan identified and evaluated potential BACM controls for several source categories. We will discuss in the next section Alaska's approach to apply BACM findings for oil-fired heating devices (1,000 ppmw sulfur content requirement) to emission units at the GVEA Zehnder and UAF Campus Power Plant facilities. EPA proposes to approve Alaska's determination that there are no specific NH_3 emission controls for the sources or source categories in the emissions inventory discussed in this section of the document and that certain measures designed to reduce direct $PM_{2.5}$ emissions also reduce NH_3 emissions. Thus, EPA proposes to determine that Alaska has satisfied the requirement to identify, adopt and implement BACM and BACT for the sources and source categories of NH_3 discussed in this section of the document.

We propose to approve BACM for portions of the solid-fuel burning category and the small commercial area source category and propose to disapprove BACM for the other BACM emission source categories. A summary table of EPA's evaluation is provided bin Table 11. For further details of each specific control measure Alaska analyzed for BACM, see EPA's Control Measure Analysis Technical Support Document.[160]

[159] 81 FR 58010, August 24, 2016, at p. 58082.

[160] Jentgen, M. (September 27, 2022). *Technical support document for Alaska Department of Environmental Conservation's (ADEC) control measure analysis, under 40 CFR 1010(a) and (c).* U.S. Environmental Protection Agency, Region 10, Air and Radiation Division.

TABLE 11—SUMMARY OF EPA'S EVALUATION OF ALASKA'S BACM ANALYSIS

Emissions source category	EPA evaluation of specific BACM measures	State rules relevant to adopted BACM	Specific BACM measures, as identified by Alaska
Solid-fuel burning	Approve: wood-fired heating device requirements and resulting emissions.	18 AAC 50.075, except (d)(2); 18 AAC 50.077, except (g) and (q);.	BACM Measures: 1–30, 33–47, 63, 65–66, R1, R4–R7, R9–R12, R15, R16–R17, R29.
	Disapprove: Wood seller/dry wood requirements; coal-fired heating devices.	18 AAC 50.076(k); 18 AAC 50.079(f).	BACM Measures: 31–32; 48–49.
Residential and commercial fuel oil combustion.	Approve: pot burners, waste oil; fuel oil boilers.		BACM Measures: 52–53, 61–62.
	Disapprove: ULSD as heating oil	18 AAC 50.078(b)	BACM Measure: 51.
Small commercial area sources	Approve: incinerators (no sources identified).	18 AAC 50.078(c)	BACM Measures: 69.
	Disapprove: coffee roasters; charbroilers; used oil burners.	18 AAC 50.078(d)	BACM Measures: 67–68; 70.
Energy efficiency measures	Disapprove: weatherization and energy efficiency.		BACM Measure: 64.
Emissions from mobile sources	Approve: CARB standards; school bus retrofits; road paving.		BACM Measures: 54–56, 58, 59.
	Disapprove: Other transportation measures; vehicle idling.		BACM Measures: 57, 60, R20.

c. Alaska's Identification and Adoption of BACT

i. Chena Power Plant

We propose to disapprove Alaska's BACT determination for $PM_{2.5}$ and SO_2 controls for the four coal-fired boilers. For $PM_{2.5}$, Alaska noted that the source currently uses the baghouse to achieve 99.9% capture efficiency, but did not definitively determine this control was required as BACT or submit for SIP approval an enforceable requirement to operate the baghouse. Operation of the baghouse to achieve 99.9% capture efficiency is likely to be BACT for $PM_{2.5}$ for this source, but the State must revise the SIP to include an enforceable requirement to operate the baghouse to achieve this level of control before we can determine whether BACT requirements are satisfied. Therefore, EPA is proposing to disapprove Alaska's BACT determination for $PM_{2.5}$ for the four coal-fired boilers at the Chena Power Plant.

For SO_2, Alaska has not sufficiently evaluated all of the available control technologies, particularly the better performing SO_2 control technologies that EPA has emphasized in previous comments.[161] Alaska's economic infeasibility demonstrations are also insufficient. Most significantly, Alaska's cost analyses for wet flue gas desulfurization (WFGD) and spray-dry absorbers (SDA) were not based on study-level [162] vendor quotes and incorporated unsubstantiated cost variables that likely inflated the cost estimate. Alaska's affordability assessment for DSI lacks necessary information and is unreliable. EPA's complete evaluation of Alaska's cost analysis for SO_2 controls on the coal-fired boilers is included in the docket for this action.[163]

We propose to approve Alaska's analysis that found no NH_3-specific emission controls for the sources at this facility.

TABLE 12—CHENA POWER PLANT, EPA BACT EVALUATION

Chena Power Plant, Aurora Energy, LLC—EPA BACT Evaluation		
Emission source category	Alaska's BACT selection	Rationale for EPA's proposed disapproval
Coal-fired boilers (EUs 4–7).	*$PM_{2.5}$:* N/A *SO_2:* Existing emissions limit; coal content requirement.	*$PM_{2.5}$:* Operation of the baghouse to achieve 99.9% capture efficiency appears to be BACT for $PM_{2.5}$ for this source, but state has not provided an enforceable requirement to operate the baghouse to achieve this level of control. *SO_2:* Alaska's BACT determinations are not sufficient to meet BACT requirements. Additionally, the economic infeasibility demonstration is inadequate.

ii. Doyon-Fort Wainwright

We propose to disapprove Alaska's BACT determination for $PM_{2.5}$ and SO_2 controls for each of the emission sources at the CHPP. Regarding $PM_{2.5}$ controls for the coal-fired boilers and material handling equipment and $PM_{2.5}$ and SO_2 controls for the small and large emergency engines, fire pumps, and generators, and diesel-fired boilers, we find Alaska's BACT findings are

[161] *See* EPA Comments regarding site-specific quotes for high performing SO_2 control technologies, such as a wet scrubber (WFGD), spray dry absorber (SDA), and circulating dry scrubber (CDS); ''EPA Comments on 2020 DEC Proposed Regulations and SIP Amendments'' Letter from Krishna Viswanathan, Director, EPA Region 10 Air and Radiation Division to Alice Edwards, Director, ADEC Division of Air Quality, October 29, 2020; ''EPA Comments on 2019 DEC Proposed Regulations and SIP- Fairbanks North Star Borough Fine Particulate Matter'' Letter from Krishna Viswanathan, Director, EPA Region 10 Air and Radiation Division to Alice Edwards, Director, ADEC Division of Air Quality, July 19, 2019.

[162] A study-level cost estimate is one with a level of accuracy of plus or minus 30 percent. This level of accuracy is consistent with what is expected by the Agency in BACT determinations. Refer to the EPA Air Pollution Control Cost Manual, Section 1, Chapter 2, 7th Edition (November 2017) for more information.

[163] Hedgpeth and Sorrels. (August 24, 2022). *Review of Best Available Control Technology analyses submitted for the Aurora Energy, LLC Chena Power Plant as part of the Fairbanks $PM_{2.5}$ Nonattainment SIP.* U.S. Environmental Protection Agency, Region 10, Laboratory Services and Applied Science Division.

[163] 57 FR 18070, April 28, 1992.

appropriate. However, Alaska did not include the MRR requirements necessary to make these BACT requirements enforceable as a practical matter. Therefore, we are proposing to disapprove the BACM/BACT determination for these sources as not meeting the CAA requirement that the SIP include enforceable emission limitations. Alaska can rectify this issue by submitting the MRR requirements necessary (such as the requirements included in the current operating permit) to ensure the BACM/BACT requirements are enforceable as a practical matter.

We propose to disapprove Alaska's BACT evaluation and determination for SO_2 emissions controls (installing DSI) for the coal-fired boilers comprising the CHPP. The analyses we received from Alaska and DU do not establish that the best performing control technologies (technologies with better control efficiency than DSI) Alaska identified as potential controls for these emission units are technologically or economically infeasible. Alaska's initial BACT submission did not sufficiently evaluate all of the available control technologies, particularly the better performing SO_2 control technologies that EPA has emphasized in previous comments.[164] Most significantly, Alaska's cost analyses for wet flue gas desulfurization (WFGD), spray-dry absorbers (SDA) and DSI were not based on study-level vendor quotes and incorporated unsubstantiated cost variables that likely inflated the cost estimate. Subsequently, DU submitted additional information that evaluated the costs of these technologies.[165] However, the cost analysis continues to show that the best performing SO_2 control technologies are technologically or economically feasible.[166] EPA's complete evaluation of Alaska's cost analysis for SO_2 controls on the coal-fired boilers is included in the docket for this action.[167]

We propose to approve Alaska's analysis that found no NH_3-specific emission controls for the sources at this facility.

TABLE 13—FORT WAINWRIGHT, EPA BACT EVALUATION

Fort Wainwright, Doyon utilities—EPA BACT evaluation		
Emission source category	Alaska's BACT selection	Rationale for EPA's proposed disapproval
Coal-fired boilers (EUs 1–6)	*$PM_{2.5}$:* Existing full stream baghouse. *SO_2:* Install and operate DSI; coal-sulfur content requirement.	*$PM_{2.5}$:* Alaska's BACT determination is appropriate, but monitoring, recordkeeping, and reporting (MRR) requirements not provided. *SO_2:* Alaska's BACT determination is not sufficient to meet BACT requirements, other better performing control technologies than DSI are feasible and cost effective.
Diesel-fired oil boilers (27 emissions units).	*$PM_{2.5}$:* Existing emissions and operating limits. *SO_2:* ULSD fuel requirement	*$PM_{2.5}$:* Alaska's BACT determination is appropriate, but MRR requirements not provided. *SO_2:* Alaska's BACT determination is appropriate, but MRR requirements not provided.
Large diesel-fired engines, fire pumps, and generators (8 emissions units; greater than 500 horsepower).	*$PM_{2.5}$:* Existing emissions and operating limits. *SO_2:* ULSD fuel requirement	*$PM_{2.5}$:* Alaska's BACT determination is appropriate, but MRR requirements not provided. *SO_2:* Alaska's BACT determination is appropriate, but MRR requirements not provided.
Small emergency engines, fire pumps, and generators (41 emissions units).	*$PM_{2.5}$:* Existing emissions and operating limits. *SO_2:* ULSD fuel requirement	*$PM_{2.5}$:* Alaska's BACT determination is appropriate, but MRR requirements not provided. *SO_2:* Alaska's BACT determination is appropriate, but MRR requirements not provided.
Material handling sources (6 emissions units; coal prep and ash handling).	*$PM_{2.5}$:* Existing emission limits *SO_2:* n/a	*$PM_{2.5}$:* Alaska's BACT determination is appropriate, but MRR requirements not provided. *SO_2:* n/a.

iii. University of Alaska Fairbanks Campus Power Plant

We propose to disapprove Alaska's BACT determination for $PM_{2.5}$ and SO_2 controls for each of the emission sources at the Fairbanks Campus Power Plant. Regarding $PM_{2.5}$ controls for the dual fuel-fired boiler, backup diesel generator, diesel-fired boilers, and material handling sources; the $PM_{2.5}$ and SO_2 controls for the pathogenic waste incinerator; and the SO_2 controls for the diesel-fired engines, we find Alaska's BACT findings are appropriate. However, Alaska did not submit as part of the Fairbanks Serious Plan the emission limits corresponding to Alaska's SO_2 or $PM_{2.5}$ BACT findings for some emission units,[168] Alaska also did not include the MRR requirements necessary to make these BACT requirements enforceable as a practical matter. Therefore, we are proposing to disapprove Alaska's $PM_{2.5}$ BACT requirements for these sources as not meeting the CAA requirement that the SIP include enforceable emission limitations.

