ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION

18 AAC 50 AIR QUALITY CONTROL

Response to Comments on August 27, 2024, 2024 Amendments to the Fairbanks PM2.5 Serious SIP and
Responses to Comments on Air Quality Permits included in the SIP

November 4, 2024

Table of Contents

Introduction 3
Environmental Protection Agency Comments 4
Aurora Energy Solutions, LLC Comments 12
University of Alaska Fairbanks (UAF) Comments 16
Aurora Energy, LLC Comments 61
Doyon Utilities, LLC Comments 72
Golden Valley Electric Association (GVEA) Comments 108
Citizens for Clean Air (CCA) Comments 145
AirVitalize Comments 148
Hearth, Patio, and Barbeque Association Comments 149
Appendix A – GVEA, Zehnder Facility RTC 150
Appendix B – GVEA, North Pole Power Plant RTC 164
Appendix C – Aurora Energy, LLC; Chena Power Plant RTC 183
Appendix D – UAF, University of Alaska Fairbanks Campus RTC 188
Appendix E – Doyon Utilities, LLC, Fort Wainwright (Privatized Emission Units) RTC 212

Introduction

This document provides the Alaska Department of Environmental Conservation's (DEC) response to public comments received regarding the August 19, 2024, draft State Implementation Plan (SIP) amendments relating to the disapproved portions of the Fairbanks Serious and 189(d) SIP to meet federal requirements.

Opportunities for Public Comment

The public notice dated August 26, 2024, and published on August 27, 2024, described the proposed regulation and SIP changes and provided information on the opportunities for the public to submit comments. Options for submitting written comments included submitting comments via the DEC's Air Online Services online comment form, mail, email, or facsimile.

The Division provided an opportunity for individuals to submit oral comments at two public hearings held in Fairbanks, Alaska, on September 26, 2024. No public comments were received during the public hearings.

The deadline to submit comments was October 7, 2024, at 11:59 p.m. This provided a 42-day period for the public to review the proposal and submit comments.

DEC received emailed or electronically submitted comments from the following:

- Environmental Protection Agency (EPA)
- University of Alaska-Fairbanks (UAF)
- Citizens for Clean Air (CCA)
- Doyon Utilities (DU)
- Aurora Energy, LLC (AE)
- Aurora Energy Solution, LLC (AES)
- Golden Valley Electric Association (GVEA)
- AirVitalize (AV)
- Hearth, Patio, and Barbeque Association (HPBA)

This document responds to individual comments from EPA and individual or summarized comments from the public. The document includes the comments received, DEC's response, and any revisions made to the regulations and/or SIP based on the comments and DEC's response.

Comments were received during comment periods for Air Quality Permits to incorporate the best available control technologies (BACT) emission limits and the corresponding monitoring, recordkeeping, and reporting (MR&R) requirements for the sources listed in FNSB $PM_{2.5}$ SIP Sections; the permit revisions will be adopted as part of this amended SIP for submission to EPA for approval. The response to comments documents for the permits are included as appendices to this document.

Environmental Protection Agency Comments

EPA Comment 1: State Air Quality Control Plan, Vol II, Chapter III.D.7.8.18-19 – SO_2 Precursor Demonstration for Major Stationary Sources

Based on the updated air quality model and new information about wintertime sulfate formation in the nonattainment area, Alaska evaluated the SO_2 emissions from major stationary sources and determined that the SO_2 emissions from this emission source category do not significantly contribute to $PM_{2.5}$ formation in the nonattainment area. Alaska included this precursor demonstration in the Fairbanks Revised 189(d) Plan.

To further support this analysis, the EPA suggests the following:

- Section 7.8.19 should include a description of the Farrell *et al.* (under review) manuscript that discusses the heterogenous sulfur chemistry research that led to the CMAQ model configuration used for this SO_2 precursor demonstration. This manuscript has undergone review by at least two scientific peers who have made their comments public, and the summary of those comments on the draft manuscript should also be described.

- Section 7.8.19 refers to a final modeling code that is in process of publication. The reference to the manuscript associated with the code (Fahey et al., in preparation) should be included here. In section 7.8.19 we recommend including a paragraph description of each ALPACA manuscript that relates to the SO_2 precursor demonstration. These descriptions should be written for all relevant published manuscripts in Table 7.8.19-1 and for any relevant submitted manuscripts with public peer-reviewed comments that are in this table. These paragraphs should summarize the manuscript's objectives, methods, results, and how these results support the precursor insignificance demonstration, plus summarize any public peer-reviewed comments if the manuscript is in the peer-review phase.

  Response: DEC agrees that this comment and the suggestions therein further support the SO_2 precursor demonstration for major stationary sources.

  Revisions based on response: DEC updated all relevant links and references.

EPA Comment 2: State Air Quality Control Plan, Vol II, Chapter III.D.7.8.15 – Modeling

The EPA has the following suggestions regarding the modeling chapter:

- Section 7.8.15.2 reference 46 incorrectly links to and lists guidance from the 2018 EPA memorandum "Guidance on Significant Impact Levels for Ozone and Fine Particles in the Prevention of Significant Deterioration Permitting Program." It would be more correct to reference the 2018 EPA memorandum "Modeling Guidance for Demonstrating

Air Quality Goals for Ozone, $PM_{2.5}$ and Regional Haze" and the associated list of model selection criteria from Section 2.5 of that memorandum.

- Section 7.8.15.3.1 reference 51 incorrectly links to the 2018 EPA memorandum "Guidance on Significant Impact Levels for Ozone and Fine Particles in the Prevention of Significant Deterioration Permitting Program" instead of the 2018 EPA memorandum "Modeling Guidance for Demonstrating Air Quality Goals for Ozone, PM2.5 and Regional Haze."
- The title and description of Table 7.8.15 would be more accurate if they stated that the performance metrics are from Emery et al. (2017), which is one of the studies noted in the Evaluating Model Performance section of the 2018 EPA memorandum "Modeling Guidance for Demonstrating Air Quality Goals for Ozone, PM2.5 and Regional Haze."
- We recommend including a statement that the final model code will be published as part of the Fahey et al. (in preparation) scientific study.
- If the Fahey et al. (in preparation) scientific study has been submitted by the time this draft SIP is revised, we recommend including a link to the discussion paper.
- We recommend that the portion of the modeling chapter describing the updated modeling submission more clearly focus on the final model simulation and configuration. The chapter currently includes mention of models used in the transition from the earlier to final model, results for multiple models in time series plots, discussions of multiple meteorological models, etc. This approach makes the text more difficult to follow, and it might be better to move the information on intermediate model versions to the appendices. However, we note that this chapter should clearly demonstrate that the final model configuration used here is improved and necessary compared with the model used previously, which could be done by briefly contrasting the model performance statistics from the final model and previous model.
- We recommend clarifying and strengthening the information on the meteorological model evaluation in the modeling chapter given the importance of meteorology to the air quality problem. The meteorological model evaluation in the chapter currently centers on one time series plot. It would be helpful to provide more information in the chapter on the meteorological model performance evaluation statistics. In addition, the "Ramboll final plot" data could be removed from Figure 7.8.15-2 and its caption because it was not the final model version used. We also note that the chapter states that the WRF model performance evaluation is documented in the appendix in "Rob Gilliam, Notes_20192020_ADEC_SIP_modeling.docx, December 2022" and the appendix states that it includes a "US EPA WRF poster" and provides the title for the Gilliam et al. presentation "Modeling the wintertime meteorology for the 2022 Alaskan Layered Pollution and Chemical Analysis (ALPACA) campaign;" however, the appendix does not appear to contain the technical analysis from any of these presentations, posters, or documents. We recommend that the appendix include a copy of the model performance evaluation statistics and analysis conducted by Gilliam et al., as this is the basis for selecting the version of the WRF model that underlies this attainment demonstration. This information would complement the additional performance statistics recommended for inclusion in the meteorological modeling evaluation in the attainment demonstration.
- We recommend specifying the improvements made between model versions, rather than describing the prior version as "outdated." There is a lot of overlap between versions, and

the previous model version is still considered to be an effective tool for supporting the existing NO_x and VOC precursor demonstrations.

- We recommend revising the Modeling Appendix to reflect the present status of the updated CMAQ simulations. In several places, the text suggests that the modeling simulations are not yet completed or ready, for example in sections 2.8 and 3.5.3 ("DEC is planning on re-running… with the CMAQ science version…). The lack of clarity on the platform status contributes to ambiguity about the modeling configuration used in support of the SIP.

  Response: DEC agrees that the suggestions further strengthen and clarify the modeling chapter.

  Revisions based on response: DEC corrected the references and links EPA had noted. DEC added both Farrell et. al. and Fahey complete references and expanded the discussion on both papers. DEC clarified the difference between the new modeling and the old modeling. DEC added figures and text to strengthen the meteorological model evaluation. DEC replaced the term "outdated" with "previous version" to describe other model versions. DEC added clarifying documentation to the appendix containing the description of phase 1, 2, and 3 of the modeling updates.

EPA Comment 3: State Air Quality Control Plan, Vol II, Chapter III.D.7.9 – Attainment Demonstration. The EPA has the following comments on the attainment demonstration chapter:

- The Fairbanks $PM_{2.5}$ Nonattainment Area is subject to the attainment date requirements of CAA Section 172(a)(2)(A) and 40 CFR 51.1004(a)(3). The projected attainment date for a Serious $PM_{2.5}$ nonattainment area that failed to attain the $PM_{2.5}$ NAAQS by the applicable Serious area attainment date shall be as expeditious as practicable, but no later than 5 years following the effective date of the EPA's finding that the area failed to attain by the original Serious area attainment date, except that the Administrator may extend the attainment date to the extent the Administrator deems appropriate, for a period no greater than 10 years from the effective date of the EPA's determination that the area failed to attain, considering the severity of nonattainment and the availability and feasibility of pollution control measures. The effective date of EPA's finding that the Fairbanks $PM_{2.5}$ Nonattainment Area failed to attain by the serious area attainment date is October 2, 2020. Five years following October 2, 2020, is October 2, 2025. Alaska's proposed attainment date is December 31, 2027. Therefore, the EPA recommends Alaska clarify that it is requesting that EPA extend the attainment date beyond the 5 years in CAA Section 172(a)(2)(A) and 40 CFR 51.1004(a)(3) and explain why this extension is appropriate considering the severity of nonattainment and the availability and feasibility of pollution control measures.
- Based on Table 7.9-6, there is an increased reliance on $PM_{2.5}$ emission reductions through the wood stove changeout program to achieve attainment (compared to prior attainment projections as depicted in Table 7.9-4). We suggest including a narrative explanation as to how the updated control strategy included in the Fairbanks Revised 189(d) Plan will

provide the emissions reductions necessary to achieve expeditious attainment in 2027, as outlined in Table 7.9-12.

- There are two tables labeled Table 7.9-1. The first Table 7.9-1 appears to be reproduced from another document or report. It is not clear what the parentheticals in this table represent. It would be helpful to cite this table as appropriate and to include a brief descriptor of what the parentheticals and/or footnotes indicate.

  Response: DEC agrees that the suggestions further strengthen and clarify the attainment demonstration chapter.

  Revisions based on response: DEC added a request for extension. DEC explained and justified the increased reliance the wood stove change out program to achieve emission reductions through the modeled attainment year of 2027. DEC added explanation for the parentheticals in Table 7.9-1. DEC also added text explaining the curtailment program enforcement that EPA suggests in comment 5.

EPA Comment 4: State Air Quality Control Plan, Vol II, Chapter III.D.7.14 – Motor Vehicle Emissions Budgets for Transportation Conformity. The EPA has the following suggestions regarding the motor vehicle emissions budgets:

- Section 7.14.1 refers to the two-year transportation conformity grace period that began after the release of MOVES4; however, we suggest clarifying that this grace period does not apply to SIPs. MOVES3 can be used for new SIP development so long as significant SIP work was already completed using MOVES3 before MOVES4 was released. We understand that to be the case of this Fairbanks SIP submittal.
- Under section 7.14.1.1., the bullet point that describes the motor vehicle emissions budget methodology for "Geographic Area," please clarify what is meant by "Vehicle Activity Inputs link."
- Under section 7.14.1.1., at the bottom of page 11, please clarify that "area-wide vehicle emissions in the FNSB nonattainment area" Transportation Plans and Transportation Improvement Programs must be less than or equal to the motor vehicle emissions budget. We also suggest clarifying here that transportation projects must be included in this area-wide emissions analysis unless they are projects exempt from transportation conformity rules under 40 CFR 93.126, or exempt from area-wide emissions analysis under 40 CFR 93.127.
- Under section 7.14.1.2., at the bottom of page 12, we suggest clarifying that hot-spot analyses are not required for all projects in $PM_{2.5}$ and PM_{10} areas, only for those projects identified under 40 CFR 93.123(b)(1).
- Under section 7.14.1.3., we suggest clarifying that federal actions that are subject to the transportation conformity rule are not also subject to the general conformity rule.
- The Fairbanks Revised 189(d) Plan establishes budgets for both RFP and attainment, but there are several places where only RFP budgets are mentioned.
- Please add text to address the attainment year budget:
    - On page III.D.7.14-4, in the paragraph with the heading, "MVEB Calendar Year and Pollutants," only the RFP years for which budgets are established are listed.

We suggest that the text should include a sentence to state that a budget is also established for the attainment year of 2027.

- On page III.D.7.14-9, Table 7.14.2 lists budgets for all years, indicating which are RFP years and that 2027 is the attainment year. On that same page, when describing the adequacy criteria, it states that "The motor vehicle emissions budget was established based on the Fairbanks $PM_{2.5}$ emission inventory and control measures included in the plan and satisfies reasonable further progress requirements." The text should also include a sentence for the attainment year budget that addresses the same points.
- On page III.D.7.14-11, in the discussion of the adequacy criteria, the text reads, "The motor vehicle emission budget was established based on the Fairbanks $PM_{2.5}$ emission inventory and control measures included in the plan and satisfies reasonable further progress requirements." First, this sentence refers to a singular budget rather than budgets plural, so we recommend this be clarified as there are several budgets established in the Fairbanks Revised 189(d) Plan. Second, we recommend that the text should also include a sentence for the attainment year budget.

- On page III.D.7.14-4, a sentence states, "The Time Aggregation Level option was set to "Hour" as required for SIPs and regional emissions analysis." We suggest that this sentence should be clarified since this is just recommended, not required in the MOVES3 Technical Guidance, which is correctly referenced in footnote 5.
- On page III.D.7.14-10, there is a sentence that reads, "Although on-road vehicles are by no means the predominant source of these pollutants, the vehicle emission budgets established under the federal conformity regulations require that emissions associated with future federally-funded regional transportation plans do not exceed budgeted limits, thereby ensuring these plans conform to the overall attainment progress reflected in the SIP." We recommend this sentence be clarified to reflect the regulatory language:
  - "Although on-road vehicles are by no means the predominant source of these pollutants, the ~~vehicle emission budgets established under the~~ federal **transportation** conformity regulations require that **in each year where the SIP establishes a budget,** emissions associated with future federally-funded regional transportation plans **and TIPs must be less than or equal to that year's budget (40 CFR 93.118(b)(1)(i))** ~~do not exceed budgeted limits, thereby ensuring these plans conform to the overall attainment progress reflected in the SIP~~."
- At the bottom of page III.D.7.14-11 and continuing on page 12 is the sentence, "For projects not from a conforming plan and TIP, the additional emissions from the project together with the transportation plan emissions must be less than or equal to the budget." We suggest this sentence should be deleted to eliminate any confusion. Instead, if there was an additional project in the MPO's area not already in the transportation plan and TIP, it would have to be added to the transportation plan and TIP and conformity would have to be determined for that amended transportation plan and TIP, i.e., a new regional emissions analysis would be needed. If there was an additional project in the donut area, again, a new regional emissions analysis for all the projects in the area would be needed (see the EPA-DOT Multi-jurisdictional Guidance, https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100EQXE.pdf).

- Under the heading, "7.14.1.2 Project-Level Conformity," (page III.D.7.14-12), the paragraphs describing the interagency consultation process apply to transportation plan and TIP conformity in addition to project-level conformity, but they are not described elsewhere. There, we suggest reviewing this statement since that interagency consultation text does not belong under this heading exclusively.

  Response: DEC agrees that the suggestions further strengthen and clarify the motor vehicle emissions budgets for transportation conformity chapter.

  Revisions based on response: DEC has edited or corrected language in response to each of EPA's comments in Chapter III.D.7.14, motor vehicle emissions budgets for transportation conformity.

EPA Comment 5: State Air Quality Control Plan, Vol II, Chapter III.D.7.10 – Reasonable Further Progress and Quantitative Milestones. The EPA has the following suggestions regarding the reasonable further progress and quantitative milestones chapter:

- The EPA recommends that Alaska include a discussion of its enforcement process, with particular emphasis on enforcing the solid-fuel burning device curtailment program. We suggest that the discussion includes statistics from 2-3 past years on the numbers of advisory letters issued, number of compliance letters issued, and numbers of notices of violation and penalties issued. We also suggest that Alaska include a discussion of the efficacy of its enforcement responses.
- In section 7.10.2 under QM Metrics, Alaska states: "The $PM_{2.5}$ Implementation Rule allows for several objective metrics to satisfy the QM requirements, providing the metric can be accurately quantified and tracked. Alaska proposes to use EPA's preferred metric: emission reductions achieved compared to projected emission reductions." The EPA agrees that the Clean Air Act and $PM_{2.5}$ Implementation Rule allow "states to identify milestones that are suitable for the specific facts and circumstances of the attainment plan for the particular area, so long as they provide objective measure to measure RFP." The EPA has not stated a clear preference for any particular type of quantitative milestone.
- Section 7.10.2 does not specify the actual projected emissions reductions that Alaska proposes to use as its QM metrics and whether they are aggregated by pollutant or separated by control measure. The EPA suspects that the figures in Table 7.10-5 in the row title "Achieved Reduction" may be the projected emissions reductions that Alaska is proposing to use as QMs, but this is not clear from the Chapter. In addition, in section 7.10.3.2 and Table 7.10-4 Alaska includes the control measure implementation/ phase-in schedule. Table 7.10-4 includes columns called "implementation parameter" and "Phase-In Schedule by RFP Year." The figures in the Phase-In Schedule by RFP Year appear to be suitable quantitative milestones. The EPA has previously suggested using percentage implementation and percentage compliance rate as quantitative milestones. Thus, the EPA recommends that Alaska clarify the quantitative milestones it intends to use. If Alaska intends on using emissions reductions achieved compared to projected emission reductions, the EPA recommends that Alaska (1) specify in section 7.10.2 the emissions reductions by milestone year and whether they are aggregate by pollutant or speciated by

measure, (2) explain why emissions reductions are more suitable quantitative milestones than the implementation/phase-in schedule figures in section 7.10.3.2, and (3) make clear that Alaska will include completion statistics and phase-in percentages for each measure in Table 7.10-4 in its quantitative milestone report regardless of its selected metric.

Response: DEC agrees that the suggestions further strengthen and clarify the reasonable further progress and quantitative milestones chapter.

Revisions based on response: DEC included a discussion of its curtailment program enforcement process in Chapter III.D.7.9, Attainment Demonstration, and referenced that discussion in Chapter III.D.7.10, Reasonable Further Progress and Quantitative Milestones. EPA has not stated a clear preference for any particular type of quantitative milestone; therefore, DEC specified that the emission reductions are aggregate, explained why emission reductions are the most suitable milestone, and committed to including completion statistics and phase-in percentages for control measures.

EPA Comment 6: State Air Quality Control Plan, Vol II, Chapter III.D.7.11 – Contingency Measures. The EPA has the following suggestions regarding the contingency measures chapter:

- In sub-section 7.11.2.1(b), Alaska commits to publishing an annual report that includes the staff hours for curtailment compliance as well as the results of Alaska DEC's annual assessments. The EPA recommends Alaska DEC include in the annual report the number of observations performed, number of advisory letters issued, number of compliance letters issued, number of notices of violations issued, and number of penalty actions taken.
- In sub-section 7.11.2.2(b), Alaska commits to publishing an annual report that includes staffing hours for wood device removal compliance and enforcement for the preceding year. The EPA recommends that Alaska DEC include in the annual report the number of wood device registrations processed, number of wood devices removed, number of advisory letters issued, number of compliance letters issued, numbers of notices of violation issued, and numbers of penalty actions taken.
- The EPA also suggests that Alaska evaluate the feasibility and emission reduction potential as contingency measures of the following new measures or strengthening the existing measures, as applicable:
    - Contingency measures proposed by commenters in response to EPA's January 10, 2023, Notice of Proposed Rulemaking (Docket Number EPA-R10-OAR-2022-0115);
    - Measure 52 - Small Pot Burners
    - Measure 53 - Used oil restrictions
    - Measure 60 - Vehicle Idling
    - Measure 61 - Fuel Oiler Boiler Upgrade - burner upgrade/repair
    - Measure 62 - Fuel Oiler Boiler replacement
    - Revising the definition of dry wood in 18 AAC 50.990 to require a moisture content lower than 20 percent.

- In addition, if Alaska by law has minimum or maximum penalties for violations of requirements of the any air quality control plan, then EPA recommends Alaska DEC evaluate increasing these penalties as a potential contingency measure. If Alaska has no such minimum or maximum penalties, an explanation of Alaska's civil penalty authorities, its process for determining appropriate civil penalties, and whether increasing civil penalties would increase the compliance rate with the solid-fuel burning device compliance program.

  Response: DEC agrees that the suggestions further strengthen and clarify the contingency measures chapter.

  Revisions based on response: DEC reorganized the contingency measures chapter and included all of EPA's suggestions to strengthen and clarify the contingency measure chapter.

The following comments were provided by EPA during annual SIP meetings held in person in Fairbanks, Alaska September 16, 2024, through September 19, 2024. The meetings were attended by representatives of FNSB, DEC, and EPA.

EPA Comment 7, from SIP meetings: State Air quality Control Plan, Vol II, Chapter III.D.7.9 - Attainment demonstration. EPA requested justification for the starting point of the 5% reductions, and why DEC switched to the 2020 emission inventory.

Response: DEC added text in both the Emissions Inventory and Attainment Demonstration SIP chapters in sections 7.6.9 and 7.9.1.1, respectively that explain the rationale for use of 2020 (over 2019) for the inventory and attainment demonstration base year under the 2024 Amendment.

Revisions based on response: A key revision to the attainment modeling under the 2024 Amendment consisted of the use of a new modeling platform using the latest gridded regional meteorological and photochemical models as well as a more current modeling episode covering a 74-day period from December 1, 2019 through February 12, 2020 during which DEC collected and validated speciated ambient $PM_{2.5}$ monitoring data at sites located in both the Fairbanks and North Pole portions of the nonattainment area. Although the three years used for the area designation were 2017 through 2019, 2020 was selected as the Base Year to align with this new winter 2019-2020 historical modeling episode. (A calendar year inventory refers to emissions as of January 1 of that year representing source activity and controls as of start of the calendar year.) Therefore, selection of 2020 as the inventory Base Year for the 2024 Amendment represents the most technically appropriate inventory year in accordance with 40 C.F.R. § 51.1011(b)(3).

It also complies with provisions in 40 C.F.R. § 51.1010(c) that require, in addition to an attainment demonstration, that nonattainment area emissions will be reduced by at least 5

percent for each year over the entire attainment horizon *"based on the most recent emissions inventory for the area"*. As explained above, 2020 was selected as the Base Year to align with the winter 2019-2020 modeling episode that provides the ambient measurement-based foundation for calibrating the air quality model to a starting point in time for modeling future year attainment. "Current" source activity data were then collected for calendar year 2020 (e.g., Point sources), or backcasted to 2020 from more recently collected activity data (e.g., 2023 Home Heating survey data to support Residential Space Heating sources). Thus, the 2020 Base Year inventory also meets these requirements in 40 C.F.R. § 51.1010(c) and provide a consistent starting point for both the attainment demonstration and the 5 percent per year reduction requirements.

EPA Comment 8, from SIP meetings: State Air Quality Control Plan, Vol II, Chapter III.D.7.11 - Contingency Measures. EPA requested that DEC add a discussion regarding meaningful reductions and increase in compliance rates. EPA requested that DEC add a statement that Alaska will complete a SIP amendment if contingency measures are triggered.

Response: DEC agrees that the suggestions further strengthen and clarify the contingency measures chapter.

Revisions based on response: DEC reorganized the contingency measures chapter and included all of EPA's suggestions to strengthen and clarify the contingency measure chapter.

Aurora Energy Solutions, LLC Comments

Aurora Energy Solutions Comment 1: General Comments. The 2024 Amendments to Alaska's State Air Quality Control Plan focus on re-evaluating and updating control strategies for reducing $PM_{2.5}$ pollution in the Fairbanks North Star Borough (FNSB). These revisions are driven by the need to address feedback from the EPA and ensure compliance with air quality standards. The plan targets multiple pollution sources, including solid fuel heaters, residential and commercial fuel oil combustion, motor vehicles, and small industrial sources. The Alaska Department of Environmental Conservation (DEC) follows a structured process to select Best Available Control Measures (BACM), evaluating technological and economic feasibility, with the goal of achieving a 5% annual reduction in emissions for areas that have failed to meet air quality standards. The document outlines ongoing and new control measures, such as curtailment of solid-fuel heating during high pollution episodes and upgrades to heating devices, while committing to continuous evaluation of their effectiveness. The overall aim is to improve air quality, particularly during winter, when $PM_{2.5}$ violations are most common.

Response: Comment acknowledged.

Revisions based on response: None.

Aurora Energy Solutions Comment 2: Dry Firewood Sales. Requirements to regulate the sale of firewood [18 AAC 50.076(k)(3)] and the prohibition of marketing of non-dry firewood [18 AAC 50.076(k)(1)] were included in the in the 2020 Amendment for the Fairbanks Nonattainment Area. EPA commented that there were enforceability issues and recommended Alaska revise the regulation to require firewood sellers to measure the moisture content at a specific frequency to ensure the stock is dry prior to selling. DEC is revising regulation 18 AAC 50.076(k)(3) by setting a frequency at monthly intervals to measure the moisture content. EPA's evaluation of the regulation prohibiting marketing non-dry firewood determined that there were enforceability issues with the measure as well. DEC is revising regulation 18 AAC 50.076(k)(1) by improving the labeling to indicate "dry firewood".

> Response: Comment acknowledged. DEC notes that the specific regulations cited by the commenter were not open for comment during this public comment period. The regulations cited by the commenter were open for public comment March 5, 2024, through May 10, 2024.
>
> Revisions based on response: None.

Aurora Energy Solutions Comment 3: Concerns with Firewood Sales. In the Fairbanks North Star Borough nonattainment area (NAA), firewood sales, particularly those of dry firewood, are facing significant challenges. Sales of dry firewood have dropped, while unregulated sales of wet firewood on platforms like Facebook Marketplace are rising. This presents a serious issue for the area's efforts to reduce $PM_{2.5}$ emissions, as wet firewood has a much higher moisture content compared to kiln-dried firewood, which can have as little as 10% moisture content, even though regulations set a limit at 20%. The discrepancy in moisture content leads to a sharp increase in particulate matter emissions when wet firewood is burned. Thus, the use of kiln-dried firewood can dramatically reduce overall emissions, but the current trend toward wet firewood sales undermines this progress.

> Response: DEC will continue its enforcement efforts to promote compliance with existing state regulations concerning the restrictions on firewood sales.
>
> Revisions based on response: None.

Aurora Energy Solutions Comment 4: Impact on Kiln-Dried Firewood Sales and Penetration. Aurora Energy Solutions (AES), the largest supplier of kiln-dried firewood in the region, utilizes local resources and provides a year-round supply of clean-burning firewood. In 2023, AES produced 4,357 cords of kiln-dried firewood, and this is projected to increase to 5,000 cords in 2024 with the operation of a second kiln. However, despite this capacity increase, market demand for kiln-dried firewood has fallen. The total consumption of firewood in the nonattainment area amounts to approximately 66,217 cords per year, and AES's production

currently accounts for only a small fraction of this total.[1] Even if the production capacity increases to 5,000 cords, the penetration of kiln-dried firewood remains limited to a small percentage of the total market.

Response: DEC encourages AES to continue to supply kiln-dried firewood to the region.

Revisions based on response: None.

Aurora Energy Solutions Comment 5: Market Conditions and Challenges. One of the primary factors driving the decline in demand for kiln-dried firewood is the decrease in heating oil prices, which makes firewood a less competitive heating option for many consumers. Simultaneously, the wet firewood market is thriving, despite regulatory efforts to limit its use. With the rise in unregulated sales through platforms like Facebook Marketplace, consumers are opting for cheaper, more accessible, but highly polluting wet firewood, rather than investing in cleaner-burning kiln-dried options. This shift is not only detrimental to businesses like AES, but also worsens the air quality challenges in the nonattainment area.

Response: DEC will continue its compliance and enforcement efforts regarding dry firewood sales requirements. DEC acknowledges that the unregulated demand and supply fuel market give the consumer the choice of using heating oil vs. firewood for space heating.

Revisions based on response: None.

Aurora Energy Solutions Comment 6: The Exception for 8-foot Rounds. The exception for 8-foot round logs further complicates efforts to control $PM_{2.5}$ emissions. This type of firewood, which is sold wet but intended for long-term storage and seasoning, does not have to meet the same moisture content requirements as split firewood. While these rounds cannot be burned immediately and require processing by the buyer, their sale contributes to the availability of wet firewood in the market. Recent data indicate that 8-foot rounds account for 20.17% of firewood sales, translating to about 1,511 cords out of the 7,491 cords sold annually.[2] Though this is a relatively small percentage of total firewood sales, the fact that wet firewood is allowed to be sold under this exception could hinder progress in reducing $PM_{2.5}$ emissions in the area if not thoroughly monitored.

Response: The provision of 8-foot rounds provide flexibility to consumers to allow responsible long-term storage and seasoning. This is not much different from allowing citizens to obtain permits to harvest their own firewood and bringing them to their premises to process them into firewood following long-term storage and seasoning. DEC notes that the exception for 8-foot rounds was not open for public comment during this comment period.

Revisions based on response: None.

[1] Appendix III.D.7.7-60 - Note – DEC believes the intended reference was to Appendix III.D.7.6-60.
[2] Ibid.

Aurora Energy Solutions Comment 7: The Need for Regulatory Support. Given the negative impact that burning wet firewood has on air quality, it seems imperative to increase enforcement efforts. If the continued sale of wet firewood contributes significantly to the nonattainment status of the area, further regulatory enforcement measures should be implemented to curb these sales. This should include stricter enforcement of existing regulations, monitoring wet firewood exceptions (like the 8-foot round logs), and increasing enforcement and penalties for non-compliant unregulated sales of wet firewood on platforms like Facebook Marketplace. Additionally, greater penetration of efforts to shift consumer behavior toward cleaner alternatives is also recommended. Furthermore, the DEC should increase outreach efforts to firewood consumers, educating them about the importance of reporting instances where they receive wet firewood within the NAA to assist the DEC in identifying and addressing those not complying with the moisture content standards.

> Response: DEC will continue its compliance and enforcement efforts regarding dry firewood sales requirements. DEC appreciates the feedback but notes that the enforcement process and outreach items discussed were not included in the SIP documents that were open for public comment. DEC reserves full enforcement discretion regarding its enforcement process.
>
> Revisions based on response: None.

Aurora Energy Solutions Comment 8: Conclusion. AES has made substantial investments in providing a cleaner alternative through kiln-dried firewood, which significantly reduces particulate emissions compared to wet firewood. However, the declining market demand for dry firewood, and the rise of unregulated wet firewood sales, threatens the viability of dry firewood sales and the region's progress toward achieving its air quality goals. Addressing these challenges through stronger enforcement of regulations and more comprehensive market interventions to promote cleaner dry firewood heating is necessary. Without such defined efforts in the 2024 SIP amendment, the viability of firewood as an alternative heat source in the NAA could be threatened.

> Response: DEC encourages AES to continue to supply dry kiln firewood to the interior of Alaska. DEC will continue its compliance and enforcement efforts regarding sales of dry firewood. DEC notes that the enforcement process was not defined in the SIP documents out for public comment. DEC reserves full enforcement discretion regarding its enforcement process.
>
> Revisions based on response: None.

University of Alaska Fairbanks (UAF) Comments

UAF Comment 1: Page 182, Section 7.7.13.8.2. The University of Alaska Fairbanks (UAF) supports the sulfur dioxide (SO_2) major source precursor demonstration (presented in Vol. II: III.D.7.8.18). UAF appreciates the ADEC effort in preparing this analysis to demonstrate that SO_2 emissions from existing major stationary sources in the nonattainment area do not significantly contribute to ambient $PM_{2.5}$ concentrations that exceed the $PM_{2.5}$ 24-hour ambient standard.

Response: Comment acknowledged

Revisions based on response: None.

UAF Comment 2: Page 182, Section 7.7.13.8.2. UAF notes the difficult effort that may be needed to revise a permit condition that is based on specific SIP language. UAF encourages ADEC to ensure that all BACT limits and compliance assurance requirements provided in the SIP are clearly and consistently stated and are fully attainable to avoid the need for future SIP and permit condition revisions.

Response: Comment acknowledged.

Revisions based on response: See responses to the more specific related comments below.

UAF Comment 3: Page 185, Section 7.7.13.8.7, Table 7.7-47. Please revise Table 7.7-47 to ensure consistency with the BACT determination and the UAF comments provided in this submission addressing the BACT determination. UAF is providing some specific edits that may not capture all the changes ADEC must make to ensure consistency with the BACT determination and UAF comments. Please note that the correct name of the UAF Campus stationary source is "University of Alaska Fairbanks Campus" and make this correction throughout the SIP documents as applicable. The stationary source is no longer named "Campus Power Plant."

Table 7.7-47

DEC BACT and SIP Findings Summary Table for University of Alaska Fairbanks Campus

Pollutant	BACT Emission Limit	BACT Control Device or Operational Limitation	Effective Dates of Control/Limit
Dual Fuel-Fired Boiler – 295.6 MMBtu/hr			
NOx	Precursor Demonstration[1]	No Additional Controls	N/A
	0.012 lb/MMBtu State Opacity Standard Under	Fabric Filters (Baghouse) and	Effective no later than

$PM_{2.5}$	 ~~50.055(a)(1)~~	Good Combustion Practices	December 31, 2024[3]
SO_2	Precursor Demonstration[2]	No Additional Controls	N/A
Diesel-Fired Engines			
NOx	Precursor Demonstration[1]	No Additional Controls	N/A
$PM_{2.5}$	~~0.015~~ **0.023** - 1.0 g/hp-hr (3-hr avg.)	Positive Crankcase Ventilation, Good Combustion Practices, and Limited Operation	Effective no later than December 31, 2024[3]
SO_2	Precursor Demonstration[2]	No Additional Controls	N/A
EUs 3 and 4 – Mid-Sized Fuel Oil-Fired Boilers			
NOx	Precursor Demonstration[1]	No Additional Controls	N/A
$PM_{2.5}$	0.012 lb/MMBtu (Diesel 3-hr avg.)	Good Combustion Practices and Limited Operation	Effective no later than December 31, 2024[3]
	0.0075 lb/MMBtu (N.G. 3-hr avg.)		
SO_2	Precursor Demonstration[2]	No Additional Controls	N/A
EUs 17 through 21 – Small-Sized Fuel Oil-Fired Boilers			
NOx	Precursor Demonstration[1]	No Additional Controls	N/A
$PM_{2.5}$	0.016 lb/MMBtu (Diesel 3-hr avg.)	Good Combustion Practices and Limited Operation	Effective no later than December 31, 2024[3]
SO_2	Precursor Demonstration[2]	No Additional Controls	N/A
EU 9a – Pathogenic Waste Incinerator (83 lb/hr)			
NOx	Precursor Demonstration[1]	No Additional Controls	N/A
$PM_{2.5}$	4.67 lb/ton 109 tons of waste combusted per 12-month rolling period	Limited Operation and Multiple Chamber Design	Effective no later than December 31, 2024[3]
SO_2	Precursor Demonstration[2]	No Additional Controls	N/A
Material Handling Sources (Coal Prep and Ash Handling)			
$PM_{2.5}$	0.003 - 0.050 gr/dscf	Enclosed Emission Points, fabric filters, and vents	Effective no later than December 31, 2024[3]
	5.50E-05 lb/ton	Enclosure Emission Points	

[1] NOx precursor demonstration has been approved by EPA.

[2] Assumes SO_2 precursor demonstration will be approved by EPA.

[3] The Department is revoking and reissuing the previous SIP minor permit to include updated requirements for $PM_{2.5}$ and to remove requirements for SO_2.

Response: Comment acknowledged

Revisions based on response: Chapter III.D.7.07 and the BACT determination in the Appendix have been amended to reflect the name to "University of Alaska Fairbanks

Campus" as commented. DEC also changed the minimum emission factor (E.F.) for the diesel-fired engines from 0.015 g/hp-hr to 0.023 g/hp-hr for the reasons stated in response to UAF Comment 26. DEC retained the State's opacity standard as a BACT limit for the reasons stated in response to Doyon Comment 13.

UAF Comment 4: Appendix III.D.7.7-1482 through 1543. Please note that the correct name of the UAF Campus stationary source is "University of Alaska Fairbanks Campus" and make this correction throughout the BACT determination documents as applicable. The stationary source is no longer named "Campus Power Plant."

Response: Comment acknowledged

Revisions based on response: Appendix III.D.7.7-1482 through 1543 have been updated to reflect the correct name.

UAF Comment 5: Appendix III.D.7.7-1482 through 1543, Best Available Control Technology (BACT) Determination. UAF has the following general comment about this BACT determination. The document presents the selected BACT limits in Step 5 of the various BACT analyses. Some of the BACT selections include certain monitoring, recordkeeping, and reporting (MR&R) requirements to demonstrate compliance with BACT limits. Tables in Section 6 of the BACT determination present "summaries" of the BACT limits, but also include compliance methods for which the underlying rationale or other explanations are not provided elsewhere. Following the BACT determination (pages 1535 through 1543), other tables present separate lists of BACT requirements and associated MR&R requirements for which underlying rationale or other explanations are not provided elsewhere. As a result, each BACT limit and the associated requirements are presented in a disjointed fashion and differently in each section of the document. The BACT determination is not entirely internally consistent.

BACT is a federally enforceable emission limit based on technology that is most cost effective. The U.S. Environmental Protection Agency (EPA) has provided copious guidance documents which prescribe specific steps and methods to prepare a BACT analysis. The MR&R requirements that accompany any selected BACT limit are to ensure that the BACT limit is federally enforceable and that the owner/operator is demonstrating compliance with the BACT limit. This BACT determination should logically step through the BACT analysis process for each emissions unit and emission control technology being considered. The determination should be very clear as to the BACT limit, averaging period, and initial and ongoing MR&R requirements, and provide the appropriate supporting rationale for each limit and the MR&R. The MR&R requirements should be clear and specifically tied to a particular BACT limit. UAF requests that ADEC take the following steps when finalizing the BACT determination.

- Ensure each section of the BACT analysis follows the prescribed 5-step BACT process.
- Clearly identify the selected BACT emission limits.

- Clearly address MR&R requirements separately from BACT limits, tie each MR&R requirement to a particular BACT limit, and provide appropriate rationale for the selected MR&R requirements.

  Response: The Summary tables at the end of each BACT determination document are intended to list the BACT limits and selected controls in table form for easy reference derived from the corresponding Step 5 sections. DEC intended to only include key MR&R requirements under Step 5 of each BACT determination. For $PM_{2.5}$ BACT limits, a fully developed MR&R section is listed in each corresponding Minor Permit issued as part of this SIP amendment.