Alaska can rectify this issue by submitting the enforceable emission limitation and monitoring, recordkeeping, and reporting requirements necessary to ensure the BACT requirements are enforceable as a practical matter. We note that the MRR requirements for the material handling

[164] *See* EPA Comments regarding site-specific quotes for high performing SO_2 control technologies, such as a wet scrubber (WFGD), spray dry absorber (SDA), and circulating dry scrubber (CDS); ''EPA Comments on 2020 DEC Proposed Regulations and SIP Amendments'' Letter from Krishna Viswanathan, Director, EPA Region 10 Air and Radiation Division to Alice Edwards, Director, ADEC Division of Air Quality, October 29, 2020; ''EPA Comments on 2019 DEC Proposed Regulations and SIP- Fairbanks North Star Borough Fine Particulate Matter'' Letter from Krishna Viswanathan, Director, EPA Region 10 Air and Radiation Division to Alice Edwards, Director, ADEC Division of Air Quality, July 19, 2019.

[165] ''Revised Wainwright BACT SO_2 Emission Control Study,'' Doyon Utilities, August 25, 2021, included in docket for this action.

[166] *See* letter from Krishna Viswanathan, Director, Air and Radiation Division, EPA Region 10, to Shane Coiley, Senior Vice President, Doyon Utilities, LLC, and COL Nathan Surry, Commander, U.S. Army Garrison Alaska, October 26, 2021. Included in docket for this action.

[167] Hedgpeth, Z. (August 24, 2022). *Review of Best Available Control Technology* analyses submitted for Fort Wainwright-US Army Garrison Alaska (FWA) and Doyon Utilities, LLC (DU) as part of the Fairbanks $PM_{2.5}$ *Nonattainment SIP*. U.S. Environmental Protection Agency, Region 10, Laboratory Services and Applied Science Division.

[168] Fuel oil-fired simple cycle gas turbine (EUs 1 and 2); Fuel oil-fired combined cycle gas turbine (EUs 5 and 6).

unit, EU 111, should include the operational requirement that the building doors remain closed at all times that ash loading is occurring. Appropriate MRR conditions should be included to ensure no visible emissions escape the building.

We propose to disapprove Alaska's BACT evaluation and determination for SO_2 controls for the dual fuel-fired boiler. Alaska has not sufficiently evaluated all of the available SO_2 emissions control technologies, as EPA has previously commented.[169] Most significantly, Alaska's cost analyses for wet flue gas desulfurization (WFGD), spray-dry absorbers (SDA) and dry sorbent injection (DSI) were not based on study-level vendor quotes and incorporated unsubstantiated cost variables that likely inflated the cost estimates. Alaska's affordability assessment for DSI lacks necessary information and is unreliable. EPA's complete evaluation of Alaska's cost analysis of SO_2 controls for the coal-fired boilers is included in the docket for this action.[170]

Further, we propose to disapprove Alaska's BACT determination for SO_2 controls for the diesel-fired boilers. Alaska's BACT determination requiring ULSD is appropriate, but the delayed implementation and interim requirement (1000 ppmw) is not supported as BACT. We also propose to disapprove Alaska's BACT evaluation and determination for $PM_{2.5}$ controls for certain diesel-fired engines. EUs 23 and 26 lack operating limits, and a diesel particulate filter on EU 27 is cost effective. For the remaining diesel-fired engines, Alaska's BACT determination is appropriate, but MRR requirements are not submitted as part of the SIP. For additional details on EPA's evaluation of Alaska's cost analysis for $PM_{2.5}$ controls, see EPA's Technical Support Document.

We propose to approve Alaska's analysis that found no NH_3-specific emission controls for the sources at this facility.

TABLE 14—UNIVERSITY OF ALASKA FAIRBANKS CAMPUS POWER PLANT, EPA BACT EVALUATION

University of Alaska Fairbanks Campus Power Plant—EPA BACT Evaluation		
Emission source category	Alaska's BACT selection	Rationale for EPA's proposed disapproval
Dual fuel-fired boiler (Emission units 113).	*$PM_{2.5}$:* Emission limit achieved by use of existing fabric filter. *SO_2:* Existing emissions limit achieved through limestone injection and low sulfur fuel.	*$PM_{2.5}$:* Alaska's BACT determination is appropriate, but MRR requirements not provided. *SO_2:* Alaska's BACT determination is not sufficient to meet BACT requirements.
Mid-sized Diesel-fired boilers (EUs 3 and 4).	*$PM_{2.5}$:* Existing emissions and operating limits. *SO_2:* Sulfur content requirements	*$PM_{2.5}$:* Alaska's BACT determination is appropriate, but MRR requirements not provided. *SO_2:* Alaska's BACT determination requiring ULSD is appropriate, but the delayed implementation and interim requirement (1000 ppmw) is not supported as BACT.
Small-sized Diesel-fired boilers (EUs 19–21).	*$PM_{2.5}$:* Existing emissions and operating limits. *SO_2:* Sulfur content requirements	*$PM_{2.5}$:* Alaska's BACT determination is appropriate, but MRR requirements not provided. *SO_2:* Alaska's BACT determination requiring ULSD is appropriate, but the delayed implementation and interim requirement (1000 ppmw) is not supported as BACT.
Large diesel-fired engine (EU 8)	*$PM_{2.5}$:* Existing emissions and operating limits. *SO_2:* ULSD fuel requirement	*$PM_{2.5}$:* Alaska's BACT determination is appropriate, but MRR requirements not provided. *SO_2:* Alaska's BACT determination is appropriate, but MRR requirements not provided.
Small diesel-fired engines (EUs 23–24, 26–29).	*$PM_{2.5}$:* Existing emissions and operating limits. *SO_2:* ULSD fuel requirement	*$PM_{2.5}$:* Alaska's BACT determination is not sufficient in part, EUs 23 and 26 lack operating limits, and a control device at EU 27 is cost effective. Otherwise, Alaska's BACT determination is appropriate, but MRR requirements are not provided. *SO_2:* Alaska's BACT determination is appropriate, but MRR requirements not provided.
Pathogenic waste incinerator (EU 9a).	*$PM_{2.5}$:* Existing emissions and operating limits. *SO_2:* ULSD fuel requirement	*$PM_{2.5}$:* Alaska's BACT determination is appropriate, but MRR requirements not provided. *SO_2:* Alaska's BACT determination is appropriate, but MRR requirements not provided.
Material handling sources (EUs 105, 107, 109–111, 114, 128–130).	*$PM_{2.5}$:* Existing emissions and operating limits. *SO_2:* n/a	*$PM_{2.5}$:* Alaska's BACT determination is appropriate, but specific MRR requirements are required and were not provided. *SO_2:* n/a.

iv. Zehnder Facility

We propose to disapprove Alaska's BACT determination for $PM_{2.5}$ and SO_2 controls for each of the emission sources at the Zehnder facility. Regarding $PM_{2.5}$ controls for the two fuel oil-fired simple cycle gas combustion turbines, two diesel-fired generators, and two diesel fired boilers, we find Alaska's BACT finding are appropriate. However, Alaska did not include the MRR requirements necessary to make these BACT requirements enforceable as a practical matter. Therefore, we are proposing to disapprove Alaska's $PM_{2.5}$

[169] *See* EPA Comments regarding site-specific quotes for high performing SO_2 control technologies, such as a wet scrubber (WFGD), spray dry absorber (SDA), and circulating dry scrubber (CDS); ''EPA Comments on 2020 DEC Proposed Regulations and SIP Amendments'' Letter from Krishna Viswanathan, Director, EPA Region 10 Air and Radiation Division to Alice Edwards, Director, ADEC Division of Air Quality, October 29, 2020; ''EPA Comments on 2019 DEC Proposed Regulations and SIP—Fairbanks North Star Borough Fine Particulate Matter'' Letter from Krishna Viswanathan, Director, EPA Region 10 Air and Radiation Division to Alice Edwards, Director, ADEC Division of Air Quality, July 19, 2019.

[170] Hedgpeth and Sorrels. (August 24, 2022). *Review of Best Available Control Technology analyses submitted for the University of Alaska, Fairbanks as part of the Fairbanks $PM_{2.5}$ Nonattainment SIP.* U.S. Environmental Protection Agency, Region 10, Laboratory Services and Applied Science Division.

BACT requirements for these sources as not meeting the CAA requirement that the SIP include enforceable emission limitations. Alaska can rectify this issue by submitting the monitoring, recordkeeping, and reporting requirements necessary to ensure the BACT requirements are enforceable as a practical matter.

We propose to disapprove Alaska's BACT evaluation for SO_2 controls for each of the emissions units. Based on Alaska's finding that switching to ULSD is technologically and economically feasible for all area sources, Alaska did not select the best available measure to control SO_2 emissions from this facility. EPA's complete evaluation of Alaska's BACT evaluation is included in the docket for this action.[171]

We propose to approve Alaska's analysis that found no NH_3-specific emission controls for the sources at this facility.

TABLE 15—ZEHNDER FACILITY, EPA BACT EVALUATION

Zehnder facility, Golden Valley Electric Authority—EPA BACT Evaluation		
Emission source category	Alaska's BACT selection	Rationale for EPA's proposed disapproval
Fuel oil-fired simple cycle gas turbine (EUs 1 and 2).	*$PM_{2.5}$:* Existing emissions limit ..... *SO_2:* 1000 ppmw fuel sulfur requirement, by September 1, 2022.	*$PM_{2.5}$:* Alaska's BACT determination is appropriate, but MRR requirements not provided. *SO_2:* Alaska's BACT determination is not sufficient to meet BACT requirements. Alaska initially identified ULSD (15 ppmw sulfur) fuel as BACT.
Diesel-fired emergency generators (EUs 3 and 4).	*$PM_{2.5}$:* Existing emissions and operating limits. *SO_2:* 1,000 ppmw fuel sulfur requirement, by September 1, 2022.	*$PM_{2.5}$:* Alaska's BACT determination is appropriate, but MRR requirements not provided. *SO_2:* Alaska's BACT determination is not sufficient to meet BACT requirements. Alaska initially identified ULSD (15 ppmw sulfur) fuel as BACT.
Diesel-fired boilers (EUs 10 and 11)	*$PM_{2.5}$:* Existing emissions limit ..... *SO_2:* 10,00 ppmw fuel sulfur requirement, by September 1, 2022.	*$PM_{2.5}$:* Alaska's BACT determination is appropriate, but MRR requirements not provided. *SO_2:* Alaska's BACT determination is not sufficient to meet BACT requirements. Alaska initially identified ULSD (15 ppmw sulfur) fuel as BACT.

v. North Pole Power Plant

We propose to disapprove Alaska's BACT determination for $PM_{2.5}$ and SO_2 controls for each of the emission sources at the North Pole Power Plant. Regarding $PM_{2.5}$ controls for the two fuel oil-fired simple cycle gas combustion turbines, two fuel oil-fired combined cycle gas combustion turbines, and large diesel-fired engine and $PM_{2.5}$ and SO_2 controls for the two propane-fired boilers, we find Alaska's BACT findings are appropriate. However, Alaska did not submit as part of the Fairbanks Serious Plan the emission limits corresponding to Alaska's SO_2 or $PM_{2.5}$ BACT findings for some emission units.[172] Alaska also did not submit the MRR requirements needed for determining compliance with all BACT limits or requirements and to make the limits or requirements enforceable as a practical matter. Therefore, we are proposing to disapprove Alaska's $PM_{2.5}$ BACT requirements for these sources as not meeting the CAA requirement that the SIP include enforceable emission limitations. Alaska can rectify this issue by submitting the emission limits and monitoring, recordkeeping, and reporting requirements necessary to ensure the BACT requirements are enforceable as a practical matter.

We propose to disapprove Alaska's BACT evaluation for SO_2 controls for the simple cycle gas turbines. Alaska determined that switching to ULSD is technologically and economically feasible for the simple cycle turbines. Alaska did not adequately justify delaying this requirement to October 1, 2023. Nor did Alaska demonstrate that year-round operation was infeasible. Additionally, Alaska did not sufficiently demonstrate how the intermediate measure, limiting sulfur content to 1,000 ppm from October 1, 2020, to October 1, 2023, only during Air Quality Stage Alert 1 and 2 (solid-fuel device curtailment is in effect), is enforceable as a practical matter. EPA's complete evaluation of Alaska's BACT determination is included in the docket.[173]

Further, for SO_2 controls for the combined-cycle turbines, we propose to find that Alaska's BACT determination is appropriate, but Alaska needs to specify in the BACT determination that only ULSD may be used during startup. Alaska can rectify this issue by clarifying this portion of the BACT requirement. For SO_2 controls for the large diesel-fired engine, Alaska lacks the technical justification for not adopting ULSD as BACT. For additional details, see EPA's Technical Support Document.[174]

We propose to approve Alaska's analysis that found no NH_3-specific emission controls for the sources at this facility.

[171] Hedgpeth, Z. (August 24, 2022). *Review of Best Available Control Technology analyses submitted for the Golden Valley Electric Association (GVEA) Zehnder and North Pole Power Plants as part of the Fairbanks $PM_{2.5}$ Nonattainment SIP.* U.S. Environmental Protection Agency, Region 10, Laboratory Services and Applied Science Division.

[172] Fuel oil-fired simple cycle gas turbine (EUs 1 and 2); Fuel oil-fired combined cycle gas turbine (EUs 5 and 6).

[173] Hedgpeth, Z. (August 24, 2022). *Review of Best Available Control Technology analyses submitted for the Golden Valley Electric Association (GVEA) Zehnder and North Pole Power Plants as part of the Fairbanks $PM_{2.5}$ Nonattainment SIP.* U.S. Environmental Protection Agency, Region 10, Laboratory Services and Applied Science Division

[174] Hedgpeth, Z. (August 24, 2022). *Review of Best Available Control Technology analyses submitted for the Golden Valley Electric Association (GVEA) Zehnder and North Pole Power Plants as part of the Fairbanks $PM_{2.5}$ Nonattainment SIP.* U.S. Environmental Protection Agency, Region 10, Laboratory Services and Applied Science Division

TABLE 16—NORTH POLE POWER PLANT, EPA BACT EVALUATION

North Pole Power Plant, Golden Valley Electric Authority—EPA BACT Evaluation		
Emission source category	Alaska's BACT selection	Rationale for EPA's proposed disapproval
Fuel oil-fired simple cycle gas turbine (EUs 1 and 2).	*$PM_{2.5}$:* Existing emission limit, use of low ash fuel, limited operation, and good combustion practices. *SO_2:* Sulfur content requirements	*$PM_{2.5}$:* Alaska's BACT determination is appropriate, but MRR requirements not provided. *SO_2:* Alaska's BACT determination requiring ULSD is appropriate, but the delayed implementation and interim requirement (1000 ppmw) is not supported as BACT.
Fuel oil-fired combined cycle gas turbine (EUs 5 and 6).	*$PM_{2.5}$:* Existing emissions limit ..... *SO_2:* Sulfur content requirement—50 ppmw sulfur fuel limit (i.e., "light straight run fuel").	*$PM_{2.5}$:* Alaska's BACT determination is appropriate, but MRR requirements not provided. *SO_2:* Alaska's BACT determination is appropriate but need to specify in the BACT determination that only ULSD may be used during startup.
Large diesel-fired engine (EU 7)	*$PM_{2.5}$:* Good combustion practices, positive crankcase ventilation, and limited operation. *SO_2:* Use of fuel that does not exceed 0.05% sulfur by weight.	*$PM_{2.5}$:* Alaska's BACT determination is appropriate, but MRR requirements not provided. *SO_2:* Alaska's BACT determination is not sufficient to meet BACT requirements. ULSD not adopted, lacks technical justification for rejection of measure.
Propane-fired boiler (EUs 11 and 12).	*$PM_{2.5}$:* Existing emissions limits .... *SO_2:* Use of propane fuel	*$PM_{2.5}$:* Alaska's BACT determination is appropriate, but MRR requirements not provided. *SO_2:* Alaska's BACT determination is appropriate, but MRR requirements not provided.

d. Alaska's Identification and Adoption of Additional Measures and Demonstration of 5% Reduction in Emissions Pursuant to CAA Section 189(d)

The Fairbanks 189(d) Plan included a reevaluation of previously rejected control measures. First, Alaska added a burn down period of 3 hours for solid-fuel heating devices that begins upon the effective date and time of a curtailment announcement. Second, Alaska added specific requirements to document economic hardship as part of a NOASH curtailment program waiver for solid-fuel devices.

As part of its reevaluation of control measures, Alaska provided additional information for a number of control measures considered in the BACM analysis. The Fairbanks 189(d) Plan included additional consideration of banning installation of solid-fuel devices in new construction, limiting heating oil to ultra-low sulfur diesel, dry wood requirements, emissions controls for small area sources, mobile sources, and most stringent measures.[175] However, Alaska did not reevaluate BACT-level controls for stationary sources. Specifically, there were a number of SO_2 control technologies that were evaluated and dismissed under the Fairbanks Serious Plan that were not reconsidered in the Fairbanks 189(d) Plan. Therefore, we propose to find that Alaska has not sufficiently met the requirement under CAA section 189(d) to reevaluate additional measures that could lead to expeditious attainment.

[175] State Air Quality Control Plan, Vol II, Chapter III.D.7.7.12.

Regarding the requirement to demonstrate five percent annual reductions, Alaska included in the Fairbanks 189(d) Plan a control strategy analysis that demonstrates annual reductions of $PM_{2.5}$ are greater than five percent through 2024, Alaska's projected attainment year. However, CAA section 189(d) and 40 CFR 51.1010(c)(4) and (5) require that the control strategy contain not just measures required to achieve five percent annual reductions, but all required BACM and additional measures that collectively achieve attainment as expeditiously as practicable.

As discussed in Section III.D.3 of this document, Alaska did not adopt and implement all available and required control measures as part of the control strategy for either the Fairbanks Serious Plan or Fairbanks 189(d) Plan. Therefore, Alaska did not necessarily adopt and implement all control measures that collectively achieve attainment as expeditiously as possible. Thus, EPA is proposing to disapprove the control strategy included in the Fairbanks 189(d) Plan as not meeting the full requirements of CAA section 189(d) and 40 CFR 51.1010(c).

D. Attainment Demonstration and Modeling

1. Statutory and Regulatory Requirements

Pursuant to CAA sections 188(c) and 189(b) and 40 CFR 51.1003(b) and 51.1011(b), for nonattainment areas reclassified as Serious, the state must submit an attainment demonstration as part of the Serious Plan that meets the requirements of 40 CFR 51.1011. Similarly, pursuant to 40 CFR 51.1003(c), for Serious areas subject to CAA section 189(d) for failing to attain by the Serious area attainment date, the state must submit an attainment demonstration as part of the 189(d) plan that meets the requirements of 40 CFR 51.1011. On September 2, 2020, EPA determined that the Fairbanks Nonattainment Area failed to attain the 2006 24-hour $PM_{2.5}$ NAAQS by the December 31, 2019, Serious area attainment date. Therefore, EPA is proposing to evaluate any previously unmet Serious area planning obligations based on the current, applicable attainment date appropriate under CAA section 189(d) and not the original Serious area attainment date.[176] In accordance with 40 CFR 51.1011, the attainment demonstration must meet four requirements:

1. Identify the projected attainment date for the Serious nonattainment area that is as expeditious as practicable;

2. Meet the requirements of 40 CFR part 51, appendix W and include inventory data, modeling results, and emission reduction analyses on which the state has based its projected attainment date;

3. The base year for the emissions inventories shall be one of the 3 years

[176] The term "applicable attainment date" is defined at 40 CFR 51.1000 to mean: "the latest statutory date by which an area is required to attain a particular $PM_{2.5}$ NAAQS, unless EPA has approved an attainment plan for the area to attain such NAAQS, in which case the applicable attainment date is the date approved under such attainment plan. If EPA grants an extension of an approved attainment date, then the applicable attainment date for the area shall be the extended date."

used for designations or another technically appropriate inventory year if justified by the state in the plan submission; and

4. The control strategies modeled as part of a Serious area attainment demonstration shall be consistent with the control strategies required pursuant to 40 CFR 51.1003 and 51.1010 (including the specific requirements in 40 CFR 51.1010(c) for Serious areas that fail to attain.