  Revisions based on response: DEC has removed the Step 5 MR&R requirements from the BACT determination document. MR&R requirements associated with EUs from Step 5 are now contained in Minor Permit AQ0316MSS08 Rev. 1 and the UAF SO_2 MR&R document.

UAF Comment 6: Appendix III.D.7.7-1485, Section 1, third paragraph. The paragraph states that this BACT addendum provides BACT analyses for $PM_{2.5}$ and SO_2 emissions but does not provide an explanation or reference to the SO_2 major source precursor demonstration in Vol. II: III.D.7.8.18. Please add language to this paragraph to ensure that this BACT determination includes the statement that BACT for SO_2 is not required based on the results of the SO_2 precursor demonstration. UAF notes that similar discussions were included in BACT addenda for other major stationary sources and suggests the following language.

> Since preparing the SIP amendments adopted on November 18, 2020, the Department conducted extensive modeling and found that SO_2 emissions from stationary sources do not significantly contribute to ground level $PM_{2.5}$ concentrations, and that SO_2 BACT emission limits are therefore not required for major stationary sources in the Fairbanks North Star Borough. SO_2 BACT determinations have, however, been included in this BACT Determination Addendum because the SO_2 major source precursor demonstration has not yet been approved by EPA.

Response: DEC agrees with this comment as it further clarifies DEC's findings that SO_2 BACT emission limits are not required as part of this SIP implementation addendum.

Revisions based on response: DEC has added the proposed paragraph in Appendix III.D.7.7-1485, Section 1 (Introduction), as requested, consistent with the same narrative in the Introduction section for the other affected facilities. In addition, DEC also added a portion of this suggested language into the existing 1st paragraph in Section 7.7.13.8.2 of the Control Strategies Chapter. It now reads as follows:

"Summary tables for BACT determinations for each power plant are listed in sub-sections below. These summary tables do not include requirements for NO_X, VOC, or SO_2 controls, because DEC is relying on precursor demonstrations to show that controls for these pollutants are not needed for attaining the standard, as allowed under the $PM_{2.5}$

NAAQS Final SIP Requirements Rule. SO_2 BACT determinations have, however, been included in the BACT Determination Addendum under this chapter because the SO_2 major source precursor demonstration has not yet been approved by EPA. For additional information and detailed documentation on the determination of BACT limits, corresponding monitoring, recordkeeping and reporting requirements, and support documentation for DEC's determination, see Appendix III.D.7.7 of the 2024 DEC BACT Determinations."

UAF Comment 7: Appendix III.D.7.7-1486, Section 2, Table A. Please revise Table A to reflect that EU 3 is not configured to fire natural gas. Please revise the rating for EU 24 from "51 kW" to "72 hp" and the rating of EU 26 from "45 kW" to "64 hp" for consistency with the permitted inventory in the Operating Permit AQ0316TVP03.

Response: DEC agrees that consistency with the emissions unit inventory in the operating permit is important. Table A was amended to reflect that EU ID 3 uses diesel and included the EU ratings in hp instead of kW.

Revisions based on response: Table A was amended to reflect diesel as the fuel type for EU ID 3, a rating of 72 hp for EU 24 and, a rating of 64 hp for EU 26.

UAF Comment 8: Appendix III.D.7.7-1490, Section 4.1, Step 1, item (f). Please provide a citation for the information on Good Combustion Practices (GCP) presented in item (f).

Response: The GCP listed are general elements derived from common knowledge regarding combustion burners for boilers. As part of normal operations, GCP are accomplished through adequate operator practices and maintenance practices. Significant literature may be found on various federal, state or private industry publications that in some way or another point to the elements listed under Appendix III.D.7.7-1490, Section 4.1, Step 1, item (f). DEC used knowledge acquired over the years regulating boilers to derive the elements listed. An in-depth discussion of each item is beyond the scope of this RTC document.

Revisions based on response: None

UAF Comment 9: Appendix III.D.7.7-1492, Section 4.1, Step 5, items (d) and (e). Please revise the list of the selected BACT for the Large Dual Fuel-Fired Boiler to remove items (d) and (e). This BACT determination does not identify these requirements as available control technologies or carry them through the BACT analysis. This report does not provide any rationale for including these requirements as BACT limits. Compliance with opacity standards is not addressed as an available control technology for $PM_{2.5}$ emissions in Step 1 of Section 4.1. These items should be included in the MR&R addendum tables that follow the BACT determination on page Appendix III.D.7.7-1535.

Response: See related Response to Doyon Comment 13.

Revisions based on response: None.

UAF Comment 10: Appendix III.D.7.7-1492, Section 4.2. Please revise the paragraph following Table 4-3 as shown below.

> Possible $PM_{2.5}$ emission control technologies for mid-sized ~~diesel~~ **natural gas-fired** boilers were obtained from the RBLC. The RBLC was searched for all determinations in the last 10 years under the process code 12.310, Industrial Size Gaseous Fuel Boilers (>100 MMBtu/hr and ≤ 250 MMBtu/hr). The search results for mid-sized ~~diesel~~ **natural gas-fired** boilers are summarized in Table 4-4.

Response: The comment identified typographical errors in the document. The paragraph was amended as proposed.

Revisions based on response: The paragraph following Table 4-3 now reads as follows: Possible $PM_{2.5}$ emission control technologies for mid-sized natural gas-fired boilers were obtained from the RBLC. The RBLC was searched for all determinations in the last 10 years under the process code 12.310, Industrial Size Gaseous Fuel Boilers (>100 MMBtu/hr and ≤ 250 MMBtu/hr). The search results for mid-sized natural gas-fired boilers are summarized in Table 4-4.

UAF Comment 11: Appendix III.D.7.7-1494, Section 4.2, Step 2. Please revise the third paragraph of Step 2 as follows. As written, the paragraph appears to reference EUs 1 and 2, which have been permanently removed from service.

> EU 3 is used as a backup to ~~the existing large boilers if one of them fails, and will be used as the backup~~ EU 113 if it fails. As the backup EU, it is not technically feasible to use an operational limit to control $PM_{2.5}$ emissions.

Response: The comment clarifies the purpose of EU ID 3.

Revisions based on response: The paragraph was edited as proposed.

UAF Comment 12: 9.Appendix III.D.7.7-1495, Section 4.2, Step 5, item (d). Please revise the list of the selected BACT to remove item (d). This BACT determination does not identify this requirement as an available control technology or carry it through the BACT analysis. This report does not provide any rationale for including this requirement as a BACT limit. This item should be included in the MR&R addendum tables that follow the BACT determination on page Appendix III.D.7.7-1535. If ADEC declines to delete this MR&R requirement, please revise the MR&R language to provide a more specific requirement, as follows.

Initial compliance with the proposed $PM_{2.5}$ emission limits will be demonstrated by conducting a performance test on **EU IDs 3 or 4 on diesel fuel and EU ID 4 on natural gas**; and

Response: The proposed edits make the source testing requirement consistent with the proposed Minor Permit AQ0316MSS08 Revision 1.

Revisions based on response: Item d, has been updated as proposed.

UAF Comment 13: Appendix III.D.7.7-1497, Section 4.3, Step 5, item (b). Please provide an applicable averaging period for the 0.016 lb/MMBtu emission limit.

Response: The applicable averaging period is 3-hour average.

Revisions based on response: Step 5, item (b) has been updated with the averaging period.

UAF Comment 14: Appendix III.D.7.7-1497, Section 4.3, Step 5, item (c). Please revise the list of the selected BACT to remove item (c). This BACT determination does not identify this requirement as an available control technology or carry it through the BACT analysis. This report does not provide any rationale for including this requirement as a BACT limit. This item should be included in the MR&R addendum tables that follow the BACT determination on page Appendix III.D.7.7-1535.

Response: DEC did not include references to NESHAP Subpart JJJJJJ (item (c)) in the preliminary or final version of Minor Permit AQ0316MSS08 Rev. 1 for the small diesel-fired boilers.

Revisions based on response: DEC removed item (c) from the Final UAF BACT Determination in order to maintain consistency with the BACT requirements in Minor Permit AQ0316MSS08 Rev. 1.

UAF Comment 15: Appendix III.D.7.7-1499, Section 4.4, Step 1, item (d). The statement in item (d) of this section is imprecise and unclear. The RACT/BACT/LAER Clearinghouse (RBLC) is an information source to consider when identifying available control technologies. Listings in the RBLC do not impose requirements, but, instead, provide information about BACT determination made by air quality permitting agencies. Per EPA guidance, an NSPS defines the minimal level of control to be considered in the BACT analysis. Please revise the language in (d) as follows to improve the accuracy of this statement.

~~RBLC determinations for federal emissions standards require the engines meet the requirements of 40 C.F.R. 60 NSPS Subpart IIII, 40 C.F.R. 63~~

~~Subpart ZZZZ, non-road~~ ~~engines (NREs), or EPA tier certifications.~~ **The** NSPS **40 CFR 60** Subpart IIII applies to stationary compression ignition internal combustion engines that are manufactured or reconstructed after July 11, 2005. EU 8 was manufactured prior to July 11, 2005 and has not been reconstructed since. Therefore, EU 8 is not subject to NSPS Subpart IIII. EU 8 is considered an institutional emergency engine and is therefore exempt from NESHAP **40 CFR 63** Subpart ZZZZ. For these reasons, federal emission standards will not be carried forward as a control technology for EU 8. ~~However,~~ EU 35 ~~is newly~~ was installed in 2019 and is subject to the requirements of 40 CFR 60 Subpart IIII, which is considered the baseline ~~emission rate for the EU~~ **level of control for this emissions unit.**

Response: The proposed comment improves the explanation of federal rule applicability for EU IDs 8 and 35.

Revisions based on response: Section 4.4, Step 1, item (d) has been amended as proposed.

UAF Comment 16: Appendix III.D.7.7-1499, Section 4.4, Step 1, (e). Please revise Step 1, item (e) for clarity as follows.

EU 8 currently operates under a combined annual NOx emission limit with EU 4. Limiting the operation of emissions units reduces the potential to emit of those units. ~~Additionally,~~ EU 35 is ~~currently restricted~~ **regulated under** the NSPS Subpart IIII requirements for emergency engines**, which limits non-emergency operating hours.** Therefore, the Department considers limited operation a technically feasible control technology for the large diesel-fired engines.

UAF notes that because EU 8 is classified as an emergency engine under Subpart ZZZZ (but not subject to Subpart ZZZZ per 40 CFR 63.6585(f)(3)), EU 8 must meet the definition of an emergency stationary RICE in 40 CFR 63.6675, which includes operating according to 40 CFR 63.6640(f). As a result, EU 8 is also required to limit non-emergency operating hours to 100 hr/yr, as reflected in item (b) of the selected BACT in Step 5.

Response: The proposed edits to Step 1, item (e) improve the explanation of federal rule applicability to EU 8.

Revisions based on response: Section 4.4, Step 1, (e) was edited as proposed.

UAF Comment 17: Appendix III.D.7.7-1499, Section 4.4, Step 2. Please revise Step 2 for clarity as follows.

> As explained in Step 1 of Section 4.4, the Department does not consider meeting the federal emission standards as a technically feasible technology to control $PM_{2.5}$ emissions from EU 8. Additionally, EU 8 is equipped with SCR for controlling NO_x emissions, which creates a backpressure. This backpressure does not allow for the operation of a DPF. Therefore, a DPF is not a technically feasible $PM_{2.5}$ control option for ~~the EU~~ **EU 8**. **Use of a DPF** ~~but does~~ remains as an option for EU 35.
>
> Response: The proposed edits to Step 1, item (e) improve the readability of the proposed text.
>
> Revisions based on response: Text amended as follows to clarify that the use of DPF and federal emissions standards remains an effective control option for EU 35.
>
> As explained in Step 1 of Section 4.4, DEC does not consider meeting the federal emission standards as a technically feasible technology to control $PM_{2.5}$ emissions from EU 8. Additionally, EU 8 is equipped with SCR for controlling NOx emissions, which creates a backpressure. This backpressure does not allow for the operation of a DPF. Therefore, a DPF is not a technically feasible $PM_{2.5}$ control option for EU 8. The use of a DPF and federal emissions standards remains as effective control options for EU 35.

UAF Comment 18: Appendix III.D.7.7-1499, Section 4.4, Step 3. Step 3 ranks the remaining $PM_{2.5}$ control technologies for the large diesel-fired engines. Some of the items in the list have either not been addressed in Steps 1 and/or 2, or are not properly addressed in Step 3 based on the analysis in Steps 1 and 2. Please revise Step 3 to clarify the following issues.

a. Item (a), diesel particulate filter (DPF). Per Step 2, DPF is only carried forward to Step 3 for EU 35 but not EU 8. Please revise the discussion in Step 3 to accurately capture and rank the remaining control technologies for each engine being addressed in Section 4.4.
b. Item (c), low ash/sulfur diesel. Low sulfur diesel fuel is not identified as an available option in Step 1. Please clarify accordingly.
c. Item (d). Per Step 1, federal standards are only carried forward in the analysis for EU 35, not EU 8. Please clarify accordingly.

> Response: While the selection of $PM_{2.5}$ Control Technologies for the Large Diesel-Fired Engines listed under Section 4.4, Step 3 may be more completely explained, it adequately identifies and ranks the efficiency of the controls considered.
>
> Revisions based on response: None in Step 3. See changes to Step 2 addressed in response to Comment 17 above.

UAF Comment 19: Appendix III.D.7.7-1500, Section 4.4, Step 4. This section presents the UAF BACT proposal for EU 8, not EU 35. Please revise the UAF BACT proposal for accuracy as follows.

> UAF proposes the following as BACT for $PM_{2.5}$ emissions from the large diesel-fired engine~~s~~
>
> **EU 8**:
>
> a. $PM_{2.5}$ emissions from EU 8 shall be controlled by operating with positive crankcase ventilation;
> b. $PM_{2.5}$ emissions from EU 8 shall not exceed 0.32 g/hp-hr;
> c. **EU 8** shall combust only low ash diesel; and
> d. $PM_{2.5}$ emissions from EU 8 will be limited by complying with the combined annual NO_x emission limit of 40 tons per 12 month rolling period for EUs 4 and 8.
>
> Response: DEC notes that UAF did not propose the limits in Section 4.4 Step 4 listed for EU 35 because it was added after their initial BACT submittal.
>
> Revisions based on response: Section 4.4, Step 4 has been revised to add a footnote the clarifies that EU 35 was added to the stationary source after the initial submittal of BACT proposal by UAF. DEC notes that this has no change on the final BACT determinations for EU 35 in Step 5.

UAF Comment 20: Appendix III.D.7.7-1500, Section 4.4, Step 4. Please revise the following paragraph for clarity.

> Department Evaluation of BACT for $PM_{2.5}$ Emissions from the Large Diesel-Fired Engines: ~~Considering~~ **Because** EU 8 cannot operate with a DPF due to the unacceptable increase in backpressure that the DPF would cause, UAF has proposed the top level of $PM_{2.5}$ controls for the engine. However, for EU 35 a DPF is a technically feasible control option. ~~With that said,~~ EU 35 has potential PM2.5 emissions of 0.03 tpy, which is an order of magnitude lower than the two other diesel engines EUs 26 and 27 that the Department found DPFs to be economically infeasible in Table's 4-13 and 4-14. Therefore, ~~the Department did not perform a cost analysis for~~ **an economic analysis for implementing** DPF on EU 35 ~~as it~~ would ~~have~~ **result in** an even higher ~~cost/ton~~ **cost-effectiveness** value. The Department notes that EU 35 is limited to 100 hours per calendar year of non-emergency operation and required to combust ULSD under the existing federal NSPS Subpart IIII requirements.

Please note that, while the last sentence states that EU 35 is required to combust ULSD, low sulfur diesel fuel is not identified as an available option in Step 1.

Response: The proposed comment improves the readability of the paragraph.

Revisions based on response: Paragraph was revised as proposed.

UAF Comment 21: Appendix III.D.7.7-1500, Section 4.4, Step 5, (a). As addressed above, note that low sulfur diesel fuel is not identified as an available option in Step 1.

Response: The use of ULSD has been identified as a BACT control measure for both EU 8 and 35.

Revisions based on response: None

UAF Comment 22: Appendix III.D.7.7-1500, Section 4.4, Step 5, (f). Please include MR&R requirements in a separate section rather than include this item in the list of BACT requirements.

Response: DEC agrees that MR&R requirements are better suited in the $PM_{2.5}$ MSS permit which is being incorporated into the SIP.

Revisions based on response: DEC has removed Step 5, (f) from this document. All of the MR&R requirements associated with these EUs from Step 5, (f) are now contained in Condition 8 and Table 5 of Minor Permit AQ0316MSS08 Rev. 1.

UAF Comment 23: Appendix III.D.7.7-1501, Section 4.4, Table 4-10. Please revise the UAF entry in Table 4-10 to be consistent with the selected BACT in Step 5. UAF is providing some specific edits that may not capture all of the changes ADEC must make to ensure consistency with the BACT determination.

Facility	Process Description	Capacity	Limitation	Control Method
UAF	Large Diesel-Fired Engines	> 500 hp	0.05 – 0.32 g/hp-hr **(3-hour average)**	Positive Crankcase Ventilation Limited Operation **Good Combustion Practices** Ultra-Low Sulfur **Diesel** ~~Deisel~~

Response: Request correctly identifies missing information in the table.

Revisions based on response: Section 4.4, Table 4-10 has been updated to include "Good Combustion Practices" and the 3-hr averaging period for the emission limits.

UAF Comment 24: Appendix III.D.7.7-1503, Section 4.5, Step 4, Department Evaluation of BACT for PM2.5 Emissions from the Small Diesel-fired Engines. Please revise this paragraph to address the following concerns.

a. This paragraph states that ADEC assumed a maximum control efficiency of 90% for DPF. The vendor-provided PM emission reduction capability, presented in the UAF BACT analysis, is 85 percent. UAF is not aware of a reason to use a different and assumed value when vendor information is available. Please revise the analysis to reflect available vendor data or provide appropriate rationale for assuming a different control efficiency.
b. This paragraph states that "the estimated equipment life of 15 and 20 years is a conservative estimate." UAF suggests further clarifying this statement to explain that a conservatively high estimate of equipment life results in a conservatively low annualized cost estimate.
c. In the second to last sentence in this paragraph, UAF suggests stating that the Department "excluded" certain annual costs instead of using the phrase "left out."

Response: Regarding Comment a, DEC used a control efficiency generally acceptable for that type of technology. Regarding Comment b, further explanation is not deemed necessary. Regarding Comment c, DEC agrees that the word "excluded" provides more clarity in Section 4.5, Step 4.

Revisions based on response: Paragraph was edited as proposed under Comment c.

UAF Comment 25: Appendix III.D.7.7-1504, Section 4.5, Step 5, (e). Please include MR&R requirements in a separate section rather than include this item in the list of BACT requirements. Note that any requirement to comply with provisions in the federal standards should specify "40 CFR 60 Subpart IIII or 40 CFR 63 Subpart ZZZZ, as applicable," especially when referring to a list of emissions units which may be subject to only one of those regulations.

Response: DEC agrees that MR&R requirements are better suited in the PM2.5 MSS permit which is being incorporated into the SIP.

Revisions based on response: DEC has removed Step 5, (e) from this document. All of the MR&R requirements associated with these EUs from Step 5, (f) are now contained in Minor Permit AQ0316MSS08 Rev. 1.

UAF Comment 26: Appendix III.D.7.7-1504, Section 4.5, Table 4-15. Please revise Table 4-15 to address the following concerns.

a. EU 27 – please revise the year from "TBD" to "2013." The correct year is reflected in Table A of Permit AQ0316TVP03.

b. EU 27 – Please revise the BACT limit from "0.15 g/hp-hr" to "0.19 g/hp-hr." The ADEC cost analysis is based on the Tier 3 emission standard including the 1.25 not-to-exceed (NTE) multiplier. The resulting BACT limit should also include the NTE multiplier. UAF notes that this emission limit was revised in this version of the SIP but was not flagged as a change.

c. EU 29 – please revise the BACT limit from "0.015 g/hp-hr" to "0.023 g/hp-hr" to incorporate the NTE multiplier. This requested change is consistent with the ADEC cost analysis and footnote 8 to Table A-1 in Appendix A of the Technical Analysis Report (TAR) to Permit AQ0316MSS08.

d. EU 34 – please revise the BACT limit from "0.15 g/hp-hr" to "0.19 g/hp-hr." The ADEC cost analysis includes the 1.25 not-to-exceed (NTE) multiplier. The resulting BACT limit should also include the NTE multiplier.

Response: DEC concurs that BACT limits should account for NTE multipliers for EPA tiered diesel engines.

Revisions based on response: DEC adjusted the E.F. for the EU IDs listed above to include NTE multipliers for the diesel engines in accordance with 40 C.F.R. 1039.101.

UAF Comment 27: Appendix III.D.7.7-1505, Section 4.5, Table 4-16. Please revise the Limitation entry for the UAF engines from "0.015 – 1.0 g/hp-hr" to "0.023 – 1.0 g/hp-hr" per the comments addressing Table 4- 15 above.

Response: DEC concurs that BACT limits should account for NTE multipliers for EPA tiered diesel engines.

Revisions based on response: . DEC adjusted the lower E.F. from 0.015 g/hp-hr to 0.023 g/hp-hr for the reasons stated in response to Comment 26.

UAF Comment 28: Appendix III.D.7.7-1507, Section 4.6, Step 5, item (b). Please provide an averaging period for the emission limit.

Response: Given that the incinerator is a batch incinerator, a performance test would require EPA Method 5 over as many source test runs as possible during the entire burn cycle. Therefore, the duration of the test would depend on the duration of the burn cycle.

Revisions based on response: None.

UAF Comment 29: Appendix III.D.7.7-1507, Section 4.6, Step 5, (e). Please include MR&R requirements in a separate section rather than include this item in the list of BACT requirements.

Response: See response to Comment 22 above.

Revisions based on response: DEC has removed Step 5, (e) from this document. All of the MR&R requirements associated with these EUs from Step 5, (e) are now contained in Minor Permit AQ0316MSS08 Rev. 1.

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UAF Comment 30: Appendix III.D.7.7-1507, Section 4.6, Table 4-19. Please update the Limitation entry in Table 4-19 to include an averaging period for the 4.67 lb/ton emission limit as appropriate.

Response: See response to Comment 28 above.

Revisions based on response: None.

UAF Comment 31: Appendix III.D.7.7-1508, Section 4.7, Step 1, item (c). UAF disagrees that suppressants are technically feasible. Adding water or another fluid to the materials being handled at the plant would introduce moisture and/or additional chemicals to the combustion chamber in the boiler. Adding water or another fluid would also result in blinding the fabric filters in the bin vents on the outlets of the handling systems or clogging of the handling systems because the equipment is designed to handle only dry material. Several reasons exist for not using suppressants on these enclosed material handling systems. Based on this reason, please add suppressants to the list of non-technically feasible control technologies in Step 2 and remove Suppressants from the list of control technologies in Step 3.

Response: The use of suppressants has been demonstrated to be a viable measure to control fugitive dust from certain types of material handling units in coal power plants and in the end wasn't chosen as BACT.

Revisions based on response: None.

UAF Comment 32: Appendix III.D.7.7-1510, Section 4.7, Step 5, (c). Please include MR&R requirements in a separate section rather than include this item in the list of BACT requirements.

Response: See response to Comment 22 above.

Revisions based on response: DEC has removed Step 5, (c) from this document. All of the MR&R requirements associated with these EUs from Step 5, (c) are now contained in Minor Permit AQ0316MSS08 Rev. 1.

UAF Comment 33: Appendix III.D.7.7-1510, Section 4.7, Step 5, item (d) and Table 4-20. Please include averaging periods for the emission limits provided in Table 4-20. In addition,

please revise the emission limit for EU 114 to reflect the correct number of significant digits. The correct emission limit for EU 114 is "0.05 gr/dcf." This emission limit is based on the PM emission factor for this emissions unit, which is the PM emission standard in 18 AAC 50.055(b)(1).

Response: The comment identified a typographical error for the PM emission limit for EU 114.

Since the Permittee may be required to conduct a $PM_{2.5}$ source test in accordance with the methods and procedures specified in 40 C.F.R. 60 Appendix A and State requirements, DEC agrees that establishing an averaging period is appropriate.

Revisions based on response: Table 4-20. PM2.5 Control for Material Handling Units has been edited to reflect an emission limit of 0.05 gr/dscf. An 3-hour averaging period has been added to the emission limits.

UAF Comment 34: Appendix III.D.7.7-1510, Section 5. Please revise the paragraph in Section 5 to reflect that UAF provided BACT analyses for emissions units campus-wide, not just those located at the combined heat and power plant, as follows.

> The Department based its SO_2 assessment on BACT determinations found in the RBLC, internet research, and BACT analyses submitted to the Department by GVEA for the North Pole Power Plant and Zehnder Facility, Aurora for the Chena Power Plant, US Army for Fort Wainwright, and UAF for the **University of Alaska Fairbanks Campus** ~~Combined Heat and Power Plant.~~

Response: Comment noted.

Revisions based on response: Section 5 has been revised, per comment above.

UAF Comment 35: Appendix III.D.7.7-1511, Section 5.1, Step 1, (a). Please revise the Flue Gas Desulfurization (FGD) paragraph for clarity as follows.

> FGD is a set of technologies used to remove SO_2, acid gases such as hydrogen chloride (HCL), and hazardous air pollutants (e.g., mercury (Hg)), from exhaust flue gases. FGD is a common add-on control technology that uses chemical processes to remove ~~of~~ SO_2 at coal-fired power plants. FGD control systems ~~includes~~ **include** wet flue gas desulfurization (WFGD, **also called** ~~AKA~~ wet scrubbers), spray dry adsorption (SDA), circulating dry scrubber (CDS), and dry sorbent injection (DSI). These four control technologies are discussed below in detail using information submitted from UAF's BACT analysis and Section 5 – SO_2 and Acid Gas Controls of the EPA Air Pollution

Control Cost Manual (EPA CCM).

Response: DEC made the revisions as requested for clarity.

Revisions based on response: FGD paragraph (a) in Step 1 revised, per comment above.

UAF Comment 36: Appendix III.D.7.7-1511, Section 5.1, Step 1, (a)(1). Please provide citations for the information presented in this section addressing wet flue gas desulfurization (WFGD) systems.

Response: Comment noted.

Revisions based on response: DEC included a reference to the EPA Air Pollution Control Cost Manual, Section 5 – SO_2 and Acid Gas Controls, Chapter 1, Page 1-9.

UAF Comment 37: Appendix III.D.7.7-1513, Section 5.1, Step 1, (a)(2). Please provide citations for the information presented in this section addressing spray dry absorbers (SDA). This paragraph includes a claim that spray dryers can achieve SO_2 removal efficiencies of up to 95%. A specific citation should be provided for this information.

Response: Comment noted.

Revisions based on response: DEC included a reference to the EPA Air Pollution Control Cost Manual, Section 5 – SO_2 and Acid Gas Controls, Chapter 1, Table 1.3.

UAF Comment 38: Appendix III.D.7.7-1513, Section 5.1, Step 1, (a)(3). Please provide citations for the information presented in this section addressing Circulating Dry Scrubbers. This paragraph includes a claim that CDS can achieve over 98% reduction in SO_2 and other acid gases. A specific citation should be provided for this information.

Response: Comment noted.

Revisions based on response: DEC included a reference to the EPA Air Pollution Control Cost Manual, Section 5 – SO_2 and Acid Gas Controls, Chapter 1, Page 1-11.

UAF Comment 39: Appendix III.D.7.7-1513, Section 5.1, Step 1, (a)(4). Please provide citations for the information presented in this section addressing Dry Sorbent Injection (DSI). UAF notes that this paragraph was added to this version of the SIP but was not flagged as a change.

Response: Comment noted.

Revisions based on response: DEC included a reference to the EPA Air Pollution Control Cost Manual, Section 5 – SO_2 and Acid Gas Controls, Chapter 1, Page 1-11. Also, the final version of the document will remove bold and underline text to annotate changes from previous submittals.

UAF Comment 40: Appendix III.D.7.7-1515, Section 5.1, Step 1, (b). UAF notes that this paragraph has been revised significantly from the previous version of the SIP, beyond the marked changes. This paragraph includes the statement, "However, because the fluidized coal bed can be created with alternative fluidizing materials such as sand without the same SO_2 emission reduction benefits as limestone, FBLI is considered an add-on control." This statement is a generalization regarding fluidized bed boilers. For this specific boiler, limestone must be used to fluidize the bed. In other words, FBLI is integral to the design of EU 113. Please revise the analysis presented in this paragraph accordingly.

Response: The comment clarifies that FBLI is integral to the operation of EU 113.

Revisions based on response: The sentence was deleted from Step 1, (b).

UAF Comment 41: Appendix III.D.7.7-1515, Section 5.1, Step 1, (b). Please revise the second to last sentence in this paragraph for clarity as follows.

~~However, as~~ **As** demonstrated by the ~~semi-annual~~ continuous emissions monitoring system (CEMS) information submitted by the Permittee with their semi-annual reports, the actual SO_2 emission rates have been considerably lower.

Response: DEC made the revisions as requested for clarity.

Revisions based on response: Paragraph (b) in Step 1 revised, per comment above.

UAF Comment 42: Appendix III.D.7.7-1516, Section 5.1, Step 2. Technical infeasibility should be addressed in Step 2 of the top-down BACT analysis. UAF recommends that ADEC move the technical feasibility/infeasibility discussions for each technology in Step 1 to this section. In addition, please use the term "infeasible" instead of "unfeasible" for clarity and consistency.

Response: DEC finds the discussion of infeasibility under Step 1 adequate. While the words are interchangeable the use of only one may improve readability of the text.

Revisions based on response: The word "unfeasible" was changed to "infeasible."

UAF Comment 43: Appendix III.D.7.7-1516, Section 5.1, Step 3. Please provide a citation for each control efficiency presented in this section. In addition, UAF notes that SDA has been

deleted and CDS has been added to this section in this version of the SIP but these edits were not flagged as changes. The control efficiencies for DSI were also revised in this version of the SIP but were not flagged as a change.

Response: Comment noted.

Revisions based on response: DEC updated the control efficiencies in Section 5.1, Step 3 based on the vendor data provided by UAF.

UAF Comment 44: Appendix III.D.7.7-1516, Section 5.1, Step 4, first paragraph, first sentence. Please revise the date of the cited economic analysis from July 5, 2023, to February 21, 2023. UAF provided an SO_2 BACT analysis for EU 113 to the EPA on February 21, 2023, and provided a copy to ADEC at that time. UAF notes that the first two sentences in this paragraph were added to this version of the SIP but were not flagged as a change.

Response: Comment acknowledged.

Revisions based on response: First sentence was amended to add the previous submittal date.

UAF Comment 45: Appendix III.D.7.7-1516, Section 5.1, Step 4, first paragraph, third sentence. This sentence begins with the phrase "for the sake of completeness" when stating that UAF provided a cost analysis for WFGD using an EPA Control Cost Manual (CCM) cost calculation spreadsheet. Please delete that phrase. UAF provided an analysis that was as robust as possible. Because no vendor cost data was available for WFGD, UAF contacted EPA to discuss the use of this cost model and prepared additional analyses to ensure that this model would provide a meaningful result in this case.

Response: Comment acknowledged.

Revisions based on response: Phrase deleted as commented.

UAF Comment 46: Appendix III.D.7.7-1516, Section 5.1, Step 4, first paragraph. Please revise the second to last sentence in this paragraph for clarity as follows.

Summaries of these two analyses are shown below in Table 5-2 for the ~~regular "average cost effectiveness"~~ **standard cost-effectiveness results** and Table 5-3 for the incremental cost-effectiveness **results**.

Response: The proposed edit enhances the readability of the sentence.

Revisions based on response: Paragraph modified as commented.

UAF Comment 47: Appendix III.D.7.7-1517, Section 5.1, Step 4, UAF BACT proposal, item (c). Please clarify item (c) to reflect that UAF proposed an SO_2 emission limit of 0.125 lb/MMBtu on a 30-day rolling average basis. As written, this item does not present the averaging period for this proposed limit.

Response: DEC agrees on the averaging period for UAF's proposed BACT limit

Revisions based on response: Averaging period added.

UAF Comment 48: Appendix III.D.7.7-1517 through 1518, Section 5.1, Step 4, Department Evaluation of BACT for SO_2 Emissions from the Dual Fuel-Fired Boiler, first paragraph. UAF disagrees that this analysis is sufficient to impose a 30-day rolling average limit of 0.10 lb/MMBtu. The analysis described in this section is based on two years of performance data from a new boiler, which provides no assurance that the boiler will continue to perform at the current levels over the life of the boiler. The SO_2 CEMS data provide actual emission rates which may not be a reasonable representation of all boiler operating conditions. The analysis as presented in this section is flawed without an evaluation of whether the 0.10 lb/MMBtu limit is sustainable for the lifespan of the boiler and so does not justify this limit. UAF notes that the ADEC analysis using the SO_2 CEMS data and resulting conclusion does not follow the prescribed top-down, five-step BACT analysis approach.

Response: DEC used all available information it had access to, including but not limited to the Permittee's and EPA comments and discussions in making its determination. As UAF indicated under Comment 40 above, EU 113 limestone must be used to fluidize the bed and that FBLI is integral to the design of EU 113. UAF has not submitted sufficient information that would point that CEMS data over two years is not reasonably representative of future normal operations, and how boiler performance would decrease in such a way that SO_2 emissions would increase on a lb/MMBtu basis. To DEC's knowledge, UAF has been fully operational since 2020 and finalized the shakedown period for the boiler. Furthermore, CEMS data indicates that EU 113 can consistently maintain SO_2 emission levels well below the determined 0.10 lb/MMBtu limit. The two years of SO_2 CEMS data submitted by UAF for 2022 and 2023 had the highest 30-day rolling average 0.06 lb/MMBtu, which occurred in the second half of 2022. UAF noted in their proposal to limit the boiler to 0.125 lb/MMBtu of SO_2 emissions that the sulfur content of the coal delivered over this timeframe averaged 0.129 percent with a range of 0.07 to 0.24, and that the Usibelli Coal Mine's website lists a possible range of 0.08 to 0.28 percent. However, DEC notes that the limit of 0.10 lb/MMBtu for the boiler, allows for an over 50% margin of compliance from the previous two-year peak in emissions, which should be more than adequate to account for a higher coal sulfur delivery at a future date.

Regarding the statement that "the ADEC analysis using SO_2 CEMS data and resulting conclusion does not follow the prescribed top-down, five-step approach." Calculating a baseline emissions rate is part of determining the cost effectiveness of a control in the

BACT analysis. The EPA's 1990 Draft NSR Workshop Manual (Draft NSR Manual) outlines the process of calculating baseline emissions. Pages B.37 and B.37 of the Draft NSR Manual state the following:

> "The baseline emissions rate represents a realistic scenario of upper boundary uncontrolled emissions for the source… In other words, baseline emissions are essentially uncontrolled emissions, calculated using realistic upper boundary operating assumptions… For example, in developing a realistic upper boundary case, baseline emissions calculations can also consider inherent physical or operational constraints on the source. Such constrains should accurately reflect the true upper boundary of the source's ability to physically operate and the applicant should submit documentation to verify these constraints… If the assumptions have a deciding role in the BACT determination, the reviewing agency should include enforceable conditions in the permit to assure that the upper bound assumptions are not exceeded."

DEC notes that our rationale for setting a baseline emissions rate of 0.10 lb/MMBtu for SO_2 emissions follows the BACT process described in the Draft NSR Manual. Should the baseline emissions have been left at 0.20 lb/MMBtu as was done in UAF's analysis contained in Table 5-2 of the BACT determination, it could have resulted in a finding that BACT for the boiler is DSI to control SO_2 emissions. Therefore, according the Draft NSR Manual, DEC was required to include an enforceable condition to incorporate the new baseline emissions rate. However, DEC notes that we are relying upon a major source precursor demonstration to show that SO_2 emissions are not meaningfully contributing the $PM_{2.5}$ NAA and therefore the updated baseline emissions rate is not included in UAF's Minor Permit AQ0316MSS08 Rev. 1.

Revisions based on response: None.

UAF Comment 49: Appendix III.D.7.7-1518, Section 5.1, Step 4, Department Evaluation of BACT for SO_2 Emissions from the Dual Fuel-Fired Boiler, second paragraph, first sentence. This paragraph states, "Although the Department changed the baseline emissions rate for EU 113, the final controlled emissions rates were left unchanged from the emissions guarantees provided by UAF's vendors, which resulted in a lower assumed control efficiency." While assuming that the control efficiency will be lower when starting with a lower baseline emission rate may be appropriate, ADEC does not explain how the Department determined a lower control efficiency appropriate for use in this analysis for each control technology. Please provide details and appropriate supporting rationale for this approach.

Response: UAF provided vendor emission guarantees for the different types of SO_2 controls on the boiler. While DEC has justification for assuming a lower baseline emissions rate of the boiler (see response to UAF Comment 48 above), we do not have justification to assume that a lower emissions rate could be achieved with the add on emissions controls than what was provided by the vendors. Therefore, we are forced to change the control efficiency of the add-on controls, because FBLI is considered an

inherent design of the boiler as UAF noted in Comment 40.

Revisions based on response: None

UAF Comment 50: Appendix III.D.7.7-1518, Section 5.1, Step 4, Department Evaluation of BACT for SO_2 Emissions from the Dual Fuel-Fired Boiler, second paragraph, Footnote 23. UAF does not understand why a blog cited is cited as the source of the Chemical Engineering Plant Cost Index (CEPCI) values instead of the original source of these values, Chemical Engineering magazine. Please cite the original source for these data points.

Response: The original referenced chemical engineering plant cost index values are published under the Chemical Engineering magazine whose access requires a paid subscription. Since the subscription is not available to the public, DEC provided a reference through a third-party link.

Revisions based on response: None

UAF Comment 51: Appendix III.D.7.7-1518, Section 5.1, Step 4, Department Evaluation of BACT for SO_2 Emissions from the Dual Fuel-Fired Boiler, second paragraph, fourth sentence. This sentence states that "the Department used the default values from the EPA CCM for limestone cost, water cost, electricity cost, waste disposal cost, and labor rate." The 2023 BACT analysis that UAF submitted to ADEC and EPA included vendor-provided data and other site-specific data for these cost items. Please explain the rationale for applying default values when vendor and site-specific data were provided.

Response: DEC considered both, EPA CCM and the information UAF provided on these items and determined that for certain cost items EPA CCM's were more appropriate for the BACT determination. DEC notes in this section that some of these changes were made in order to demonstrate a conservative approach, which shows that all of the add-on controls (beyond FBLI) are not cost effective for the boiler.

Revisions based on response: None

UAF Comment 52: Appendix III.D.7.7-1518, Section 5.1, Step 4, Department Evaluation of BACT for SO_2 Emissions from the Dual Fuel-Fired Boiler, second paragraph, fifth sentence. This sentence states that "the Department removed the 25% increase in assumed cost for the DSI installation which is accounted for elsewhere in the analysis." This statement is unclear. Please provide a detailed explanation of the "25% in assumed cost" and how and where that cost is included elsewhere in the analysis.

Response: DEC removed the proposed 25% increase in assumed cost for the DSI installation, because it determined that sufficient contingency had already been built into the cost analysis. In its SIP submittal, DEC included Excel spreadsheets with the final

cost analysis.