Further, in accordance with 40 CFR 51.1011(b)(5), the attainment plan must provide for implementation of all control measures needed for attainment as expeditiously as practicable. Additionally, all control measures must be implemented no later than the beginning of the year containing the applicable attainment date, notwithstanding BACM implementation deadline requirements in 40 CFR 51.1010.[177]

2. Summary of State's Submission

The State included an attainment demonstration in the Fairbanks Serious Plan, submitted on December 13, 2019.[178] EPA did not take action on the attainment demonstration submitted as part of the Fairbanks Serious Plan. Alaska subsequently withdrew and resubmitted a new attainment demonstration (State Air Quality Plan, Volume II, Chapter III.D.7.9), as part of its Fairbanks 189(d) Plan submission. Alaska also updated its modeling chapter to include State Air Quality Control Plan, Vol. II, Chapter III.D.7.8.14, as part of the Fairbanks 189(d) Plan.

Alaska's attainment demonstration in the Fairbanks 189(d) Plan projects attainment by December 31, 2024. Alaska evaluated the most expeditious attainment date and demonstrated that the earliest the controlling monitor for the nonattainment area at Hurst Road can model attainment of the NAAQS is 2024. Accordingly, Alaska identified December 31, 2024, as the most expeditious attainment date forecasted for the Fairbanks $PM_{2.5}$ nonattainment area, based on currently available data.[179]

Alaska used the modeling platform (*e.g.,* model versions, modeling domain, inputs, parameterizations, initial and boundary conditions) and meteorological episodes previously used for the Fairbanks Moderate Plan and the Fairbanks Serious Plan. For a detailed summary of Alaska's attainment demonstration, see EPA's Fairbanks Modeling Technical Support Document in the docket for this action.[180]

Alaska selected 2019 as the base year for modeling purposes. In consultation with EPA, Alaska decided to use a four-year (2016–2019) time period in the Fairbanks 189(d) Plan to establish the base year value rather than five years. This is because $PM_{2.5}$ levels decreased from 111 μg/m³ in 2015 to a range of 52.8 μg/m³ and 75.5 μg/m³ between 2016–2019. Design values were updated for each of the $PM_{2.5}$ monitor locations in the Fairbanks $PM_{2.5}$ Nonattainment Area (see Table 1 in this document). The new modeling value at the Hurst Road monitor is 64.7 μg/m³, the monitoring site located in the area of maximum concentration.[181] The State could not calculate a base year design value for A Street because measurements began at that site in 2019. Future SIP modeling will include the A Street monitor, which is considered to be a location of maximum $PM_{2.5}$ in Fairbanks.

Finally, Alaska modeled the control strategies included in the Fairbanks 189(d) Plan.[182] By 2024, Alaska anticipates emissions reductions of 2.11 $PM_{2.5}$ tons per episodic day and 5.18 SO_2 tons per episodic day, resulting from implementation of these control measures.

3. EPA's Evaluation and Proposed Action

EPA proposes to find that Alaska's attainment demonstration does not fully meet CAA requirements. As part of the attainment demonstration, the state must identify the projected attainment date that is as expeditious as possible. As discussed in Section III.D.3 of this document, Alaska did not adopt and implement all available control measures. Correct identification of the most expeditious attainment date requires an evaluation based upon expeditious implementation of the required emission controls. Therefore, EPA cannot assess whether Alaska identified the expeditious attainment date for modeling purposes.

The modeling platform the State used for the Fairbanks 189(d) Plan is outdated and does not reflect the current state of scientific knowledge about meteorological and photochemical processes contributing to $PM_{2.5}$ formation. Additionally, there is no quantitative performance evaluation for the North Pole (Hurst Road) monitor because there were not sufficient speciated $PM_{2.5}$ data for the time period of the model performance evaluation. The modeling is based on 2008 meteorological episodes that have not been updated or replaced since development of the Moderate Area SIP.

Therefore, EPA proposes to find that the attainment demonstration in the Fairbanks 189(d) Plan does not meet the requirements of 40 CFR 51.1011(b)(2). For additional details of EPA's evaluation, see the Technical Support Document included in the docket for this action.[183] We note that Alaska is currently engaged in a multi-year effort to develop a new Fairbanks modeling platform, as outlined in State Air Quality Control Plan, Appendix III.D.7.8 of the Fairbanks 189(d) Plan. EPA will continue to support Alaska's modeling efforts and will review updated modeling and attainment analysis when submitted by the State.

EPA approves of the design value Alaska calculated for modeling purposes. For base year modeling purposes, the 64.7 μg/m³ four year average value is appropriate as measured between 2016–2019 at the Hurst Road monitor in the North Pole portion of the Fairbanks Nonattainment Area. The base year emissions inventory Alaska used for its attainment demonstration in the 189(d) Plan represented one of the three years that EPA used to determine that the area failed to attain by the Serious area attainment date. This base year is consistent with the requirements of 40 CFR 51.1011(b)(3).

Finally, EPA is proposing to partially disapprove Alaska's control strategy as not meeting the requirements of CAA section 189(b) and 40 CFR 51.1010. EPA's basis for this proposed disapproval is discussed in detail in Section III.D.3 of this document. Accordingly, the control strategies modeled as part of Alaska's attainment

[177] 40 CFR 51.1011(b)(5).

[178] State Air Quality Plan, Volume II, Chapter III.D.7.9 (version November 19, 2019). See section II.A in this document 58 for a discussion of Alaska's attainment demonstration submitted as part of the Fairbanks Serious Area Plan.

[179] State Air Quality Plan, Volume II, Chapter III.D.7.9.3.

[180] Briggs and Kotchenruther. (August 24, 2022). *Review of Fairbanks Nonattainment Area Modeling in the 2020 State Implementation Plan Submission.* U.S. Environmental Protection Agency, Region 10, Laboratory Services and Applied Science Division.

[181] The official 2017–2019 design value at the Hurst Road site is 69 μg/m³. The 64.7 μg/m³ value reflects the 2017–2019 design value excluding days in 2019 influenced by wildfires. A justification for the adjusted base year for modeling purposes is included in the docket for this action, *see* Alaska Department of Environmental Conservation. (April 14, 2021). *Exceptional Events Waiver Request, For Exceptional $PM_{2.5}$ Events Between May 26, and July 26, 2019, in the Fairbanks North Star Borough, Alaska.* Alaska Department of Environmental Conservation, Air Quality Division.

[182] State Air Quality Plan, Volume II, Chapter III.D.7.9, Table 7.9–5.

[183] Briggs and Kotchenruther. (August 24, 2022). *Review of Fairbanks Nonattainment Area Modeling in the 2020 State Implementation Plan Submission.* U.S. Environmental Protection Agency, Region 10, Laboratory Services and Applied Science Division.

demonstration are not consistent with the control strategies required pursuant to 40 CFR 51.1003 and 40 CFR 51.1010. For these reasons, EPA proposes to disapprove the modeling attainment requirements in the Fairbanks 189(d) Plan.

E. Reasonable Further Progress

1. Statutory and Regulatory Requirements

Pursuant to CAA section 172(c) and 40 CFR 51.1012 for the Fairbanks Serious Plan and Fairbanks 189(d) Plan, each attainment plan for a $PM_{2.5}$ nonattainment area shall include Reasonable Further Progress (RFP) provisions that demonstrate that control measures in the area will achieve such annual incremental reductions in emissions of direct $PM_{2.5}$ and $PM_{2.5}$ plan precursors as are necessary to ensure attainment of the applicable $PM_{2.5}$ NAAQS as expeditiously as practicable. As discussed in section I of this document, on September 2, 2020, EPA determined that the Fairbanks $PM_{2.5}$ Nonattainment Area failed to attain the 2006 24-hour $PM_{2.5}$ NAAQS by the applicable December 31, 2019, Serious area attainment date. Therefore, EPA is proposing to evaluate any previously unmet Serious area planning obligations, including RFP and quantitative milestone requirements, based on the current, applicable attainment date appropriate under CAA section 189(d) and not the original Serious area attainment date. In accordance with 40 CFR 51.1012, the RFP plan shall include all of the following:

a. A schedule describing the implementation of control measures during each year of the applicable attainment plan. Control measures for Moderate area attainment plans are required in 40 CFR 51.1009, and control measures for Serious area attainment plans are required in 40 CFR 51.1010.

b. RFP projected emissions for direct $PM_{2.5}$ and all $PM_{2.5}$ plan precursors for each applicable milestone year, based on the anticipated implementation schedule for control measures required by 40 CFR 51.1009 and 51.1010. For purposes of establishing motor vehicle emissions budgets for transportation conformity purposes (as required in 40 CFR part 93, subpart A) for a $PM_{2.5}$ nonattainment area, the state shall include in its RFP submission an inventory of on-road mobile source emissions in the nonattainment area for each milestone year.[184]

c. An analysis that presents the schedule of control measures and estimated emissions changes to be achieved by each milestone year, and that demonstrates that the control strategy will achieve reasonable progress toward attainment between the applicable base year and the attainment year. The analysis shall rely on information from the base year inventory for the nonattainment area required in 40 CFR 51.1008(a)(1) and the attainment projected inventory for the nonattainment area required in 40 CFR 51.1008(a)(2), in addition to the RFP projected emissions required in 40 CFR 51.1012(a)(2).

d. An analysis that demonstrates that by the end of the calendar year for each milestone date for the area determined in accordance with 40 CFR 51.1013(a), pollutant emissions will be at levels that reflect either generally linear progress or stepwise progress in reducing emissions on an annual basis between the base year and the attainment year. A demonstration of stepwise progress must be accompanied by appropriate justification for the selected implementation schedule.

2. Summary of State's Submission

Alaska included its RFP analysis in State Air Quality Plan, Vol II, III.D.7.10. Initially Alaska submitted an RFP plan in the Fairbanks Serious Plan based on the projected attainment year of 2029. Alaska withdrew and replaced the RFP plan in the Fairbanks 189(d) plan based on the revised 2024 attainment projection.

Regarding the RFP requirements, Alaska included an implementation schedule for each control measure for each source category, see State Air Quality Plan, Vol II, Chapter III.D.7.10, Table 7.10–4. The table presents a start year and the phase-in percentage for each milestone year. Alaska included projected emissions for direct $PM_{2.5}$ and all $PM_{2.5}$ plan precursors for each applicable milestone year.[185] Alaska included an analysis that presents the schedule of control measures (Table 7.10–4) and estimated emissions changes to be achieved by each milestone year (Table 7.10–5), and that demonstrates that the control strategy will achieve reasonable progress toward attainment between the applicable base year and the attainment year. Alaska noted that direct $PM_{2.5}$ emission reductions achieved within each milestone year are projected to meet or exceed linear progress toward estimated attainment by 2024 (and through 2026). Meanwhile, progress toward attainment for SO_2 is expected to be non-linear. According to Alaska, this non-linearity in control measure reductions for SO_2 is due to two causes. First, most of the measures designed to reduce direct $PM_{2.5}$ through removal, curtailment or replacement of solid-fuel devices trigger a shift in heating energy to higher SO_2 emitting heating oil. Second, decreases in SO_2 emissions offsetting these increases are the result of the shift from diesel #2 to diesel #1 fuel oil for space heating by 2023, and point source SO_2 BACT controls that phase in from 2021–2024. Thus, control measure emission reductions for SO_2 exhibit stepwise rather than linear progress. NH_3 reductions meet linearly-established targets in the base year and 2024 attainment year, but to population growth, linear progress is not met in 2023 and 2026 for NH_3. We note that Alaska is not taking credit for NH_3 emission reductions co-benefits resulting from the implementation of control measures for $PM_{2.5}$ and SO_2 emissions.

3. EPA's Evaluation and Proposed Action

Alaska withdrew and replaced the State Air Quality Control Plan, Chapter III.D.7.10, as part of submission of the Fairbanks 189(d) Plan. The RFP provisions included in the Fairbanks 189(d) plan are based on Alaska's proposed control strategy designed to meet the requirements of CAA sections 189(b) and 189(d), and 40 CFR 51.1010(a) and (c), based on a projected attainment date of 2024. Therefore, the approvability of the plan with respect to RFP requirements is dependent, in part, on the approvability of the control strategy and attainment demonstration. Specifically, to meet the RFP requirement, the State must include a schedule describing the implementation of control measures required by 40 CFR 51.1010.[186] Moreover, the RFP projected emissions for each milestone year must be based on the anticipated implementation schedule for control measures required by 40 CFR 51.1010.[187] Thus, if the control strategy does not include all required control measures, then the RFP provisions will necessarily be deficient.

Similarly, the purpose of the RFP requirement is to demonstrate that the attainment plan will achieve annual incremental reductions in emissions between the base year and the attainment date that is as expeditious as

[184] For an evaluation of motor vehicle emission budgets, see section III.H of this document.

[185] State Air Quality Control Plan, Vol. III, Appendix III.D.7.10 (corresponding Excel spreadsheets).

[186] 40 CFR 51.1012(a)(1).

[187] 40 CFR 51.1012(a)(2).

practicable.[188] Accordingly, if the attainment year does not reflect the most expeditious year practicable, then the State's evaluation of RFP will not accurately project progress towards the most expeditious attainment year. As discussed in sections III.C and III.D. of this document, EPA is proposing to disapprove Alaska's attainment demonstration and to partially disapprove Alaska's control strategy. Therefore, the RFP provisions in the Fairbanks 189(d) Plan are, by extension, deficient. Therefore, EPA is proposing to disapprove the Fairbanks 189(d) Plan with respect to RFP requirements.

F. Quantitative Milestones

1. Statutory and Regulatory Requirements

In accordance with CAA section 189(c)(1) and 40 CFR 51.1013, the state must submit in each attainment plan for a $PM_{2.5}$ nonattainment area specific quantitative milestones that provide for objective evaluation of RFP toward timely attainment of the applicable $PM_{2.5}$ NAAQS in the area.

For an attainment plan submission for a Serious area subject to the requirements of CAA section 189(d) and 40 CFR 51.1003(c), each plan shall contain quantitative milestones (QM) that provide for objective evaluation of reasonable further progress toward timely attainment of the applicable $PM_{2.5}$ NAAQS in the area. At a minimum, each plan for an area subject to CAA section 189(d) must include QMs for tracking progress achieved in implementing the SIP control measures by each milestone date.

Regarding the specific timeframe for the Fairbanks $PM_{2.5}$ Nonattainment Area, per 40 CFR 51.1013(a)(4), each attainment plan submission for an area designated nonattainment for the 1997 and/or 2006 $PM_{2.5}$ NAAQS before January 15, 2015, shall contain quantitative milestones to be achieved no later than 3 years after December 31, 2014, and every 3 years thereafter until the milestone date that falls within 3 years after the applicable attainment date.

2. Summary of State's Submission

Similar to the RFP requirement discussed in section III.E of this document, Alaska revised submitted updated QM provisions as part of the Fairbanks 189(d) Plan. The Fairbanks 189(d) Plan, projecting attainment by 2024, contained a QM for each control measure to be achieved every three years until attainment is achieved (and three years thereafter), State Air Quality Plan, Vol II, III.D.7.10, Table 7.10–4. The State created milestones for the woodstove changeout program to measure progress for that program by the number of changeouts expected for each milestone year. The State created milestones for other control measures to evaluate progress for those measures based on an expected percentage of combined penetration or the expected compliance rate. For the woodstove curtailment program, the State estimated the compliance rate to achieve 30 percent by 2020; 45 percent by 2023; and 50 percent by 2026. Notably, a number of control measures are not fully phased-in by the attainment date. These measures include the woodstove curtailment program, commercial dry wood requirements, removal of coal devices requirements, and the revised NOASH/exemption requirements.

3. EPA's Evaluation and Proposed Action

Similar to the RFP requirements, Alaska withdrew and resubmitted State Air Quality Control Plan, Vol II, Chapter III.D.7.10 as part of submission of the Fairbanks 189(d) Plan. The QMs are based on Alaska's proposed control strategy and attainment date of 2024. Therefore, the approvability of the QMs is dependent, in part, on the approvability of the control strategy and modeled attainment demonstration. Specifically, if the control strategy does not include all required control measures, then the QMs will necessarily be deficient. Alaska will need to submit a new attainment demonstration with new projected attainment date, and by extension, reevaluate whether the QMs for each milestone year are appropriate. Here, the control strategy does not contain all required control measures. Therefore, the QMs are, by extension, deficient and EPA is proposing to disapprove the State Air Quality Control Plan, Vol II, Chapter III.D.7.10, with respect to QMs.

G. Contingency Measures

1. Statutory and Regulatory Requirements

In accordance with CAA section 172(c)(9) and 40 CFR 51.1014, contingency measures are additional control measures to be implemented following a determination by EPA that a state or area has failed: (1) to meet RFP requirements, (2) to meet any quantitative milestone, (3) to submit a quantitative milestone report, or (4) to attain the $PM_{2.5}$ standard by the applicable attainment date.[189] In accordance with CAA section 172(c)(9) and 40 CFR 51.1014, a Serious area attainment plan and a 189(d) plan must include continency measure provisions that meet the following requirements:

a. Each contingency measure shall take effect with minimal further action by the state or EPA following a determination by EPA that any of the triggering events occurs.

b. Contingency measures shall consist of control measures that are not otherwise included in the control strategy or that achieve emissions reductions not otherwise relied upon in the control strategy.

c. Each contingency measure shall specify the timeframe within which its requirements become effective following an applicable determination by EPA.

d. The attainment plan submission shall contain a description of the specific trigger mechanisms for the contingency measure and specify a schedule for implementation.

In addition to the regulatory requirements listed in this section, longstanding EPA guidance indicates that contingency measures should result in emission reductions approximately equivalent to one year's worth of emissions reductions necessary to achieve RFP for the area. By extension, given this linkage between contingency measures and RFP, the contingency measures ought to achieve emissions reductions of both direct $PM_{2.5}$ and $PM_{2.5}$ plan precursors. In the rare event that an area is unable to identify contingency measures to account for approximately 1 year's worth of emissions reductions, the state should provide a reasoned justification why the smaller amount of emissions reductions is appropriate.[190]

A state can rely on contingency measures that achieve emissions reductions on sources located outside the nonattainment area, but within the state provided that the measures on sources outside the designated nonattainment area are demonstrated to produce the appropriate air quality impact within the nonattainment area. The state cannot rely on already implemented Federal, state, or local measures to satisfy the contingency measure requirement.[191] To be approvable, contingency measures have to be both conditional and prospective such that emissions reductions will occur after a triggering event, such as

[188] 40 CFR 51.1012(a).

[189] 81 FR 58010, August 24, 2016, at pp. 58092–58093.

[190] *Id.* at 58067 and 58093.

[191] *Bahr* v. *EPA,* 836 F.3d 1218, at pp. 1235–36 (9th Cir. 2016).

EPA's determination that the area failed to attain by the applicable attainment date. Furthermore, if the contingency measures themselves do not provide for emissions reductions equal to one-year's worth of RFP, the deficiency cannot be made up through additional emissions reductions projected due to already implemented measures even if the state has not relied upon those emission reductions for the purpose of meeting the RFP or attainment demonstration requirements.[192]

With regard to the timing for implementing contingency measures, EPA reiterates that the purpose of contingency measures is to ensure that corrective measures are put in place automatically at the time that EPA makes a determination that an area has failed to meet RFP, failed to meet any quantitative milestone, failed to submit a quantitative milestone report or failed to meet the NAAQS by the applicable attainment date. These measures are intended to provide additional emission reductions during the period that the state and EPA take necessary action to cure the deficiency through subsequent SIP submissions. For any nonattainment area, EPA is required to determine within 90 days after receiving a state's QM Report, and within 6 months after the attainment date for an area, whether the state has met its statutory obligations for demonstrating RFP or attaining the standard, as appropriate. EPA expects that contingency measures should become effective within 60 days of EPA making its determination with respect to any of the four triggers for such measures.

2. Summary of State's Submission

As a threshold matter, Alaska submitted a revision to state regulations at 18 AAC 50.030(c) such that all contingency measures included in nonattainment area plans are triggered based on the effective date of an EPA finding that a particular nonattainment area failed: (i) to attain the applicable NAAQS by the applicable attainment date; (ii) to meet a quantitative milestone; (iii) to submit a required quantitative milestone report; or (iv) to meet a reasonable further progress requirement.