Revisions based on response: None

UAF Comment 53: Appendix III.D.7.7-1518, Section 5.1, Step 4, Department Evaluation of BACT for SO_2 Emissions from the Dual Fuel-Fired Boiler, second paragraph, sixth sentence. This sentence states that the Department used "assumed cost percentages from the EPA CCM" for a wide range of capital and annual costs. The 2023 BACT analysis that UAF submitted to ADEC and EPA included site- specific cost data for many of these items. Please provide the rationale for applying the assumed values instead of the site-specific data and provide more specific information about the assumed values that were used. Please provide a detailed explanation of this approach and the reason the approach is "conservative" and necessary, especially given that site-specific costs were provided to ADEC. Note that the ADEC analysis does not differ from the UAF analysis for the overhead, property tax, and administrative charges and insurance cost items. The UAF analysis also used the default values from the CCM for these cost items.

Response: DEC considered both, EPA CCM and the information UAF provided on these items, and determined that for certain cost items, EPA CCM's values were determined to be more appropriate than those supplied by UAF. In its BACT determination, DEC considered information found during its own research, in addition to the information submitted by UAF and EPA.

Revisions based on response: None

UAF Comment 54: Appendix III.D.7.7-1518, Section 5.1, Step 4, Table 5-4. Please remove unnecessary punctuation from the Emission Reduction entries for CDS and DSI (Tri-Mer) in this table. Please add dollar signs to the values in the Total Annualized Costs and Cost Effectiveness columns in this table for consistency with the format of other dollar amounts presented in the table.

Response: Comment noted.

Revisions based on response: DEC made the corrections as suggested for consistency.

UAF Comment 55: Appendix III.D.7.7-1519, Section 5.1, Step 4, Department Evaluation of BACT for SO_2 Emissions from the Dual Fuel-Fired Boiler, final paragraph. In the last paragraph of this section (first paragraph on page 1519), ADEC selects FBLI as BACT. While UAF does not disagree with the selection of this control technology as BACT, UAF does disagree with the ADEC revised baseline emission rate and the selected BACT limit of 0.10 lb/MMBtu for the reasons provided in comments above. UAF notes that the Department BACT selection of FBLI is a revision from the previous version of the SIP, but that this change is not flagged as a revision in Step 5, item (a).

Response: Comment noted. See DEC's response to Comment 48 above regarding the baseline emissions rate change.

Revisions based on response: The final SIP submittal has removed bolded and underlined text to signify changes from the previous versions.

UAF Comment 56: Appendix III.D.7.7-1519, Section 5.1, Step 5, item (b). As stated in comments above, UAF does not believe that the BACT emission limit of 0.10 lb/MMBtu is sufficiently supported. UAF believes that a limit of 0.125 lb/MMBtu is appropriate per the UAF December 2023 submission to ADEC. UAF notes that the averaging period for this limit is a revision from the from the previous version of the SIP but is not flagged as a change.

Response: Comment noted.

Revisions based on response: None

UAF Comment 57: Appendix III.D.7.7-1519, Section 5.1, Step 5, item (d). For clarity, please include MR&R requirements in a separate section rather than include this item in the list of BACT requirements.

Response: DEC agrees that MR&R requirements are better suited in the SO2 MR&R document which is being incorporated into the SIP.

Revisions based on response: DEC has removed Step 5, (d) from this document. All of the MR&R requirements associated with these EUs from Step 5, (d) are now contained in the UAF SO_2 MR&R document.

UAF Comment 58: Appendix III.D.7.7-1519, Section 5.1, Table 5-5. Please revise the UAF entry in Table 5-5 as follows for consistency with the BACT determination and to eliminate redundant information. Note that as stated in comments above, UAF does not believe that the BACT limit of 0.10 lb/MMBtu is appropriate or sufficiently supported. UAF believes that a limit of 0.125 lb/MMBtu is appropriate per the UAF December 2023 submission to ADEC.

Facility	Process Description	Capacity	Limitation	Control Method
UAF	Dual Fuel-Fired Boiler	295.6 MMBtu/hr	**0.125** ~~0.10~~ lb/MMBtu	Fluidized Bed Limestone Injection **Good Combustion Practices** ~~Limestone Injection~~

Response: "Good Combustion Practices" was inadvertently omitted from Table 5.5. The Department determined that the BACT emission limit for EU ID 113 is 0.10 lb/MMBtu. See the Department's response to Comment 48 above regarding the baseline emissions rate change.

Revisions based on response: "Limestone Injection" was replaced with "Good Combustion Practices" in Table 5.5.

UAF Comment 59: Appendix III.D.7.7-1522, Section 5.2, Step 5, item (e). For clarity, please include MR&R requirements in a separate section rather than include this item in the list of BACT requirements.

Response: See response to Comment 57 above.

Revisions based on response: DEC has removed Step 5, item (e) from this document. All of the MR&R requirements associated with these EUs from Step 5, (e) are now contained in the UAF SO_2 MR&R document.

UAF Comment 60: Appendix III.D.7.7-1522, Section 5.2, Table 5-8. Please revise the capacity of EUs 3 and 4 in Table 5-8 to reflect that these boilers have a rating of "180.9 MMBtu/hr, each."

Response: The comment specifies the actual rating of EUs 3 and 4.

Revisions based on response: The capacity rating was changed to reflect the actual rating.

UAF Comment 61: Appendix III.D.7.7-1523, Section 5.3, Step 4, item (a). Please clarify the revisions to this statement which present the UAF proposed BACT of limited operation for EUs 19 through 22. The change in the operating limit from 19,650 hr/yr to 18,739 hr/yr occurred after UAF submitted the original campus-wide BACT analysis to ADEC.

Response: Comment Noted

Revisions based on response: A footnote has been added to clarify that the combined hour limit was changed with the issuance of Minor Permit AQ0316MSS07.

UAF Comment 62: Appendix III.D.7.7-1524, Section 5.3, Step 5, item (c). For clarity, please include MR&R requirements in a separate section rather than include this item in the list of BACT requirements.

Response: See response to Comment 57 above.

Revisions based on response: DEC has removed Step 5, item (c) from this document. All of the MR&R requirements associated with these EUs from Step 5, (c) are now contained in the UAF SO_2 MR&R document.

UAF Comment 63: Appendix III.D.7.7-1526, Section 5.4, Step 5, item (e). For clarity, please include MR&R requirements in a separate section rather than include this item in the list of BACT requirements.

Response: See response to Comment 57 above.

Revisions based on response: DEC has removed Step 5, item (e) from this document. All of the MR&R requirements associated with these EUs from Step 5, (e) are now contained in the UAF SO_2 MR&R document.

UAF Comment 64: Appendix III.D.7.7-1526, Section 5.5. Per the UAF comments on the EPA proposed disapproval of the Serious SIP, in a letter dated March 23, 2023, EU 26 has been permanently removed from service. Please remove EU 26 from this BACT determination.

Response: Because EU 26 was still installed during the BACT determination process, and DEC used an economic analysis on the EU to prove that diesel particulate filters are not cost effective on lower emitting units, it cannot be removed from the BACT determination process. However, DEC will remove the EU from the Minor Permit to be issued.

Revisions based on response: DEC added EU 26 to the table note in Table's A, 6-2, and 6-3 noting that it has been removed from the stationary source and changed its font type to strikethrough. Additionally, DEC changed the font to strikethrough in Table 4-15 for EU 26 and created a table note explaining why the EU was left in the BACT determination. A sentence was also added under Section 5.5 to indicate that EU 26 has been reportedly removed from the stationary source. EU 26 will be removed from the Minor Permit to be issued.

UAF Comment 65: Appendix III.D.7.7-1528, Section 5.5, Step 5, items (e) and (f). For clarity, please include MR&R requirements in a separate section rather than include this item in the list of BACT requirements.

Response: See response to Comment 57 above.

Revisions based on response: DEC has removed Step 5, items (e) and (f) from this document. All of the MR&R requirements associated with these EUs from Step 5, (e) and (f) are now contained in the UAF SO_2 MR&R document.

UAF Comment 66: Appendix III.D.7.7-1530, Section 5.6, Step 5, item (d). For clarity, please include MR&R requirements in a separate section rather than include this item in the list of BACT requirements.

Response: See response to Comment 57 above.

Revisions based on response: DEC has removed Step 5, item (d) from this document. All of the MR&R requirements associated with these EUs from Step 5, (d) are now contained in the UAF SO_2 MR&R document.

UAF Comment 67: Appendix III.D.7.7-1532 through 1534, Tables 6-2 through 6-4. These tables are presented as a "BACT determination summary" but without further context. As a general comment, please ensure that these tables are consistent with the final BACT determination presented in this appendix.

Response: Tables 6-2 through 6-3 list the BACT limits established in support of the state agency's required SIP submittal to provide an easy-to-read summary. The tables have been reviewed for accuracy.

Revisions based on response: None

UAF Comment 68: Appendix III.D.7.7-1532, Table 6-2. Please revise Table 6-2 to ensure consistency with the BACT determination and previous UAF comments. Please ensure that all requirements are clearly and specifically stated. UAF is providing specific edits in the table below that may not capture all the changes ADEC must make to ensure consistency with the BACT determinations and previous UAF comments. The edits UAF is providing include the following:

a. EU 17 – Proposed BACT Limit revised to be consistent with Step 5 in Section 4.3.
b. EU 19 through 21 – Proposed BACT Control revised to be consistent with revised BACT limit in Section 4.3. Note that EU 22 is subject to this combined limit as well, but EU 22 is missing from this table.
c. EU 26 is permanently removed from service.
d. EU 27 – Proposed BACT Limit revised to include NTE multiplier consistent with ADEC BACT analysis and UAF comment on Table 4-15 above. UAF notes that this value was revised to 0.15 from 0.11 in this version of the SIP but was not flagged as a change.
e. EU 24 – Rating revised to be consistent with Title V permit inventory and UAF comment

on Table 4-15 above.

f. EU 29 – Proposed BACT Limit revised to be consistent with the TAR to Permit AQ0316MSS08, the ADEC BACT analysis, and UAF comment on Table 4-15 above.

g. EU 34 – Proposed BACT Limit revised to include NTE multiplier consistent with ADEC analysis and UAF comment on Table 4-15 above.

h. EU 113 – Averaging period for Proposed BACT Limit added. UAF notes that the Proposed BACT Limit was revised in this version of the SIP but not flagged as a change.

EU ID	Description	Capacity	Proposed BACT Limit	Proposed BACT Control
3	Mid-Sized Diesel-Fired Boiler	180.9 MMBtu/hr	0.012 lb/MMBtu, **3-hour average**	Good Combustion Practices
4	Mid-Sized Diesel-Fired Boiler	180.9 MMBtu/hr	Diesel: 0.012 lb/MMBtu, **3-hour average** NG: 0.0075 lb/MMBtu, **3-hour average**	Limited Operation (EUs 4 and 8 combined 40 tons per rolling 12-month period); Good Combustion Practices
8	Large Diesel-Fired Engine	13,226 hp	0.32 g/hp-hr, **3-hour average**	Positive Crankcase Ventilation; Limited Operation (EUs 4 and 8 combined 40 tons per rolling 12-month period) and EU 8 to no more than 100 hours of non-emergency operation per year; **Good Combustion Practices**; and ULSD
9A	Pathogenic Waste Incinerator	83 lb/hr	4.67 lb/ton	Multiple Chambers; Limited Operation (109 tons per rolling 12- month period); Good Combustion Practices
17	Small Diesel-Fired Boiler	4.93 MMBtu/hr	~~0.012~~ **0.016** lb/MMBtu	Good Combustion Practices
18	Small Diesel-Fired Boiler	4.93 MMBtu/hr	0.016 lb/MMBtu	
19	Small Diesel-Fired	6.13 MMBtu/hr	0.016 lb/MMBtu	Limited Operation (~~19,650~~ **18,739** hours per rolling 12-month period combined) Good Combustion Practices
20	Small Diesel-Fired	6.13 MMBtu/hr	0.016 lb/MMBtu	
21	Small Diesel-Fired Boiler	6.13 MMBtu/hr	0.016 lb/MMBtu	
~~26~~	~~Small Diesel-Fired~~	~~64 hp~~	~~1.0 g/hp-hr~~	~~Good Combustion Practices~~
27	Caterpillar C-15	500 hp	~~0.15~~ **0.19** g/hp-hr	Good Combustion Practices Limited Operation (4,380 hours per year)
24	Cummins	~~45 kW~~ **72 hp**	1.0 g/hp-hr	Limit Operation for non-emergency use (100 hours each per year) Good Combustion Practices
29	Cummins	314 hp	~~0.015~~ **0.023** g/hp-hr	
34	Cummins	324 hp	~~0.15~~ **0.19** g/hp-hr	

35	Cummins	1,220 hp	~~0.015~~ **0.023** g/hp-hr, **3-hour average**	Limit Operation for non-emergency use (100 hours ~~each~~ per year), Positive Crankcase Ventilation, ULSD, and Good Combustion Practices
105	Material Handling Unit	~~1,600~~ **1,200 acfm**	0.003 gr/dscf	Fabric Filters
107	Material Handling	1,600 acfm	0.003 gr/dscf	
109	Material Handling Unit	~~1,600~~ **1,000** acfm	0.003 gr/dscf	Enclosures
110	Material Handling	2,000 acfm	0.003 gr/dscf	Vents
111	Material Handling	N/A	$5.5x10^{-5}$ lb/ton	Enclosure
113	Large Dual Fuel-Fired Boiler	295.6 MMBtu/hr	0.012 lb/MMBtu, **3-hour average**	Fabric Filters Good Combustion Practices

Response: Comment noted.

Revisions based on response: Corrections made to Table 6.2 as deemed necessary.

UAF Comment 69: Appendix III.D.7.7-1533, Table 6-3. Please revise Table 6-3 to ensure consistency with the BACT determination and previous UAF comments. Please ensure that all requirements are clearly and specifically stated. UAF is providing specific edits in the table below that may not capture all the changes ADEC must make to ensure consistency with the BACT determinations and previous UAF comments. The edits UAF is providing include the following:

a. The sulfur content of diesel is specified by weight, not volume. (Please refer to ADEC Standard Permit Conditions XI and XII.) The fuel sulfur content BACT limits in terms of ppmw in the various BACT determinations are correct.

b. EU 19 through 21 – Proposed BACT Control revised to be consistent with revised BACT limit in Section 5.3. Note that EU 22 is subject to this combined limit as well, but EU 22 is missing from this table.

c. EU 26 is permanently removed from service.

d. EU 113 – As UAF has stated above in comments addressing Section 5.1, UAF disagrees that the limit of 0.10 lb/MMBtu is BACT.

EU ID	Description	Capacity	Proposed BACT Limit	Proposed BACT Control
3	Mid-Sized Diesel-Fired Boiler	180.9 MMBtu/hr	15 **ppmw** ~~ppmv~~ S in Fuel	Ultra-Low Sulfur Diesel; **Good combustion practices**
4	Mid-Sized Diesel-Fired Boiler	180.9 MMBtu/hr	Diesel: 15 **ppmw** ~~ppmv~~ S in Fuel NG: 0.60 lb/MMscf	Ultra-Low Sulfur Diesel; **Good combustion practices** Limited Operation (EUs 4 and 8 combined 40 tons per rolling 12-

				month period)
8	Large Diesel-Fired Engine	13,226 hp	15 **ppmw** ~~ppmv~~ S in Fuel	Limited Operation (EUs 4 and 8 combined 40 tons per rolling 12-month period) and EU 8 to no more than 100 hours of non-emergency operation per year Good Combustion Practices and ULSD
9A	Pathogenic Waste Incinerator	83 lb/hr	15 **ppmw** ~~ppmv~~ S in Fuel	Ultra-Low Sulfur Diesel; **Good combustion practices** Limited Operation (109 tons per rolling 12-month period)
17	Small Diesel-Fired Boiler	4.93 MMBtu/hr	15 **ppmw** ~~ppmv~~ S in Fuel ____	Ultra-Low Sulfur Diesel
18	Small Diesel-Fired Boiler	4.93 MMBtu/hr	15 **ppmw** ppmv S in Fuel	
19	Small Diesel-Fired Boiler	6.13 MMBtu/hr	15 **ppmw** ~~ppmv~~ S in Fuel	Limited Operation (~~19,650~~ **18,739** hours per rolling 12-month period combined) Ultra-Low Sulfur Diesel
20	Small Diesel-Fired Boiler	6.13 MMBtu/hr	15 **ppmw** ~~ppmv~~ S in Fuel	

Response: Comment noted.

Revisions based on response: Corrections made to Table 6.2 as deemed necessary.

UAF Comment 70: Appendix III.D.7.7-1535 through 1539. These tables, presenting the $PM_{2.5}$ BACT MR&R requirements, are provided without explanatory text or other context. As a general comment, these tables should be consistent with the BACT determination presented in this appendix.

Response: Comment Noted.

Revisions based on response: The $PM_{2.5}$ MR&R document that was included in the control strategies appendix of the SIP has been replaced with Minor Permit AQ0316MSS08 Rev. 1 in the final SIP submittal.

UAF Comment 71: Appendix III.D.7.7-1535, $PM_{2.5}$ BACT MR&R for the large dual-fired boiler. Please revise the table to ensure consistency with the BACT determination and previous UAF comments. Please ensure that all requirements are clearly and specifically stated. UAF is providing specific edits in the table below that may not capture all the changes ADEC must make

to ensure consistency with the BACT determinations and previous UAF comments. Please specifically address the following concerns:

a. As UAF stated in comments addressing the EPA proposed disapproval of the Serious SIP in a letter dated March 23, 2023, Condition 34.1 of Permit AQ0316TVP03 and the MR&R requirements in Conditions 34.2 through 34.6 and 35 already impose appropriate requirements to satisfy the BACT requirement to use fabric filters during boiler operation.

b. As UAF stated in comments addressing the EPA proposed disapproval of the Serious SIP in a letter dated March 23, 2023, Condition 95 of Permit AQ0316TVP03 and the MR&R requirements in Conditions 105.2, 105.3, and 105.4 already impose appropriate requirements to satisfy the BACT requirement for good combustion practices.

c. Per UAF comments addressing Section 4.1 above, the requirement to comply with an opacity standard is not carried through the BACT analysis and is not supported as a BACT limit. UAF suggests that demonstrating compliance with the opacity standard would be appropriate ongoing MR&R for the $PM_{2.5}$ BACT emission limit.

Emissions Units: EU ID 113 (295.6 MMBtu/hr – Large Dual Fuel-Fired Boiler)

Pollutant of Concern: $PM_{2.5}$	
BACT Measure	**Monitoring, Recordkeeping and Reporting Requirements**
0.012 lb/MMBtu (3-hr avg);	• Conduct a one-time performance test using **procedures specified in 40 CFR 60, Appendix A-3, Method 5 and 50 CFR 51, Appendix M, Methods 201 or 201A** ~~EPA Method 201A~~ and 202 to demonstrate compliance and submit results to the Department. • Report source test results as required by the Operating Permit. • **Comply with the State opacity standard in 18 AAC 50.055(a)(1) and report as required by the Operating Permit.**
Control emissions with fabric filters at all times of operation.	• ~~Certify in Facility Operating Report that fabric filters are operated at all times the boiler is in operation.~~ • ~~Operate, inspect, and maintain the fabric filters according to the manufacturer's instructions and recommendations.~~ • ~~Include a summary of inspection and maintenance conducted in each semi annual operating report.~~ **Comply with Conditions 34.1 through 34.6 and 35 of Permit AQ0316TVP03.**
Good Combustion Practices	• Keep records of maintenance conducted on the emissions unit to comply with this BACT measure. • Keep a copy of the manufacturer's **or** ~~and~~ the operator's recommended maintenance procedures.