In addition, Alaska included in the Fairbanks Serious Plan a new rule section 18 AAC 50.077(n) as part of the new wood-fired heating device regulations, that created two contingency measures. When initially adopted the measures were designed to be triggered upon any of the determinations listed in 40 CFR 51.1014(a). The first measure requires owners of older EPA-certified wood fired heating devices with an emission rating above 2.0 grams per hour (g/hr), manufactured at least 25 years prior to the effective date of an EPA finding that triggers this measure, to remove the device upon the sale of a property or by December 31, 2024, whichever is earlier. The second measure requires owners of EPA-certified devices that were manufactured less than 25 years prior to EPA finding to remove the device prior to reaching 25 years from the date of manufacture. Control measures targeting the older EPA certified devices will provide additional emission reduction benefits beyond Alaska's current home heating control measures. On September 24, 2021, EPA approved these two measures as SIP strengthening (86 FR 52997), but EPA did not determine whether these measures met contingency measure requirements.

The Fairbanks 189(d) Plan included an additional contingency measure, as a revision to State Air Quality Control Plan, Vol II, Chapter III.D.7.12 (Fairbanks Emergency Episode Plan) that, if triggered, lowers the air quality woodstove curtailment Stage 2 threshold from 30 μg/m^3 to 25 μg/m^3. The approach the State used to calculate emission benefits that would result from the lower curtailment threshold was consistent with the approach it used to estimate emission benefits resulting from reductions of the curtailment program thresholds for Stage 1 from 25 μg/m^3 to 20 μg/m^3 and Stage 2 from 35 μg/m^3 to 30 μg/m^3, respectively. The State estimated this amount of emission reductions based on a weighting of the 35 modeling episode days under which either Stage 1, Stage 2, or no alert restrictions would have occurred based on measured $PM_{2.5}$ concentrations for each episode day.

In the Fairbanks 189(d) Plan submission, Alaska estimated that the combined $PM_{2.5}$ emission benefits will be minimal if the measures are triggered prior to 2024 but then will be 0.08 tons per day by 2024. Based on data presented earlier in the Fairbanks 189(d) Plan, Table 7.10–5, the State reasoned that one year of RFP for the area under the Plan would be 0.24 tons per day of $PM_{2.5}$ emission reductions. In addition, the State provided information related to additional emission reductions based on funding anticipated under the 2019–2020 Targeted Airshed Grant program (for which benefits were not included in the attainment and RFP analysis). We again note here that the State cannot rely on already implemented Federal, state, or local measures to satisfy the contingency measure requirement.[193] Nonetheless, Alaska estimated an additional 0.66 tons per day of incremental $PM_{2.5}$ reductions would result from Wood Stove Change Out Program expansion and Curtailment Program enhancements by 2024. Summing these benefits yields a total of 0.86 tons per day of direct $PM_{2.5}$ emission reductions. After accounting for measure benefits overlap, the State calculated that combined reductions of 0.53 tons per day of $PM_{2.5}$ reductions could result from the contingency measures and other additional measures, and this amount would be more than one year of RFP (0.24 tons per day of $PM_{2.5}$). As shown in the bottom row if Table 7.10–7, these excess reductions above the one-year advancement target were estimated to be 0.29 tons per day.

Moreover, the State's modeled attainment demonstration projected attainment in 2024, and included the finding that the modeled 2024 design value at the controlling monitor within the nonattainment area would be 31 μg/m^3, leaving a margin between this modeled value and the 2006 24–hour $PM_{2.5}$ NAAQS of 35 μg/m^3. According to Alaska, this projected margin, combined with the surplus emission benefits from the additional woodstove changeout and curtailment measures discussed in section III.C of this document, would provide the emission reductions more than the equivalent of one year's worth of RFP in the nonattainment area.

3. EPA's Evaluation and Proposed Action

EPA has reviewed the State's contingency measures included in the Fairbanks Serious Plan and Fairbanks 189(d) Plan. Regarding Alaska's revisions to 18 AAC 50.030(c) to incorporate central triggering mechanisms for contingency measures, we propose to find that this regulation is consistent with 40 CFR 51.1014(a). The regulation mirrors the triggering events in 40 CFR 51.1014(a). An evaluation of the specific contingency measures submitted under each nonattainment plan is included in this section. In summary, EPA proposes to approve the contingency measure submitted as part of the Fairbanks 189(d) Plan as SIP-strengthening, but proposes to disapprove the Fairbanks Serious Plan and Fairbanks 189(d) Plan submissions as not meeting the contingency measure requirements of CAA section 172(c)(9) and 40 CFR 51.1014.

[192] *Assoc. of Irritated Residents* v. *EPA,* 10 F.4th 937, at pp. 946–947 (9th Cir. 2021).

[193] *Bahr* v. *EPA,* 836 F.3d 1218, at pp. 1235–36 (9th Cir. 2016).

a. Fairbanks Serious Plan

The first measure included in the Fairbanks Serious Plan requires owners of older, less efficient EPA-certified wood fired heating devices to remove the device upon the sale of a property or by December 31, 2024, whichever is earlier. The second measure requires owners of EPA-certified devices that were manufactured less than 25 years prior to EPA's finding to remove the device prior to reaching 25 years from the date of manufacture. We note that, EPA approved these two measures as SIP strengthening on September 24, 2021, (86 FR 52997).

Trigger mechanism: These two contingency measures are subject to Alaska's regulation 18 AAC 50.030(c) that is consistent with the triggers in 40 CFR 51.1014(a).

Measures not otherwise included in control strategy: At the time of adoption and submission to EPA, these measures were not otherwise included in the control strategy. These measures address the largest emissions source in the nonattainment area and were not otherwise included in the Fairbanks Serious Plan's control strategy. At the time of adoption and submission to EPA, these measures were expected to produce emissions benefits in addition to the projected emissions reductions under the control strategy and were not required to meet RFP or to attain by the attainment date. However, these measures were triggered on October 2, 2020, the effective date of EPA's determination that the Fairbanks Nonattainment Area failed to attain the NAAQS by the Serious area attainment date.

Implementation schedule: The contingency measures are effective once triggered under 18 AAC 50.030(c). While the majority of emissions reductions are expected by 2024, components of the measure require immediate action, including when a device is sold, leased, or conveyed as part of an existing building) or removal once the device reaches a certain age based on the date of manufacture. The final deadline for removal of all EPA-certified stoves older than 25 years is December 31, 2024. We note that the emission reductions that would occur immediately, or within the first year of implementation, after the measures are triggered are not equal to 1 years' worth of RFP.

One year's emissions reductions: Control measures targeting the older EPA certified devices will provide additional emission reduction benefits beyond Alaska's current home heating control measures. The contingency measures are expected to provide $PM_{2.5}$ reductions of 0.01 tons per day (averaged over the modeling episodes) in its first year of implementation and each year thereafter through 2024.[194] Alaska further calculated the emissions benefits of 0.025 tons per day that would begin in 2024 in the State Air Quality Control Plan, Appendix III.D.7.10, and 0.15 tons per day of direct $PM_{2.5}$ can be achieved by 2029 based on a 70 percent penetration/compliance rate.[195] To attain by the projected attainment date, Alaska projected 1 years' worth of emissions reductions are 0.24 tons per day. Therefore, the emissions reductions achieved through these contingency measures would not be sufficient to demonstrate 1 years' worth of RFP. Further we note that Alaska did not evaluate whether these contingency measures would achieve emission reductions for the applicable $PM_{2.5}$ plan precursors, including SO_2 and NH_3.

Conclusion: Because these measures do not meet all of the statutory and regulatory requirements for contingency measures, we propose to disapprove these measures as meeting the contingency measure requirement under CAA section 172(c)(9) or 40 CFR 51.1014.

b. Fairbanks 189(d) Plan

The contingency measure Alaska identified as part of the Fairbanks 189(d) Plan increases the stringency of the curtailment program for wood-fired heating devices, a critical element of the Fairbanks attainment plan. The contingency measure would lower the Stage 2 curtailment threshold from 30 to 25 $\mu g/m^3$, under the Fairbanks Emergency Episode Plan, State Air Quality Control Plan, Vol II, Chapter III.D.7.12.

Trigger mechanism: This contingency measure, specified under the Fairbanks Emergency Episode Plan, State Air Quality Control Plan, Vol II, Chapter III.D.7.12, is subject to Alaska's regulation 18 AAC 50.030(c), which includes the trigger mechanisms described in 40 CFR 51.1014(a).

Measures not otherwise included in control strategy: this measure addresses the largest emissions source in the nonattainment area and was not otherwise included in the Fairbanks 189(d) Plan's control strategy. Thus, this measure, if triggered, is expected to produce emissions benefits in addition to the project emissions reductions under the control strategy.

Implementation schedule: The contingency measures are effective once triggered under 18 AAC 50.030(c) and can be implemented with minimal delay.

One year's emissions reductions: EPA projects an emissions benefit of 0.08 tons per day when this contingency measure becomes effective. We again note that Alaska projects one year of RFP advancement is 0.24 tons per day. Therefore, this measure is not equal to approximately 1 years' worth of RFP. This measure meets many requirements for contingency measures, but does not provide adequate emissions reductions of direct $PM_{2.5}$ or $PM_{2.5}$ plan precursors. In addition, Alaska has not adequately evaluated whether this measure would achieve emissions reductions for $PM_{2.5}$ precursors (SO_2 or NH_3) approximately equivalent to 1 years' worth of RFP or whether additional contingency measures for $PM_{2.5}$ precursors (SO_2 or NH_3) are necessary to do so. Nor has Alaska provided a reasoned explanation for why reductions in $PM_{2.5}$ precursors (SO_2 or NH_3) via contingency measures is impracticable.

Conclusion: The contingency measure included in the Fairbanks 189(d) Plan, lowering the Stage 2 curtailment threshold from 30 to 25 $\mu g/m^3$, will improve the current SIP and so we propose to approve the measure under the Fairbanks Emergency Episode Plan, State Air Quality Control Plan, Vol II, Chapter III.D.7.12, as SIP-strengthening.

However, this measure does not provide adequate emissions reductions of direct $PM_{2.5}$ or $PM_{2.5}$ plan precursors. Thus, the contingency measures fall short of serving the statutory and regulatory purposes of continuing air quality improvement. Alaska did not provide a reasoned justification for why the smaller amount of emissions reductions is appropriate. Additionally, while the contingency measures address direct $PM_{2.5}$ emissions (and possibly NH_3 emissions) from the source category that emits the most direct $PM_{2.5}$, Alaska has not adequately evaluated contingency measures for all $PM_{2.5}$ precursors (SO_2 or NH_3) or provided a reasoned explanation for why reductions in $PM_{2.5}$ precursors (SO_2 or

[194] Fairbanks SIP Contingency Measure Emission Reductions, submitted to EPA on August 17, 2020, included in the docket for this proposed action. Alaska stated that a compliance rate of 10% was estimated based on the frequency these older stoves/inserts would be identified and replaced through residential home resales. Alaska identified data published in the Fairbanks Community Research Quarterly, that Fairbanks Borough averaged 1,215 home sales per year from 2017–2019, the most recent period of available data. Accounting for the fraction that are re-sales (that trigger a compliance mechanism) and within the nonattainment area, along with the fraction of homes with 25-year old wood stoves, yielded the estimated ''compliance'' rate of 10%.

[195] State Air Quality Control Plan, Appendix III.D.7.10

NH_3) via contingency measures is impracticable.

For these reasons, we are proposing to disapprove the contingency measures in the Fairbanks Serious Plan and Fairbanks 189(d) Plan as meeting the requirements of CAA section 172(c)(9) and 40 CFR 51.1014. We note that the woodstove device regulations under 18 AAC 50.077(n) are already federally enforceable, as they were approved in our September 24, 2021, final rule (86 FR 52997), and have been implemented based on EPA's finding that the Fairbanks Nonattainment Area failed to attain by the Serious attainment date.[196]

H. Motor Vehicle Emission Budgets for Transportation Conformity

1. Statutory and Regulatory Requirements

CAA section 176(c) requires Federal actions in nonattainment and maintenance areas to conform to the goals of the SIP to eliminate or reduce the severity and number of violations of the NAAQS and achieve expeditious attainment of the standards. Conformity to the goals of the SIP means that such actions will not (1) cause or contribute to any new violation of a NAAQS, (2) increase the frequency or the severity of an existing violation, or (3) delay timely attainment of any NAAQS or interim milestones.

Actions involving Federal Highway Administration (FHWA) or Federal Transit Administration (FTA) funding or approval are subject to the transportation conformity rule (40 CFR 51.390 and part 93, subpart A). Under this rule, metropolitan planning organizations (MPOs) in nonattainment and maintenance areas coordinate with state air quality and transportation agencies, EPA, FHWA and FTA to demonstrate that an area's long-range transportation plan (''transportation plan'') and transportation improvement program (TIP) conform to the applicable SIP. This demonstration is typically made by showing that estimated emissions from existing and planned highway and transit systems are less than or equal to the motor vehicle emissions budgets (''budgets'') contained in all control strategy plans. An attainment plan for the $PM_{2.5}$ NAAQS should include budgets for the attainment year and each required QM year, as appropriate. Budgets are generally established for specific years and specific pollutants or precursors and must reflect all of the motor vehicle control measures contained in the attainment and RFP demonstrations (40 CFR 93.118(e)(4)(v)).

Attainment plans for $PM_{2.5}$ NAAQS should typically identify motor vehicle emission budgets for each QM year and the attainment year for direct $PM_{2.5}$ and NO_X (*See* 40 CFR 93.102(b)(2)(iv)), and for VOCs, SO_2, and NH_3, if certain criteria in the transportation conformity rule are met (*See* 40 CFR 93.102(b)(2)(v)). All direct $PM_{2.5}$ emission budgets in an attainment plan should include direct $PM_{2.5}$ motor vehicle emissions from tailpipe, brake wear, and tire wear. A state must also consider whether re-entrained paved and unpaved road dust are significant contributors and should be included in the direct $PM_{2.5}$ budget. *See* 40 CFR 93.102(b) and 93.122(f) and the conformity rule preamble at 69 FR 40004, 40031–40036 (July 1, 2004).[197]

2. Summary of State's Submission

The Fairbanks 189(d) Plan provided budgets for direct $PM_{2.5}$ for each of the upcoming RFP years (2020, 2023, and 2026) and the 2024 attainment year identified by Alaska. Budgets for NO_X were not included because Alaska demonstrated that NO_X does not significantly contribute to $PM_{2.5}$ formation in the Fairbanks Nonattainment Area, see Section III.B in this document. For SO_2 and NH_3, in accordance with 40 CFR 93.102(b)(2)(v), transportation-related emissions of these precursors have not been found to be significant.

The direct $PM_{2.5}$ budgets were calculated using the MOVES2014b vehicle emissions model, which was the latest on-road mobile sources emissions model available at the time Alaska started developing the attainment plan inventory. Alaska used local fleet and fuel inputs and the Fairbanks Area Surface Transportation Planning (FAST Planning) travel demand model to generate local vehicle travel activity estimates over the six-month nonattainment season (October through March). The average winter day emissions were used by Alaska to set the motor vehicle emissions budgets. Exceedances of the 2006 24-hour $PM_{2.5}$ NAAQS in the Fairbanks $PM_{2.5}$ Nonattainment Area occur almost exclusively during the winter months. Alaska executed MOVES2014b with locally developed inputs representative of wintertime calendar year 2019 conditions. Table 17 summarizes the regional average winter day on-road vehicle $PM_{2.5}$ emission budgets and the related CAA milestone for the nonattainment area.

TABLE 17—MOTOR VEHICLE EMISSION BUDGETS BY MILESTONE YEAR

Calendar year	On-road budgets (tons per day)	CAA-related milestone
2020	0.203	RFP.
2023	0.173	RFP.
2024	0.163	Attainment.
2026	0.146	RFP.

Source: Air Quality Control Plan, Vol II, Chapter III.D.7.14, Table 7.14–3.

3. EPA's Evaluation and Proposed Action

We have evaluated the motor vehicle emissions budgets developed by Alaska against our adequacy criteria in 40 CFR 93.118(e)(4) as part of our review of the approvability of the budgets according to the process in 40 CFR 93.118(f)(2). EPA finds that the budgets were clearly identified and precisely quantified using MOVES2014b, with appropriate consultation among Federal, State, and local agencies. However, budgets must be considered with other emissions sources, consistent with applicable RFP and attainment requirements, and be consistent with and clearly related to the emissions inventory and the control measures in the SIP, see 40 CFR 93.118(e)(4)(iv) and (v). Since the budgets must account for other control measures to determine the appropriate motor vehicle budgets, and the control strategy does not include all required control measures, then the budgets will necessarily be deficient. Therefore, EPA is proposing to disapprove the budgets for the Fairbanks $PM_{2.5}$ Nonattainment Area.

I. Nonattainment New Source Review Requirements Under CAA Section 189(e)

CAA section 189(e) specifically requires that the control requirements applicable to major stationary sources of direct $PM_{2.5}$ also apply to major stationary sources of $PM_{2.5}$ precursors, except where the Administrator determines that such sources do not contribute significantly to $PM_{2.5}$ levels that exceed the NAAQS in the area.[198] The control requirements applicable to major stationary sources of direct $PM_{2.5}$ in a Serious $PM_{2.5}$ nonattainment area include, at minimum, the requirements of a nonattainment NSR permit program meeting the requirements of CAA sections 172(c)(5) and 189(b)(3). We

[196] 85 FR 54509, September 2, 2020. Effective October 2, 2020.

[197] For further information on transportation conformity rulemakings, policy guidance and outreach materials, *see* EPA's website at *http://www3.epa.gov/otaq/stateresources/transconf/policy.htm.*

[198] General Preamble, 57 FR 13498, April 16, 1992, at pp. 13539 and 13541–13542.

note that EPA approved the nonattainment new source review element of the Fairbanks Serious Plan on August 29, 2019 (84 FR 45419). Alaska adopted by reference the 40 tons per year significant emissions rates for NO_X, SO_2, and VOC set by EPA, and also established a significant emissions rate of 40 tons per year for NH_3 as a precursor for $PM_{2.5}$, consistent with the thresholds of the other $PM_{2.5}$ precursors. We propose to find that these are reasonable thresholds for an NNSR program and is adequate for purposes of meeting requirements in the 189(d) Plan under 40 CFR 51.003(c)(1)(viii).

IV. Consequences of a Disapproval

This section explains the consequences of a disapproval of a required SIP. The Act provides for the imposition of sanctions and the promulgation of a Federal implementation plan (FIP) if a state fails to submit and fails to obtain EPA approval of a plan revision that corrects the deficiencies identified by EPA in its disapproval.

A. The Act's Provisions for Sanctions

If EPA finalizes disapproval of a required SIP submission, such as an attainment plan submission, or a portion thereof, CAA section 179(a) provides for the imposition of sanctions unless the deficiency is corrected within 18 months of the final rule of disapproval. The first sanction would apply 18 months after EPA disapproves the SIP. Under EPA's sanctions regulations, 40 CFR 52.31, the first sanction imposed at 18 months following a disapproval is 2:1 offsets for sources subject to the new source review requirements under CAA section 173. If the deficiency remains uncorrected at 24 months after the disapproval a second sanction is imposed consisting of a prohibition on the approval or funding of certain highway projects.[199] EPA also has authority under CAA section 110(m) to impose sanctions on a broader area but is not proposing to impose sanctions on a broader area in this action. The imposition of sanctions is avoided or stopped by a final EPA rulemaking action finding that the state corrected the SIP deficiencies resulting in the disapproval.

B. Federal Implementation Plan Provisions That Apply if a State Fails To Submit an Approvable Plan

In addition to sanctions, if EPA finds that a state failed to submit the required SIP revision or finalizes disapproval of the required SIP revision, or a portion thereof, EPA must promulgate a FIP no later than two years from the effective date of the disapproval unless the State corrects the deficiency and EPA approves the plan or plan revisions before that date.[200]

C. Ramifications Regarding Transportation Conformity

One consequence of EPA action finalizing disapproval of a control strategy SIP submission is a conformity freeze.[201] If EPA finalizes the disapproval of the attainment demonstration SIP without a protective finding, a conformity freeze will be in place as of the effective date of the disapproval.[202] The area's MPO, FAST Planning, produces the long-range 20-year metropolitan transportation plan and the short-range transportation plan. During a conformity freeze, no new transportation projects in the Fairbanks $PM_{2.5}$ Nonattainment Area may be found to conform until another attainment demonstration SIP is submitted and the motor vehicle emissions budgets are found to be adequate or the attainment demonstration is approved and conformity to the revised attainment demonstration SIP is determined. Only projects in the first four years of the currently conforming transportation plan and transportation improvement program may be found to conform while the conformity freeze is in effect. If the SIP deficiency is not remedied after 24 months, highway sanctions would be imposed and a conformity lapse occurs.

V. Summary of Proposed Action

A. Proposed Approval

In this action, EPA is proposing to approve the submitted revisions to the Alaska SIP as meeting the following Serious Plan and CAA section 189(d)[203] required elements for the 2006 24-hour $PM_{2.5}$ NAAQS Fairbanks Nonattainment Area:

1. The 2019 base year emissions inventory (CAA section 172(c)(3);[204] 40 CFR 51.1008(c)(1)) for areas subject to CAA section 189(d).