~~Maintain compliance with State opacity standards listed under 50.005(a)(1).~~	• ~~Monitor, record, and report visible emissions using a Continuous Opacity Monitoring Systems (COMS) installed and maintained as directed in the corresponding Operating Permit.~~

Response: The $PM_{2.5}$ MR&R document that was included in the control strategies appendix of the SIP has been replaced with Minor Permit AQ0316MSS08 Rev. 1 in the final SIP submittal.

Revisions based on response: $PM_{2.5}$ MR&R document replaced by Minor Permit AQ0316MSS08 Rev. 1.

UAF Comment 72: Appendix III.D.7.7-1535, $PM_{2.5}$ BACT MR&R for the mid-sized boilers. Please revise the table to ensure consistency with the BACT determination and previous UAF comments. Please ensure that all requirements are clearly and specifically stated. UAF is providing specific edits in the table below that may not capture all the changes ADEC must make to ensure consistency with the BACT determinations and previous UAF comments. Please specifically address the following concern:

a. UAF believes that the requirement to conduct quarterly monitoring of CO and O_2 concentrations in the exhaust of these boilers should be deleted. The basis for this proposed requirement is unclear, as is its utility in effectively demonstrating good combustion practices. Per UAF's comments on EPA's proposed disapproval of the Serious SIP, Condition 95 of Permit AQ0316TVP03 and MR&R requirements in Conditions 105.2, 105.3, and 105.4 already impose appropriate requirements (good air pollution control practices in 40 CFR 63 Subpart JJJJJJ).

Emission Units: EU ID 3 (180.9 MMBtu/hr – Mid-Sized Diesel-Fired Boiler) and EU ID 4 (180.9 MMBtu/hr – Mid-Sized Dual Fuel-Fired Boiler)

Pollutant of Concern: $PM_{2.5}$	
BACT Measure	**Monitoring, Recordkeeping and Reporting Requirements**
0.012 lb/MMBtu (3-hr avg) for EU ID 3 and EU ID 4 (while firing diesel fuel);	• Conduct a one-time performance test on **EU ID 3 or EU ID 4** using **procedures specified in 40 CFR 60, Appendix A-3, Method 5 and 50 CFR 51, Appendix M, Methods 201 or 201A** ~~EPA Method 201A~~ and 202 to demonstrate compliance and submit results to the Department. • Report source test results as required by Operating Permit.
0.0075 lb/MMBtu (3-hr avg) for EU ID 4 (while firing natural gas);	• Conduct a one-time performance test using **procedures specified in 40 CFR 60, Appendix A-3, Method 5 and 50 CFR 51, Appendix M, Methods 201 or 201A** ~~EPA~~ and 202 to demonstrate compliance and submit results to the Department. • Report source test results as required by Operating Permit.

Control emissions from EU 4 by limiting NO_x emissions from EUs 4 and 8 to no more than 40 tons per 12-month rolling period.	• Demonstrate compliance with this BACT measure by complying with Condition 3 of Minor Permit No. AQ0316MSS05.
Good Combustion Practices.	• Keep records of maintenance conducted on emissions units to comply with this BACT measure. Keep a copy of the manufacturer's **or** ~~and~~ the operator's recommended maintenance procedures. • Comply with the boiler tune-up and MR&R requirements in NESHAP **40 CFR 63** Subpart JJJJJJ. • ~~At least once during each quarter that the emission unit operates, measure CO and O2 in the exhaust stream using a portable handheld combustion analyzer. Record the results, the load of the EU, the date and time of measurement, and report these values in the following semi annual operating report required by the Operating Report.~~

Response: Comment Noted.

Revisions based on response: The $PM_{2.5}$ MR&R document that was included in the control strategies appendix of the SIP has been replaced with Minor Permit AQ0316MSS08 Rev. 1 in the final SIP submittal. Federal requirements in AQ0316MSS08 Rev. 1 are replaced by good combustion practices requirements.

UAF Comment 73: Appendix III.D.7.7-1536, $PM_{2.5}$ BACT MR&R for the small diesel-fired boilers. Please ensure the final table is consistent with the final BACT determination and previous UAF comments. UAF notes that the three-hour averaging period for the 0.016 lb/MMBtu emission limit is not identified in the BACT determination in Section 4.3. UAF also notes that Condition 7 of Minor Permit No. AQ0316MSS07 has been incorporated into Permit AQ0316TVP03 in Condition 41.

Response: Comment Noted.

Revisions based on response: The $PM_{2.5}$ MR&R document that was included in the control strategies appendix of the SIP has been replaced with Minor Permit AQ0316MSS08 Rev. 1 in the final SIP submittal.

UAF Comment 74: Appendix III.D.7.7-1536, $PM_{2.5}$ BACT MR&R for the large diesel-fired engines. Please revise the table to ensure consistency with the BACT determination and previous UAF comments. Please ensure that all requirements are clearly and specifically stated. UAF is providing specific edits in the table below that may not capture all the changes ADEC must make

to ensure consistency with the BACT determinations and previous UAF comments. Please specifically address the following concerns:

a. Existing, federally enforceable requirements providing the MR&R requirements for good combustion practices for EU 35 are already addressed in Conditions 79 and 83 of Permit AQ0316TVP03.

b. Existing, federally enforceable requirements providing the MR&R requirements for combusting ultra-low sulfur diesel in EU 35 are already addressed in Conditions 80, 82.5, and 83 of Permit AQ0316TVP03.

c. Existing, federally enforceable requirements providing the MR&R requirements for combusting ultra-low sulfur diesel in EU 8 are already addressed Condition 43.2 of Permit AQ0316TVP03.

Emission Units: EU IDs 8 and 35 (>500 hp – Large Diesel-Fired Engines)

Pollutant of Concern: $PM_{2.5}$	
BACT Measure	**Monitoring, Recordkeeping and Reporting Requirements**
0.32 g/hp-hr (3-hr avg) for EU 8; Good Combustion Practices	• Keep records of maintenance conducted on emissions units to comply with this BACT measure. • Keep a copy of the manufacturer's **or** ~~and~~ the operator's maintenance procedures.
0.05 g/hp-hr (3-hr avg) for EU 35;	• Keep records of maintenance conducted on emissions units to comply with this BACT measure. • Keep a copy of the manufacturer's **or** ~~and~~ the operator's maintenance procedures.
Good Combustion Practices	• Comply with the applicable requirements of 40 C.F.R. 60, Subpart IIII.
Limit non-emergency operation of EUs 8 and 35 to 100 hours per year, each.	• For EU 8, demonstrate compliance by complying with the NESHAP Subpart ZZZZ emergency engine requirements listed in 40 C.F.R. 63.6640(f). • For EU 35, demonstrate compliance by complying with the NSPS Subpart IIII emergency engine requirements listed in 40 C.F.R. 60.4211(f).
Limit NO_x emissions from EUs 4 and 8 to no more than 40 tons per 12-month rolling period.	• To demonstrate compliance with this BACT measure, comply with Condition 3 of Minor Permit No. AQ0316MSS05.
Operate positive crankcase ventilation.	• Submit initial certification in ~~a Facility~~ **an** Operating Report that positive crankcase ventilation systems have been installed, or are an inherent design, on EUs 8 and 35. • Operate, maintain, and inspect according to the manufacturer's instructions and recommendations.

Ultra-low sulfur diesel (ULSD)	• For each shipment of fuel, test the sulfur content or keep receipts that specify fuel grade~~, date and time, and quantity of fuel received~~ **and date**. Keep records of the results of sulfur content tests and receipts for fuel shipments. • Include ~~in~~ **a statement in** each semi-annual operating report~~, a summary of fuel test results and shipping receipts from~~ **affirming that only ULSD was delivered to the emissions unit during** the reporting period.

Response: Comment Noted.

Revisions based on response: The $PM_{2.5}$ MR&R document that was included in the control strategies appendix of the SIP has been replaced with Minor Permit AQ0316MSS08 Rev. 1 in the final SIP submittal. Federal requirements outlined in this document have been replaced by good combustion practices requirements in AQ0316MSS08 Rev. 1.

UAF Comment 75: Appendix III.D.7.7-1537, $PM_{2.5}$ BACT MR&R for the small diesel-fired engines. Please revise the table to ensure consistency with the BACT determination and previous UAF comments. Please ensure that all requirements are clearly and specifically stated. UAF is providing specific edits in the table below that may not capture all the changes ADEC must make to ensure consistency with the BACT determinations and previous UAF comments. Please specifically address the following concern:

a. EU 26 has been permanently removed from service.

Emission Units: EU IDs 24, ~~26,~~ 27, 29, and 34 (<500 **hp** ~~MMBtu/hr~~ – Small Diesel-Fired Engines)

Pollutant of Concern: $PM_{2.5}$	
BACT Measure	**Monitoring, Recordkeeping and Reporting Requirements**
0.023 ~~0.015~~ g/hp-hr for EU 29; **0.19** ~~0.15~~ g/hp-hr for EUs 27 and 34; Good Combustion Practices.	• Keep records of maintenance conducted on emissions units to comply with this BACT measure. • Keep a copy of the manufacturer's **or** ~~and~~ the operator's maintenance procedures. • Comply with the applicable requirements of 40 C.F.R. 60, Subpart IIII.
1.0 g/hp-hr for EUs 24 ~~and 26;~~	• Keep records of maintenance conducted on emissions units to comply with this BACT measure.
Good Combustion Practices	• Keep a copy of the manufacturer's **or** ~~and~~ the operator's maintenance procedures. • Comply with the applicable requirements of 40 C.F.R. 63, Subpart ZZZZ.

EUs 27 and 34 shall comply with the federal Tier 3 emission standards of NSPS Subpart IIII.	• Submit initial certification in a ~~Facility~~ **semi-annual** Operating Report certifying that EUs 27 and 34 are rated to at least meet the Tier 3 emission standards of NSPS Subpart IIII.
Limit operation for EU 27 to no more than 4,380 hours per 12-month rolling period.	• For EU 27, demonstrate compliance with this BACT measure by complying with Condition 4 of Minor Permit No. AQ0316MSS03.
Limit non-emergency operation of EUs 24, 29, and 34 to no more than 100 hours per year, each.	• For EU 24, demonstrate compliance with this BACT measure by complying with NESHAP Subpart ZZZZ emergency engine requirements listed in 40 C.F.R. 63.6640(f). • For EUs 29 and 34, demonstrate compliance with this BACT measure by complying with the NSPS Subpart IIII emergency engine requirements listed in 40 C.F.R. 60.4211(f).

Response: Comment Noted.

Revisions based on response: The $PM_{2.5}$ MR&R document that was included in the control strategies appendix of the SIP has been replaced with Minor Permit AQ0316MSS08 Rev. 1 in the final SIP submittal. Federal requirements outlined in this document have been replaced by good combustion practices requirements in AQ0316MSS08 Rev. 1. EU 26 has been removed from AQ0316MSS08 Rev. 1.

UAF Comment 76: Appendix III.D.7.7-1538, $PM_{2.5}$ BACT MR&R for the pathogenic waste incinerator. Please revise the table to ensure consistency with the BACT determination and previous UAF comments. Please ensure that all requirements are clearly and specifically stated. UAF is providing specific edits in the table below that may not capture all the changes ADEC must make to ensure consistency with the BACT determinations and previous UAF comments. Please specifically address the following concern:

a. Per UAF comments on Table 4-19 of the BACT Determination, please include an averaging period for the BACT emission limit as applicable.

Emission Units: EU ID 9A (Pathogenic Waste Incinerator)

Pollutant of Concern: $PM_{2.5}$	
BACT Measure	**Monitoring, Recordkeeping and Reporting Requirements**
Multiple chamber design.	• Submit initial certification in a ~~Facility~~ **semi-annual** Operating Report that the incinerator (EU ID 9A) meets a multiple chamber design.

Limit the operation of EU 9A to combust no more than 109 tons of waste per 12-month rolling period.	• Demonstrate compliance with this BACT measure by complying with Condition 12 of Minor Permit AQ0316MSS08.
4.67 lb/ton; Good Combustion Practices	• Keep records of maintenance conducted on emissions unit to comply with this BACT measure. • Keep a copy of the manufacturer's maintenance and operational procedures. • Certify that the manufacturer's maintenance and operational procedures are being followed in each semi-annual report.

Response: Comment Noted.

Revisions based on response: The $PM_{2.5}$ MR&R document that was included in the control strategies appendix of the SIP has been replaced with Minor Permit AQ0316MSS08 Rev. 1 in the final SIP submittal.

UAF Comment 77: Appendix III.D.7.7-1538, PM2.5 BACT MR&R for the material handling units. Please revise the table to ensure consistency with the BACT determination and previous UAF comments. Please ensure that all requirements are clearly and specifically stated. Please specifically address the following concerns:

a. Per the UAF comments on the EPA proposed disapproval of the Serious SIP, in a letter dated March 23, 2023, Conditions 49.3a and 49.3b of AQ0316TVP03 require enclosure of EUs 105, 107, 109, 110, and 128 through 130. MR&R requirements are provided in Conditions 49.3c and 49.5. These provisions already impose appropriate requirements to satisfy this BACT measure.
b. Condition 50.1 of Permit AQ0316TVP03 requires operations in an enclosure for EU 111. MR&R requirements are provided in Conditions 50.2 and 50.3. These provisions already impose appropriate requirements to satisfy this BACT measure.

Response: The $PM_{2.5}$ MR&R documents in the public notice of the SIP will be replaced with Minor Permit AQ0316MSS08 Revision 1.

Revisions based on response: $PM_{2.5}$ MR&R documents in the public notice of the SIP is replaced with Minor Permit AQ0316MSS08 Revision 1.

UAF Comment 78: Appendix III.D.7.7-1540 through 1543. These tables, presenting the SO_2 BACT MR&R requirements, are provided without explanatory text or other context. As a general comment, these tables should be consistent with the BACT determination presented in this appendix.

Response: The tables presenting the SO_2 BACT MR&R requirements were included as proposed MR&R requirements associated with each BACT numerical limit in the event that EPA disapproves the SO_2 precursor demonstration.

Revisions based on response: Table 6.3 of the BACT Determination for UAF has been edited to include all the proposed BACT Controls listed under the SO_2 BACT MR&R table and the BACT Determination for each affected emission unit (e.g. "Good Combustion Practices" was added to the BACT Determination Summary as a Proposed BACT Control for EUs 3,4, 9A, and 113. A new row was added to the table to include the BACT determination for EU 22.

UAF Comment 79: Appendix III.D.7.7-1540, SO_2 BACT MR&R for the large dual-fired boiler. Please revise the table to ensure consistency with the BACT determination and previous UAF comments. Please ensure that all requirements are clearly and specifically stated. UAF is providing specific edits in the table below that may not capture all the changes ADEC must make to ensure consistency with the BACT determinations and previous UAF comments. Please specifically address the following concerns:

a. As noted in comments addressing Section 5.1 of the BACT determination, UAF disagrees with the emission limit of 0.10 lb/MMBtu.

b. As UAF stated in comments addressing the EPA proposed disapproval of the Serious SIP in a letter dated March 23, 2023, Condition 95 of Permit AQ0316TVP03 and the MR&R requirements in Conditions 105.2, 105.3, and 105.4 already impose appropriate requirements to satisfy the BACT requirement to use good combustion practices.

Emission Units: EU ID 113 (295.6 MMBtu/hr – Large Dual Fuel-Fired Boiler)

Pollutant of Concern: SO_2	
BACT Measure	**Monitoring, Recordkeeping and Reporting Requirements**
0.125 ~~0.10~~ lb/MMBtu (30-day rolling average);	• Compliance with the proposed SO_2 emission rate for the dual fuel-fired boiler will be demonstrated through CEMS monitoring and reporting. • Install, calibrate, maintain, and operate CEMS for measuring SO_2 concentrations and either O_2 or CO_2 concentrations according to the requirements of NSPS **40 CFR 60** Subpart Db for CEMS that may be used to meet the SO_2 emission monitoring requirements of 40 C.F.R. 60.47b. • Record the CEMS data and include the recorded data in each semi-annual operating report.
Good Combustion Practices	• Keep records of maintenance conducted on emissions units to comply with this BACT measure. • Keep a copy of the manufacturer's **or** ~~and~~ the

	operator's recommended maintenance procedures. • Comply with the boiler tune-up and MR&R requirements in NESHAP **40 CFR 63** Subpart JJJJJJ.
Control emissions with fluidized bed with limestone injection (FBLI) at all times of operation.	• Certify in ~~Facility~~ **semi-annual** Operating Report that the FBLI system is operated at all times the boiler is in operation. • Operate, maintain, and inspect according to the manufacturer's instructions and recommendations.

Response: Regarding Sub-comment a.: The proposed SO_2 emission limit for EU 113 will remain based on the BACT determination conducted on this emission unit, as discussed in response to UAF Comment 48. Regarding Sub-comment b.: DEC needed to include new good combustion practices in the minor permit to be incorporated in the SIP outside of the existing requirements in the operating permit. Therefore, all references to NESHAP Subpart JJJJJJ have been removed from the SO_2 MR&R document. The rest of the comments clarify the references to the federal citations.

Revisions based on response: The proposed edits, with exception of the change in emission limit for EU 113 and references to NESHAP Subpart JJJJJJ have been made. DEC removed references to NESHAP Subpart JJJJJJ and replaced them with the good combustion practices requirements for the boilers contained in Minor permit AQ0316MSS08 Rev. 1.

UAF Comment 80: Appendix III.D.7.7-1540, SO_2 BACT MR&R for the mid-sized boilers. Please revise the table to ensure consistency with the BACT determination and previous UAF comments. Please ensure that all requirements are clearly and specifically stated. UAF is providing specific edits in the table below that may not capture all the changes ADEC must make to ensure consistency with the BACT determinations and previous UAF comments. Please specifically address the following concerns:

a. UAF proposes MR&R requirements consistent with Condition 30.1 of Permit AQ0316TVP03 to demonstrate compliance with the requirement to combust only ULSD.

b. As UAF stated in comments addressing the EPA proposed disapproval of the Serious SIP in a letter dated March 23, 2023, Condition 95 of Permit AQ0316TVP03 and the MR&R requirements in Conditions 105.2, 105.3, and 105.4 already impose appropriate requirements to satisfy the BACT requirement to use good combustion practices.

Emission Units: EU ID 3 (180.9 MMBtu/hr – Mid-Sized Diesel-Fired Boiler) and EU ID 4 (180.9 MMBtu/hr – Mid-Sized Dual Fuel-Fired Boiler)

Pollutant of Concern: SO_2	
BACT Measure	**Monitoring, Recordkeeping and Reporting Requirements**
Combust only Ultra Low Sulfur Diesel (ULSD) at no more than 0.0015 percent sulfur by weight.	• For each shipment of fuel, test the sulfur content or keep receipts that specify fuel grade **and date** ~~date and time, and quantity of fuel received~~. Keep records of the results of sulfur content tests and receipts for fuel shipments. • Include a statement in each semi-annual operating report~~, a summary of fuel~~ • ~~test results and shipping receipts from~~ **affirming that only ULSD was delivered to the emissions unit during** the reporting period.
0.60 lb/MMscf for EU ID 4 (while firing natural gas);	• Demonstrate compliance with this BACT measure by complying with • Condition 10 of Minor Permit No. AQ0316MSS08.
Limit the combined SO_2 emissions from EUs 4 and 8 to no more than 40 tons per 12-month rolling period.	• Demonstrate compliance with this BACT measure by complying with Condition 2 of Minor Permit No. AQ0316MSS05.
Good Combustion Practices	• Keep records of maintenance conducted on emissions units to comply with this BACT measure. • Keep a copy of the manufacturer's **or** ~~and~~ the operator's recommended maintenance procedures. • Comply with the boiler tune-up and MR&R requirements in NESHAP **40 CFR 63** Subpart JJJJJJ.

Response: Regarding Sub-comment a.: For consistency, DEC intends to modify the requirement to combust ULSD to be consistent with Condition 8.1b in Minor Permit AQ0316MSS08 Rev. 1. Regarding Sub-comment b.: DEC needed to include new good combustion practices in the minor permit to be incorporated in the SIP outside of the existing requirements in the operating permit. Therefore, all references to NESHAP Subpart JJJJJJ have been removed from the SO_2 MR&R document.