2. The State's $PM_{2.5}$ precursor demonstration for NO_X and VOC emissions (CAA section 189(e);[205] 40 CFR 51.1006(a)).

3. Partial approval of the control strategy as meeting BACM requirements under CAA section 189(b)(1)(B)[206] and 40 CFR 51.1010(a) for the solid-fuel home heating device source category, specific regulations under 18 AAC 50.075 through 077, and Fairbanks Emergency Episode Plan.

EPA is proposing to approve the submitted sections of the State Air Quality Control Plan for the Fairbanks $PM_{2.5}$ Nonattainment Area, State effective January 8, 2020:

4. Volume II, Chapter III.D.7.11 Contingency Measures.

EPA is proposing to approve the submitted chapters of the Alaska Air Quality Control Plan for the Fairbanks $PM_{2.5}$ Nonattainment Area, State effective December 25, 2020:

5. Volume II, Chapter III.D.7.06 and Volume III Chapter III.D.7.06 Emissions Inventory for purposes of the 2019 base year emissions inventory.

6. Volume II, Chapter III.D.7.07 and Volume III Chapter III.D.7.07 Control Strategies for purposes of the solid-fuel home heating device emissions source category.

7. Volume II, Chapter III.D.7.08 Precursor Demonstration, for the purposes of NO_X and VOC emissions as it relates to BACM/BACT control measure requirements.

8. Volume II, Chapter III.D.7.11 Contingency Measures.

9. Volume II, Chapter III.D.7.12 Emergency Episode Plan.

EPA is proposing to approve and incorporate by reference submitted regulatory changes into the Alaska SIP. Upon final approval, the Alaska SIP will include:

10. 18 AAC 50.075, except (d)(2), State effective January 8, 2020, (solid fuel-fired heating devices may not exceed 20 percent opacity for more than six minutes in any one hour when an air quality advisory is in effect).

B. Proposed Disapproval

EPA is also proposing to disapprove the following revisions to the Alaska SIP as not meeting requirements for Serious areas and Serious $PM_{2.5}$ areas that fail to attain:

1. Attainment projected emissions inventory meeting the requirements of

[199] On April 1, 1996, the U.S. Department of Transportation published a document in the **Federal Register** describing the criteria to be used to determine which highway projects can be funded or approved during the time that the highway sanction is imposed in an area. (*See* 61 FR 14363).

[200] CAA section 110(c), 42 U.S.C. 7410(c).

[201] Control strategy SIP revisions as defined in the transportation conformity include reasonable further progress plans and attainment demonstrations (40 CFR 93.101).

[202] 40 CFR 93.120(a)(2).

[203] 42 U.S.C. 7513a(d).

[204] 42 U.S.C. 7502(c)(3).

[205] 42 U.S.C. 7513a(e).

[206] 42 U.S.C. 7513a(b)(1)(B)

CAA section 172(c)(1)[207] and 40 CFR 51.1008(c)(2).

2. Partial disapproval of the control strategy BACM requirements (CAA section 189(b)(1)(B)[208] and 40 CFR 51.1010(a)) for the following emission source categories:

a. Residential and commercial fuel oil-fired devices
b. Requirements for wood sellers
c. Coal-fired heating devices
d. Small commercial area sources, including coffee roasters, charbroilers, and used oil burners
e. Weatherization and energy efficiency measures
f. Mobile source emissions

3. Disapproval of the control strategy BACT requirements (CAA section 189(b)(1)(B)[209] and 40 CFR 51.1010(a)) for the following emission sources:

a. Chena Power Plant
  i. Coal-fired boilers ($PM_{2.5}$; NH_3; SO_2)
b. Fort Wainwright
  i. Coal-fired boilers ($PM_{2.5}$; NH_3; SO_2)
  ii. Diesel-fired boilers ($PM_{2.5}$; NH_3; SO_2)
  iii. Large diesel-fired engines ($PM_{2.5}$; NH_3; SO_2)
  iv. Small emergency engines ($PM_{2.5}$; NH_3; SO_2)
  v. Materials handling ($PM_{2.5}$; NH_3)
c. University of Alaska Fairbanks
  i. Dual fuel-fired boiler ($PM_{2.5}$; NH_3; SO_2)
  ii. Mid-sized diesel-fired boilers ($PM_{2.5}$; NH_3; SO_2)
  iii. Small-sized diesel-fired boilers ($PM_{2.5}$; NH_3; SO_2)
  iv. Large diesel-fired engine ($PM_{2.5}$; NH_3; SO_2)
  v. Small diesel-fired engines ($PM_{2.5}$; NH_3; SO_2)
  vi. Pathogenic waste incinerator ($PM_{2.5}$; NH_3; SO_2)
  vii. Material handling ($PM_{2.5}$; NH_3)
d. Zehnder
  i. Oil-fired simple cycle gas turbines ($PM_{2.5}$; NH_3; SO_2)
  ii. Diesel-fired emergency generators ($PM_{2.5}$; NH_3; SO_2)
  iii. Diesel-fired boilers ($PM_{2.5}$; NH_3; SO_2)
  e. North Pole Power Plant
  i. Oil-fired simple cycle gas turbines ($PM_{2.5}$; NH_3; SO_2)
  ii. Oil-fired combined cycle gas turbines ($PM_{2.5}$; NH_3; SO_2)
  iii. Large diesel-fired engine ($PM_{2.5}$; NH_3; SO_2)
  iv. Propane-fired boiler ($PM_{2.5}$; NH_3; SO_2)

4. Additional measures (beyond those already adopted in previous nonattainment plan SIP submissions for the area as RACM/RACT, BACM/BACT, and Most Stringent Measures (MSM)[210] (if applicable)) under 40 CFR 51.1010(c).

5. Attainment demonstration and modeling meeting the requirements of CAA sections 40 CFR 51.1003(c) and 51.1011.

6. Reasonable further progress (RFP) provisions meeting the requirements of CAA section 172(c)(2)[211] and 40 CFR 51.1012.

7. Motor vehicle emission budgets meeting the requirements under 40 CFR 93.118.

8. Quantitative milestones meeting the requirements of CAA section 189(c)[212] and 40 CFR 51.1013.

9. Contingency measures meeting the requirements of CAA section 172(c)(9)[213] and 40 CFR 51.1014 applicable to Serious areas subject to CAA section 189(b) and 189(d).

EPA is soliciting public comments on these proposed actions.

VI. Incorporation by Reference

In this document, EPA is proposing to include regulatory text in an EPA final rule that includes incorporation by reference. In accordance with requirements of 1 CFR 51.5, EPA is proposing to incorporate by reference the regulations described in section V.A. of this document. EPA has made, and will continue to make, these materials generally available through *https://www.regulations.gov* and at the EPA Region 10 Office (please contact the person identified in the **FOR FURTHER INFORMATION CONTACT** section of this document for more information).

VII. Statutory and Executive Order Reviews

Additional information about these statutes and Executive Orders can be found at *https://www.epa.gov/laws-regulations/laws-and-executive-orders.*

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

This action is not a significant regulatory action and was therefore not submitted to the Office of Management and Budget (OMB) for review.

B. Paperwork Reduction Act (PRA)

This action does not impose an information collection burden under the PRA, because this proposed SIP approval in part and disapproval in part, if finalized, will not in-and-of itself create any new information collection burdens, but will simply disapprove certain State requirements for inclusion in the SIP.

C. Regulatory Flexibility Act (RFA)

I certify that this action will not have a significant economic impact on a substantial number of small entities under the RFA. This action will not impose any requirements on small entities. This proposed SIP partial disapproval, if finalized, will not in-and-of itself create any new requirements but will simply disapprove certain State requirements for inclusion in the SIP.

D. Unfunded Mandates Reform Act (UMRA)

This action does not contain any unfunded mandate as described in UMRA, 2 U.S.C. 1531–1538, and does not significantly or uniquely affect small governments. This action proposes to disapprove certain pre-existing requirements under State or local law, and imposes no new requirements. Accordingly, no additional costs to State, local, or tribal governments, or to the private sector, result from this action.

E. Executive Order 13132: Federalism

This action does not have federalism implications. It will not have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government.

F. Executive Order 13175: Coordination With Indian Tribal Governments

This action does not have tribal implications, as specified in Executive Order 13175, because the SIP revision that EPA is proposing to partially disapprove would not apply on any Indian reservation land or in any other area where EPA or an Indian tribe has demonstrated that a tribe has jurisdiction, and will not impose substantial direct costs on tribal governments or preempt tribal law. Thus, Executive Order 13175 does not apply to this action.

[207] 42 U.S.C. 7502(c)(3).

[208] 42 U.S.C. 7513a(b)(1)(B).

[209] *Id.*

[210] MSM is applicable if EPA has previously granted an extension of the attainment date under CAA section 188(e) for the nonattainment area and NAAQS at issue. EPA denied Alaska's request to extend the Serious area attainment date for the Fairbanks Serious Nonattainment Area.

[211] 42 U.S.C. 7502(c)(2).

[212] 42 U.S.C. 7513a(c).

[213] 42 U.S.C. 7502(c)(9).

G. Executive Order 13045: Protection of Children From Environmental Health Risks and Safety Risks

EPA interprets Executive Order 13045 as applying only to those regulatory actions that concern environmental health or safety risks that EPA has reason to believe may disproportionately affect children, per the definition of ''covered regulatory action'' in section 2–202 of the Executive Order. This action is not subject to Executive Order 13045 because this proposed SIP partial disapproval, if finalized, will not in-and-of itself create any new regulations, but will simply disapprove certain State requirements for inclusion in the SIP.

H. Executive Order 13211: Actions That Significantly Affect Energy Supply, Distribution, or Use

This action is not subject to Executive Order 13211, because it is not a significant regulatory action under Executive Order 12866.

I. National Technology Transfer and Advancement Act (NTTAA)

Section 12(d) of the NTTAA directs EPA to use voluntary consensus standards in its regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical. EPA believes that this action is not subject to the requirements of section 12(d) of the NTTAA because application of those requirements would be inconsistent with the CAA.

J. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Population

Executive Order 12898 (59 FR 7629 (February 16, 1994)) establishes Federal executive policy on environmental justice. Its main provision directs Federal agencies, to the greatest extent practicable and permitted by law, to make environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations in the United States. EPA's evaluation of this issue is contained in the section of the preamble titled ''Environmental Justice Considerations.''

List of Subjects in 40 CFR Part 52

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

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

Dated: December 30, 2022.

Casey Sixkiller,

Regional Administrator, Region 10.

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