Revisions based on response: DEC has modified the ULSD requirement to be consistent with Condition 8.1b in Minor Permit AQ0316MSS08 Rev. 1. DEC removed references to NESHAP Subpart JJJJJJ and replaced them with the good combustion practices requirements for the boilers contained in Minor permit AQ0316MSS08 Rev. 1. Additionally, DEC corrected the reference for the combined 40 tons per rolling 12-month period on EUs 4 and 8 from Condition 2 to Conditions 3 through 3.6 of Minor Permit AQ0316MSS05. DEC also revised the MR&R requirements for the 0.60 lb/MMscf for EU ID 4 from referencing Condition 10 of Minor Permit AQ0316MSS08 to itemizing the requirements.

UAF Comment 81: Appendix III.D.7.7-1541, SO_2 BACT MR&R for the small diesel-fired boilers. Please revise the table to ensure consistency with the BACT determination and previous UAF comments. Please ensure that all requirements are clearly and specifically stated. UAF is providing specific edits in the table below that may not capture all the changes ADEC must make to ensure consistency with the BACT determinations and previous UAF comments. Please specifically address the following concern:

a. EUs 19 through 21 are already subject to a requirement to combust ULSD in Condition 30 of Permit AQ0316TVP03. EUs 17, 18, and 22 are already subject to a requirement to combust ULSD requirement in Condition 40 of Permit AQ0316TVP03. MR&R requirements are provided in Condition 30.1 of Permit AQ0316TVP03 to demonstrate compliance with the requirement to combust only ULSD for all of EUs 17 through 22.

Emission Units: EU IDs 17 through 22 (<**100** ~~500~~ MMBtu/hr – Small Diesel-Fired Boilers)

Pollutant of Concern: SO_2	
BACT Measure	**Monitoring, Recordkeeping and Reporting Requirements**
Combust Only Ultra Low Sulfur Diesel (ULSD) at no more than 0.0015 percent sulfur by weight.	• For each shipment of fuel, test the sulfur content or keep receipts that specify fuel grade **and date**~~, date and time, and quantity of fuel received~~. Keep records of the results of sulfur content tests and receipts for fuel shipments. • Include **a statement** in each semi-annual operating report, ~~a summary of fuel test results and shipping receipts from~~ **affirming that only ULSD was delivered to the emissions unit during** the reporting period.
For EUs 19 through 22, limit the combined operation to no more than 18,739 hours per 12-month rolling period.	• Demonstrate compliance with this BACT measure by complying with Condition 7 of Minor Permit No. AQ0316MSS07.

Response: For consistency, DEC intends to modify the requirement to combust ULSD to be consistent with Condition 8.1b in Minor Permit AQ0316MSS08 Rev. 1. DEC needed to include new standalone ULSD requirements in the minor permit to be incorporated in the SIP outside of the existing requirements in the operating permit.

Revisions based on response: DEC has modified the ULSD requirement to be consistent with Condition 8.1b in Minor Permit AQ0316MSS08 Rev. 1. DEC corrected the boiler rating.

UAF Comment 82: Appendix III.D.7.7-1541, SO2 BACT MR&R for the large diesel-fired engines. Please revise the table to ensure consistency with the BACT determination and previous UAF comments. Please ensure that all requirements are clearly and specifically stated. UAF is providing specific edits in the table below that may not capture all the changes ADEC must make

to ensure consistency with the BACT determinations and previous UAF comments. Please specifically address the following concerns:

a. Existing, federally enforceable requirements providing the MR&R requirements for combusting ultra-low sulfur diesel in EU 8 are already addressed Condition 43.2 of Permit AQ0316TVP03.

b. Existing, federally enforceable requirements providing the MR&R requirements for combusting ultra-low sulfur diesel in EU 35 are already addressed in Conditions 80, 82.5, and 83 of Permit AQ0316TVP03.

c. Existing, federally enforceable requirements providing the MR&R requirements for good combustion practices for EU 35 are already addressed in Conditions 79 and 83 of Permit AQ0316TVP03.

Emission Units: EU IDs 8 and 35 (>500 hp – Large Diesel-Fired Engines)

Pollutant of Concern: SO_2	
BACT Measure	**Monitoring, Recordkeeping and Reporting Requirements**
Combust Only Ultra Low Sulfur fuel at no more than 0.0015 percent sulfur by weight.	• For each shipment of fuel, test the sulfur content or keep receipts that specify fuel grade ~~date and time, and quantity of fuel received~~ **and date**. Keep records of the results of sulfur content tests and receipts for fuel shipments. • Include **a statement** in each semi-annual operating report~~, a summary of fuel test results and shipping receipts from~~ **affirming that only ULSD was delivered to the emissions unit during** the reporting period.
Limited NOx emissions from EUs 4 and 8 to no more than 40 tons per 12-month rolling period.	• Demonstrate compliance by complying with Condition 3 of Minor Permit No. AQ0316MSS05.
Limited non-emergency operation of EUs 8 and 35 to no more than 100 hours per year, each.	• For EU 8, demonstrate compliance by complying with the NESHAP Subpart ZZZZ emergency engine requirements listed in 40 C.F.R. 63.6640(f). • For EU 35, demonstrate compliance by complying with the NSPS Subpart IIII requirements listed in 40 C.F.R. 60.4211(f).
Good Combustion Practices.	• Keep records of maintenance conducted on emissions units to comply with this BACT measure. • Keep a copy of the manufacturer's **or** ~~and~~ the operator's recommended maintenance procedures. • For EU 35, comply with the applicable requirements of 40 C.F.R. 60, Subpart IIII.

Response: Comments a, b, c noted. Given that EPA requested that BACT Determinations and associated MR&R be self-contained within the SIP submission, referencing MR&R requirements in the Title V permit would require the inclusion of

such Permit document within the SIP submittal.

Revisions based on response: DEC has modified the MR&R for the good combustion practices, ULSD, and limited operation requirements to be consistent with Conditions 8.1a, 8.1b, and 8.1d in Minor Permit AQ0316MSS08 Rev. 1.

UAF Comment 83: Appendix III.D.7.7-1542, SO2 BACT MR&R for the small diesel-fired engines. Please revise the table to ensure consistency with the BACT determination and previous UAF comments. Please ensure that all requirements are clearly and specifically stated. UAF is providing specific edits in the table below that may not capture all the changes ADEC must make to ensure consistency with the BACT determinations and previous UAF comments. Please specifically address the following concerns:

a. EU 26 has been permanently removed from service.
b. EUs 24, 27, and 29 are already subject to a requirement to combust ULSD in Conditions 43.2 of Permit AQ0316TVP03. MR&R requirements are provided in Condition 30.1 of Permit AQ0316TVP03 to demonstrate compliance with the requirement to combust only ULSD.
c. EUs 27, 29, and 34 are already subject to the requirement to comply with 40 CFR 60 Subpart IIII in Conditions 78 through 82 of Permit AQ0316TVP03.
d. EU 24 is already subject to the requirement to comply with the applicable requirements under 40 CFR 63.6640(f) in Condition 88 of Permit AQ0316TVP03.

Emission Units: EU IDs 24, ~~26,~~ 27, 29, and 34 (<500 **hp** ~~MMBtu/hr~~ – Small Diesel-Fired **Engines** ~~Boilers~~)

Pollutant of Concern: SO_2	
BACT Measure	**Monitoring, Recordkeeping and Reporting Requirements**
Combust Only Ultra Low Sulfur fuel at no more than 0.0015 percent sulfur by weight.	• For each shipment of fuel, test the sulfur content or keep receipts that specify fuel grade ~~date and time, and quantity of fuel received~~ **and date**. Keep records of the results of sulfur content tests and receipts for fuel shipments. • Include **a statement** in each semi-annual operating report~~, a summary of fuel test results and shipping receipts from~~ **affirming that only ULSD was delivered to the emissions unit during** the reporting period.
Limited operation for EU 27 to no more than 4,380 hours per 12-month rolling period.	• Demonstrate compliance with this BACT measure by complying with Condition 4 of Minor Permit No. AQ0316MSS03.

Limited non-emergency operation for EUs 24, 29, and 34 to no more than 100 hours per year, each.	• For EU 24, demonstrate compliance by complying with the NESHAP Subpart ZZZZ emergency engine requirements listed in 40 C.F.R. 63.6640(f). • For EUs 29 and 34, demonstrate compliance by complying with the NSPS Subpart IIII requirements listed in 40 C.F.R. 60.4211(f).
Good Combustion Practices.	• Keep records of maintenance conducted on emissions units to comply with this BACT measure. • Keep a copy of the manufacturer's **or** ~~and~~ the operator's recommended maintenance procedures. • For EUs 27, 29, and 34, comply with the applicable requirements of 40 C.F.R. 60, Subpart IIII. • ~~For EU 26, comply with the applicable requirements of 40 C.F.R. 63, Subpart ZZZZ.~~

Response: See response to Comment 82 regarding the references to the Title V permit. DEC maintained the requirement for keeping manufacturer's and the operator's recommended maintenance procedures.

Revisions based on response: DEC has modified the MR&R for the good combustion practices, ULSD, and limited operation requirements to be consistent with Conditions 9.1a, 8.1b, and 9.1b in Minor Permit AQ0316MSS08 Rev. 1. MR&R for EU 26 has been removed since UAF reported that EU 26 has been permanently removed.

UAF Comment 84: Appendix III.D.7.7-1542, SO_2 BACT MR&R for the pathogenic waste incinerator. Please revise the table to ensure consistency with the BACT determination and previous UAF comments. Please ensure that all requirements are clearly and specifically stated. UAF is providing specific edits in the table below that may not capture all the changes ADEC must make to ensure consistency with the BACT determinations and previous UAF comments. Please specifically address the following concern:

a. EU 9A is already subject to a requirement to combust ULSD in Condition 43.2 of Permit AQ0316TVP03. MR&R requirements are provided in Condition 30.1 of AQ0316TVP03 to demonstrate compliance with the requirement to combust only ULSD.

Emission Units: EU ID 9A (Pathogenic Waste Incinerator)

Pollutant of Concern: SO_2	
BACT Measure	**Monitoring, Recordkeeping and Reporting Requirements**
Combust Only Ultra Low Sulfur fuel at no more than 0.0015 percent sulfur by weight.	• For each shipment of fuel, test the sulfur content or keep receipts that specify fuel grade ~~date and time, and quantity of fuel received~~ **and date**. Keep records of the results of sulfur content tests and receipts for fuel shipments. • Include **a statement** in each semi-annual operating report~~, a summary of fuel test results and shipping receipts from~~ **affirming that only ULSD was delivered to the emissions unit during** the reporting period.
Limit operation of EU 9A to no more than 109 tons of waste combusted per 12-month rolling period.	• Demonstrate compliance with this BACT measure by complying with Condition 12 of Minor Permit No. AQ0316MSS08.
Good Combustion Practices.	• Keep records of maintenance conducted on emissions units to comply with this BACT measure. • Keep a copy of the manufacturer's maintenance and operational procedures. • Certify that the manufacturer's maintenance and operational procedures are being followed in each semi-annual report.

Response: The requirement to combust ULSD in EU ID 9A in Condition 43.2 of Operating Permit AQ0316TVP03 is incorporated from Condition 6.2 of Minor Permit AQ0316MSS08 and has been removed with the issuance of Minor Permit AQ0316MSS08 Rev. 1 due to the SO_2 major source precursor demonstration. However, DEC has included the SO_2 MR&R document for UAF in the event that DEC's SO_2 major source precursor demonstration is not approved by EPA. DEC intends to streamline the recordkeeping requirements listed above to be in line with the requirements contained in Minor Permit AQ0316MSS08 Rev. 1 for the large diesel engines EU IDs 8 and 35 that have ULSD requirements as part of their $PM_{2.5}$ BACT determination. Additionally, the MR&R in Condition 12 (109 tpy of waste combustion limit) from Minor Permit AQ0316MSS08 has been revised to Condition 10.1c in Minor Permit AQ0316MSS08 Rev. 1.

Revisions based on response:

Combust Only Ultra Low Sulfur fuel at no more than 0.0015 percent sulfur by weight.	• For each shipment of fuel, ~~test the sulfur content or~~ keep receipts that specify fuel grade and amount. ~~date and time, and quantity of fuel received. Keep records of the results of sulfur content tests and receipts for fuel shipments~~ • ~~Include~~ Report in each semi-annual operating report, the fuel receipt records ~~a summary of fuel test results and shipping~~

	~~receipts from~~ for the reporting period.
Limit operation of EU 9A to no more than 109 tons of waste combusted per 12-month rolling period.	• Demonstrate compliance with this BACT measure by complying with Condition ~~12~~ 10.1c of Minor Permit No. AQ0316MSS08 Rev. 1.
Good Combustion Practices.	• Demonstrate compliance with this BACT measure by complying with Condition 10.1a of Minor Permit No. AQ0316MSS08 Rev. 1. • ~~Keep records of maintenance conducted on emissions units to comply with this BACT measure.~~ • ~~Keep a copy of the manufacturer's maintenance and operational procedures.~~ • ~~Certify that the manufacturer's maintenance and operational procedures are being followed in each semi-annual report.~~

Aurora Energy, LLC Comments

Note – Aurora Energy's footnotes have been renumbered to occur in sequence with other footnotes in this document. The footnote numbers, therefore, do not correspond to those in the original comment document, but the original footnote numbers are included in the text of the footnotes.

Aurora Energy Comment 1: General Comments. The 2024 Amendments to Alaska's State Air Quality Control Plan focus on re-evaluating and updating control strategies for reducing $PM_{2.5}$ pollution in the Fairbanks North Star Borough (FNSB). These revisions are driven by the need to address feedback from the EPA and ensure compliance with air quality standards. The plan targets multiple pollution sources, including solid fuel heaters, residential and commercial fuel oil combustion, motor vehicles, and small industrial sources. The Alaska Department of Environmental Conservation (DEC) follows a structured process to select Best Available Control Measures (BACM), evaluating technological and economic feasibility, with the goal of achieving a 5% annual reduction in emissions for the area. The document outlines ongoing and new control measures, such as curtailment of solid-fuel heating during high pollution episodes and upgrades to heating devices, while committing to continuous evaluation of their effectiveness.

The document describes point source controls within the framework of Alaska's air quality plan. Point sources, are subject to the Best Available Control Technology (BACT) determination process. Major point sources with emissions over 70 tons per year of $PM_{2.5}$ or its precursors undergo rigorous evaluation to ensure they implement the most effective pollution controls.

However, the Department conducted extensive modeling and found that NOx, VOC, NH_3, and SO_2 emissions from stationary sources do not significantly contribute to ground level $PM_{2.5}$ concentrations; as such, BACT emission limits for those precursors are not required for major stationary sources in the Fairbanks North Star Borough. The 2024 plan also discusses the implementation of new emission limits. For existing sources like coal-fired power plants and fuel oil boilers, control measures include the installation of baghouses for $PM_{2.5}$, limitations on fuel types, and good combustion practices to reduce emissions.

Supplemental BACT determinations were submitted by major stationary sources within the nonattainment area and included in the 2024 SIP amendments. This step was necessary because the SO_2 precursor demonstration has not yet been approved by the EPA. If the EPA approves the SO_2 precursor demonstration, it will absolve these major sources from the requirement to implement SO_2 BACT within the Fairbanks North Star Borough (FNSB) nonattainment area, as the demonstration would confirm that SO_2 emissions from these sources are insignificant contributors to the $PM_{2.5}$ pollution problem.

Response: Comment acknowledged.

Revisions based on response: None.

Aurora Energy Comment 2: Selection of $PM_{2.5}$ BACT limit for Industrial Coal Fired Boilers. The Department has issued permits that define Aurora's new limit for $PM_{2.5}$, which is based on the EPA's compilation of air emission factors found in AP-42. However, the proposed limit for the Chena Power Plant's boilers is not representative of the recent source testing data, making the limit appear arbitrary. The primary issue with imposing a limit derived from AP-42, which has not been thoroughly vetted for this specific application, is that it may not accurately reflect the plant's actual emissions during normal operations. As a result, the plant could inadvertently exceed the limit and fall out of compliance with the established standard, despite operating under typical conditions.
Based on the EPA's definition for BACT in 40 CFR 51.166(b)(12) the following considerations apply:

"…an emission limitation based on the maximum degree of reduction for each regulated pollutant which would be emitted from any proposed major stationary source…which the reviewing authority, on a case-by-case basis…determines is achievable for such source…for control of such pollutant…"

The $PM_{2.5}$ emission rate of 0.045 lb/MMBtu, was calculated using EPA AP-42 Table 1.1-5 for spreader stoker boilers with a baghouse and Table 1.1-6 for $PM_{2.5}$ sized particles for a boiler with a baghouse. The DEC's justified establishing a $PM_{2.5}$ limit for the Chena Power Plant by referencing the results of a source test for particulate matter which was conducted on November 19, 2011. The DEC concludes:

"Source test data from the Chena Power Plant supports the chosen emission limit. From a 11/19/2011 source test on the common stack at the Chena Power Plant, the average source test result reported was 0.0272 lb/MMBtu… The evaluation of an adequate emission factor requires consideration of statistical variability when limited empirical data exists. Using the results of the 3 source test runs conducted and applying a confidence level of 95% using a two-tailed t-distribution, this emission factor at the upper range would be 0.048 lb/MMBtu."[3]

Based on the states own statistical analysis, the upper confidence value for emissions from the Chena Power Plant exceed the emission limit by 0.003 lb/MMBtu. Since 2011, there have been minor changes to the plant and coal quality variations may have impacted the $PM_{2.5}$ emission rate. Ultimately, the issue lies in the limited empirical data available to establish a definitive BACT standard for the Chena Power Plant boilers.

The compliance method provided by DEC for verifying adherence to the $PM_{2.5}$ standard is a single 3-hour source test, like the testing conducted a decade ago. However, the emission limit and compliance method for $PM_{2.5}$ have not yet received approval from the EPA. The uncertainty Aurora faces stems from the possibility that the compliance test may reveal emissions exceeding the proposed limit, leaving the plant's regulatory status in question. Unlike other facilities in the area (e.g., the University of Alaska Fairbanks), Aurora does not have an emission guarantee from the boiler manufacturer.[4] **Aurora has no contingency plan in place if the proposed emission**

[3] 1. State Air Quality Control Plan Vol. III: Appendix III.D.7.7-149.
[4] 2. Ibid.

limit is not met, relying solely on the hope that the DEC and EPA will collaborate with them in good faith to address any compliance issues that may arise.

In addition to the boiler's emission limit, other emission limits, as well as monitoring, recordkeeping, and reporting (MR&R) requirements for various emission units, are being imposed through a minor source permit. These limits and MR&R requirements are set to be integrated into the plant's federally enforceable operating permit. However, these limits and requirements have not yet been approved by the EPA. Aurora's concern stems from the uncertainty surrounding the inclusion of these new limits and conditions in its federally enforceable operating permit. If these limits are incorporated but later not approved by the EPA through the SIP process, this could create potential legal and operational complexities for maintaining compliance.

In summary, below are the problem Aurora has with the new $PM_{2.5}$ emission limit for the Chena Power Plant:

Problem – The EPA has not approved emission limits and compliance methods for Emission Units at the Chena Power Plant, yet a minor permit has been issued for the sources. If the newly prescribed conditions are incorporated into the federally enforceable operating permit and the EPA does not approve the SIP conditions, Aurora will be left with permit conditions that are federally enforceable but aren't federally approved.

Solution – Aurora believes the permit conditions should not be incorporated into federally enforceable permits before they are federally approved.

Problem – The proposed emission limit, based on AP-42, is arbitrary and untested with the current operating conditions of the Chena Power Plant. The justification for imposing the current limits is based on a very limited set of empirical data. Aurora faces uncertainty if the limit isn't met.

Solution – It would relieve Aurora's uncertainty if a contingency could be incorporated into the SIP in case the limit is not achievable. If there isn't a contingency and Aurora is not able to achieve the emission limit, an amendment to the SIP would be a necessary recourse.

Response: AP-42 is a widely accepted source of information for determining emission limits especially when no other information is available. For the Chena Power Plant BACT determination, DEC used all relevant information at its disposal to establish the limit of 0.045 lb/MMBtu (3-hour average). Besides AP-42, DEC reviewed past source test data conducted at coal fired boilers at UAF and the Chena Power Plant and found the limit derived from AP-42 adequate.

The average $PM_{2.5}$ emissions from a similar former boiler at UAF was found to be approximately 0.03 lb/MMBtu, whereas the average of three runs from the Combined Boiler (Chena 1, 2, 3 and 5) Baghouse Stack was 0.0272 lb/MMBtu. DEC's selected $PM_{2.5}$ emissions limit of 0.045 lb/MMBtu (3-hour average), calculated from EPA's AP-42 Table 1.1-5 for spreader stoker boilers with a baghouse and Table 1.1-6 for $PM_{2.5}$ sized

particles for a boiler with a baghouse was determined to be an appropriate BACT limit.

BACT limits may not necessarily be site-specific but represent best available emission controls for a given source type given its design and operational characteristics. A BACT determination includes the review of available retrofit technology to improve emissions performance and is not intended to solely match the emissions performance of existing equipment. Permittees of stationary sources subject to BACT limits are expected to operate and maintain equipment to control air pollutants using best available control technology conducting necessary maintenance and equipment upgrades over the years to maintain or even improve emissions level performance.

DEC acknowledges Aurora's perspective on not including enforceable permits into a SIP submission before they are federally approved. BACT limits in the final rule have to be permanent and enforceable. The Clean Air Act does not allow DEC the ability to include a contingency in the event that a BACT limit is not achieved. However, in the event that Aurora's source test results show non-compliance with the established BACT limits, DEC will work with Aurora to make efforts to bring the affected units into compliance. Aurora will need to exhaust all possible and reasonable options to improve the emissions performance of the boilers including but not limited to carefully reviewing the implementation of the emission control technology proposed to achieve the limit. Permittees of stationary sources subject to BACT limits are expected to operate and maintain equipment to control air pollutants using best available control technology, conducting necessary maintenance and equipment upgrades over the years to maintain or even improve emissions level performance.

While it is possible to amend an established BACT limit after the SIP amendments have been approved, it is a lengthy process that will only occur after all other options have been exhausted, as there is no straightforward contingency process to amend SIP BACT emission limits.

Revisions based on response: None.

Aurora Energy Comment 3: BACT Determination for SO_2. The EPA published a final rule approving in part and disapproving in part DEC's Serious $PM_{2.5}$ SIP on December 5, 2023. EPA references the withdrawal of the SO_2 BACT determinations from the Serious $PM_{2.5}$ SIP by DEC in the final rule and partially disapproves the Serious SIP because it does not identify, adopt, or implement BACT for SO_2. Prior to the final disapproval, the EPA reviewed the BACT analysis from the major sources and independently performed their own analysis with collected information from suppliers of DSI equipment and sorbent. These efforts have resulted in the conclusion that the current performance standard for a DSI system is 95% sulfur capture efficiency. The EPA, subsequently, has requested that Aurora Energy revise their assessment to account for a DSI system with a 95% capture efficiency as opposed to the 80% efficient system previously provided. The EPA also requested that Aurora Energy evaluate the technical feasibility of other sulfur control technologies specifically with respect to the size of the equipment and the available space on plant property.

Aurora submitted a supplemental SO_2 BACT analysis for EUs 4 through 7 to provide ADEC with updated information that meets the EPA's information request. **This updated BACT submittal was provided as a contingency if EPA decides not to approve the DEC's SO_2 precursor determination.** As it stands, the SIP amendment does "…not include requirements for NOx, VOC, or SO_2 controls because the Department is relying on precursor demonstrations to show that controls for these pollutants are not needed for attaining the standard, as allowed under the $PM_{2.5}$ NAAQS Final Sip Requirements Rule".[5]

Aurora's updated BACT submittal includes a finding from Stanley Consultants, Inc. (SCI) that the existing facility does not have enough space available on site to install and operate wet scrubber control system, Spray Dry Absorbers, Circulating Dry Scrubbers, or Dry Sorbent Injection (DSI).

> "Aurora's updated BACT submittal includes a finding from SCI that the existing facility does not have enough space available on site to install and operate a DSI control system. However, Aurora advanced this control technology past Step 2 of the BACT process, and their quote from SCI claimed that DSI will achieve the highest SO_2 removal rate of the various flue gas desulfurization (FGD) controls."[6]

The primary reason Aurora and SCI considered DSI controls beyond 'Step 2 of the BACT process' was due to DEC's uncertainty that the EPA would approve the determination that DSI was technologically infeasible due to space constraints. Nevertheless, this entire supplemental SO_2 BACT analysis should not have been necessary, as DEC is providing a valid and justifiable precursor demonstration showing that major source SO_2 contributions to $PM_{2.5}$ formation are insignificant. However, because the EPA has not yet approved this demonstration, and the time line for attainment does not allow for another SIP amendment, these BACT analyses are being submitted as a precaution.

Aurora does not see DSI as a viable option due to the space constraints consistent with SCI's evaluation of its installation on site. The subsequent analyses are presented to highlight the impracticality of considering DSI as a control measure. These evaluations clearly demonstrate that DSI is not only technologically infeasible due to space constraints but also cost ineffective. Despite these findings, the DEC acknowledges Aurora's conclusions regarding the lack of space for DSI at the site but has still advanced the control for further consideration:

> "Based on Aurora's concern regarding space constraints and relative implementation costs, the Department agrees that DSI is the most technically and economically feasible SO_2 Control for the Chena Power Plant and has advanced this control for further consideration for the coal-fired boilers."[7]

[5] 3. State Air Quality Control Plan Vol.II: III.D.7.7.13.8.2.
[6] 4. State Air Quality Control Plan Vol.III: Appendix III.D.7.7-184.
[7] 5. Ibid.

Aurora does not agree that DSI should be further considered and that the technologically infeasible determination for DSI should be the final advancement of the technology.

Regardless, in the interest of thoroughness, Aurora provided a cost-effectiveness calculation based on SCI's evaluation. SCI, having been involved in installing and constructing nearly all recent additions and modifications to coal-fired boilers in the Fairbanks North Star Borough, brings extensive expertise to the table. Their specialized knowledge of what it takes to implement SO_2 controls on coal-fired boilers in Fairbanks, AK, positions them uniquely for this analysis; they possess a narrow and specific skill set.

On page 186 of Appendix III.D.7.7-186, the DEC states, "While implementing DSI is technically feasible, Aurora contends that the economic analysis indicates the level of SO_2 reduction does not justify the use of DSI for coal-fired boilers based on the perceived high implementation costs." Aurora agrees that the economic analysis does not justify the use of DSI for the boilers at the Chena Power Plant; however, Aurora does not agree that it is 'technically feasible'. It is not technically feasible due to space constraints as illustrated in the efforts put forth by SCI. **The further analysis beyond DSI's technological infeasibility emphasized that, <u>even if it were technologically feasible</u>, it is not justifiable based on cost-effectiveness.**

The DEC, "revised Aurora's January 26, 2024, cost estimate provided for installation of DSI by changing the Direct Installation Costs (DIC) and Total Indirect Cost (TIC) to reflect ratios more aligned with Section 5-SO_2 and Acid Gas Controls Cost Manual (CCM)". The cost estimates were derived from engineering evaluations provided by SCI, a consultant that has not only been involved in designing control technologies for coal-fired boilers in the region but has also played a key role in the construction of the newest coal-fired power plant in Alaska, located in Fairbanks. Their experience and expertise make their estimates particularly credible and relevant. Stanley Consultants has provided cost estimates for several recent projects at various locations in the State of Alaska. Our experience on these previous projects has indicated that the use of typical cost estimating resources (in this case, RS Means) will result in a cost estimate that is significantly below the costs that are actually incurred by the Owner. In an effort to provide unit costs that better reflect the reality of construction in Alaska, Stanley Consultants presented the previous estimate to a contactor with current experience with major construction projects in interior Alaska.[8]

The CCM should not be referenced as a surrogate for engineering estimates in this case. **The DEC should retract their cost effectiveness calculation as provided in the SIP for the cost effectiveness calculations generated as a product of engineering estimates provided by SCI.** Although the SCI estimates are not formal vendor quotes, they are grounded in the practical realities of installing controls in Fairbanks. These estimates are informed by SCI's direct experience in the region, making them far more reliable than surrogate comparisons from the CCM, which often fail to account for the unique challenges and nuances involved.

The DEC challenges some of SCI's cost estimates while accepting others, leading to a significant difference in the final cost-effectiveness calculations. Using DEC's adjustments, the resulting

[8] 6. Stanley Consultants, Inc, "Best Available Control Technology Analysis," Chena Power Plant, Aurora Energy, LLC, Fairbanks, AK. PG. 3-4 January 25, 2024.

cost-effectiveness calculation for SO_2 removal is $13,368 per ton, a figure considered cost-effective by DEC standards. In contrast, SCI's original estimates yielded a cost-effectiveness figure of $21,851 per ton of SO_2 removed, which is not deemed cost-effective. "The Department's economic analysis appears to indicate that the level of SO_2 reduction justifies the use of dry sorbent injection as BACT for the coal-fired boilers located in the Serious $PM_{2.5}$ nonattainment area."[9] As part of a 'three-tiered' defense against the installation of DSI, Aurora conducted an affordability analysis, which clearly demonstrated that implementing DSI is cost prohibitive. **The affordability analysis further illustrates that, even though DSI is not cost effective, it is ultimately not affordable.**

The DEC does not challenge the affordability analysis, which is fortunate for Aurora, as it reinforces the argument that the installation of DSI is not feasible. This analysis, along with the other supplemental documents provided, is grounded in the real-world limitations and constraints of installing control technologies at the Chena Power Plant. Hopefully, the EPA will approve the SO_2 precursor demonstration; however, if they do not, the documents outlining the feasibility of control technology will become even more critical. In that scenario, it is in Aurora's best interest to have the thoroughly vetted engineering estimates from SCI, supported by the DEC, serve as the foundation for future decisions.

Below is a summary of Aurora's concerns with the DEC's BACT Determination for SO_2:

Problem – The main uncertainty for the major sources, including Aurora, are that the DEC is not confident in the EPA's approval of the SO_2 precursor demonstration. DEC has encouraged the facilities to provide supplemental BACT information to act as a contingency in the event EPA does not approve the precursor demonstration. Aurora has provided detailed and technical analyses regarding the infeasibility of installing and operating the pertinent control technologies for SO_2.

Solution – DEC should support the supplemental BACT information as provided. The information is a contingency; only to be applied if the SO_2 precursor demonstration is not approved. The cost estimate provided is grounded in real-world data from completed construction and installation projects for boilers and controls within the Fairbanks area. This estimate reflects the actual costs and challenges faced during these projects, making it highly reliable.

Response: Regarding the $PM_{2.5}$ BACT limit determination, DEC used all relevant information at its disposal to establish the limit of 0.301 lb/MMBtu (3-hour average). As Aurora points out, Stanley's cost-effectiveness calculation is based on an estimate instead of a quote. An estimate is normally regarded as having more latitude due variability on the basis for the estimation. While DEC gives credence to an experienced consultant, it also finds credibility in EPA's CCM, which is used ubiquitously by both government and industry entities for the specific purpose of calculating pollution control costs.

While DEC advanced DSI as feasible technology, it acknowledges Aurora's space

[9] 7.. State Air Quality Control Plan Vol.III: Appendix III.D.7.7-185 to -187.

concerns for the new equipment that would be necessary to implement DSI controls. Despite claiming that DSI implementation is technologically infeasible, Aurora provided a cost estimate for its implementation with an estimated cost-effectiveness figure of $21,851 per ton of SO_2 removed. Cost-effectiveness of retrofitted air pollution control figures must be determined to be reasonable before such control measures are adopted in BACT determinations. Aurora's cost-effectiveness estimate was not determined to be outside an acceptable range.

Additionally, as Aurora points out, DEC ultimately rejected DSI based on the conclusion that the costs of installing the controls would result in an unacceptable adverse economic impact. Aurora calculated a cost/sales ratio significantly higher than 3%, which is the upper threshold defined in the EPA's November 2006 Small Business Regulatory Enforcement Fairness Act Guidance Document. [10] DEC also notes that we are relying upon a major source precursor demonstration to show that SO_2 emissions are not meaningfully contributing the $PM_{2.5}$ NAA and therefore the existing SO_2 requirements have been removed with the revision to Minor Permit AQ0315MSS02.

Revisions based on response: None.

Aurora Energy Comment 4: Interpollutant Trading and Banking. The department has applied an interpollutant trading (IPT) concept as part of the contingency plan to meet one year worth (OYW) of progress for both $PM_{2.5}$ and $PM_{2.5}$ precursors. EPA has permitted IPT as part of contingency measures in EPA Region 9. Within the Federal Implementation Plan for Contingency Measures for the Fine Particulate Matter Standards; San Joaquin Valley, California, published in 88 Fed. Reg. 53431, 53439 (Aug. 8, 2023), The EPA approved IPT for contingency measures in that plan, allowing the substitution of emissions reductions between direct $PM_{2.5}$ and its precursors, including SO_2.[11]

Since secondary sulfate (a $PM_{2.5}$ precursor formed from SO_2) constitutes a relatively small portion of total $PM_{2.5}$ levels in the Fairbanks nonattainment area, the state assumes a conservative ratio of 5:1 (SO_2 to $PM_{2.5}$). This means that a reduction in 5 tons of SO_2 emissions is considered equivalent to reducing 1 ton of $PM_{2.5}$ emissions. IPT is being applied to account for OYW of reductions in precursor pollutants as a part of the contingency plan.

On November 19, 2018, Aurora submitted a document to the DEC proposing the concept of Interpollutant Trading (IPT) combined with an expansion of district heating as a cost-effective alternative to installing expensive Best Available Control Technology (BACT). This proposal aimed to reduce emissions through more practical and financially feasible means. However, despite the potential benefits, the concept was ultimately not adopted as part of the final regulatory strategy. Neither was the expansion of district heating advanced as a primary control measure due to concerns regarding high costs and infrastructure limitations. The timeline for widespread implementation of district heating was seen as incompatible with the more immediate emissions reductions required to meet air quality standards within the nonattainment

[10] The EPA's SBREFA Guidance Document is available at: https://www.epa.gov/reg-flex/learn-about-regulatory-flexibility-act.
[11] 8.. State Air Quality Control Plan Vol.II: III.D.7.11-20

area timeline. The disqualification of district heating is unfortunate, because the displacement of low-lying air pollution in Fairbanks to tall stacks was an insight derived from studies almost a three-quarter century ago. For example, from a 1957 edition of the "Journal of the Arctic Institute of North America", the below conclusion forecast the problems that Fairbanks has inherited:

> Ice fog is an example of an air pollution situation in which water vapor is the principal culprit…The only hope for alleviating the situation in communities where such conditions prevail in winter is to curtail vapor emission or to confine it to tall stacks in selected locations. While ice fog, as such, causes inconvenience…its presence is an indication of local conditions which could equally well lead to the accumulation of other pollutants. If industrial expansion of Fairbanks…should occur…prospective industries as well as the communities should plan carefully to avoid future air pollution problems more serious than those at present resulting from ice fog.[12]

Aurora would recommend that the DEC consider including an additional option to support overall attainment efforts. This option would serve as a proactive mechanism for air quality planning in anticipation of future development within Fairbanks. Major sources are being classified as insignificant contributors to the Fairbanks North Star Borough (FNSB) nonattainment area's air quality issues, based on the conclusions of the SO_2 precursor demonstration. Despite this, these same sources are currently still subject to a 1:1 offset requirement for any major modifications or new source development within the nonattainment area. This creates a regulatory challenge, as the offset requirements remain in place even though the SO_2 precursor demonstration suggests that these sources have minimal impact on $PM_{2.5}$ levels in the area. If the EPA partially approves and partially disapproves the proposed 2024 amendments to the SIP, the offset sanctions imposed on industry will escalate to a 2-to-1 ratio. This means that for every new unit of air pollution proposed by a major source development, two units of emissions will need to be removed within the same airshed. This situation is not conducive to industrial development within the FNSB NAA; industry has limited options to expand within the area due to its Serious NAA designation. Given that the EPA has been open to considering IPT for supporting contingency measures in Serious NAA, there is potential for them to support the use of IPT in a pollutant banking program aimed at facilitating attainment. The concept would involve allowing industries or other entities to acquire pollution credits for achieving equivalent pollution reductions through initiatives like heating device change-outs in residential or commercial properties. This type of program could create a market for pollution credits, incentivizing cleaner technologies and practices, while helping to accelerate progress toward meeting air quality standards in the region. Such an approach could provide flexibility for industries while ensuring that overall emissions are reduced in a way that supports attainment goals

If a pollutant banking and trading program were established, owners of major sources subject to offset requirements and/or sanctions could be incentivized to participate in programs like heating device change-outs to earn pollution credits. By facilitating these change-outs, they could remove low-lying pollution sources (i.e., outdated and inefficient

[12] 9. Robinson, E., Thuman, W., Wiggins, E. (1957). "Ice Fog as a Problem of Air Pollution in the Arctic," Journal of the Arctic Institute of North America. Vol 10, No 2; pg 89-104.

heating devices) in exchange for banking credits. These credits could then be used to offset emissions from future development within the NAA. This system would provide a dual benefit: reducing pollution from small, widespread sources, while also allowing for responsible industrial growth, all within the framework of improving overall air quality in the region. A potential caveat to using pollution credits from a pollutant banking and trading program could be to limit their use to emissions released above a prescribed elevation, which would correspond with the use of tall stacks. Emissions from the taller stacks associated with major sources are considered insignificant contributors to the fine particulate pollution problem in the Fairbanks North Star Borough (FNSB) nonattainment area. Hypothetically, a program such as this could incentivize district heating hook ups which would remove low-lying sources of fine particulate matter and/or precursor pollutants thus advancing the area into attainment.

Problem – Major sources are limited by the area being a Serious NAA and could experience even more stringent offset rules which leave little recourse to industrial and commercial development within the community.

Solution – If the ADEC incorporates an IPT and banking program within the context of the SIP and the FNSB Serious NAA, it could incentivize further device change outs facilitated by industry which would help bring the area into attainment and give industry a mechanism to mitigate air quality hurdles for industrial development.

Response: As noted in the comment, DEC's use of Inter-Pollutant Trading (IPT) was under a limited context with evaluation of whether contingency measures could achieve One Year's Worth (OYW) of attainment progress as recommended in EPA's contingency measure guidance. Broader use of a pollutant banking and trading program within the SIP, i.e., for control measure analysis supporting an attainment demonstration, though potentially useful, would require adoption of regulatory and implementation framework that met EPA requirements for control measures to be quantifiable, enforceable, replicable, and accountable. A similar program for emission offsets was recommended by the Fairbanks Air Quality Stakeholders Group in 2018 but never implemented because the regulatory framework could not be agreed upon. Moreover, such a program as recommended by Aurora may require additional gridded emissions inventory development and atmospheric modeling to address where emission reductions occur (relative to allowed emissions) under a banking/trading program. Therefore, due to its complexity and EPA approvability DEC did not include a pollutant banking and trading program as envisioned by Aurora within the control strategy adopted and being implemented within the 2024 Amendments attainment demonstration.

Revisions based on response: None.

Aurora Energy Comment 5: Conclusion. In Summary, Aurora appreciates the effort the DEC has put into the 2024 amended Serious SIP and looks forward to working with you and the community to help bring the FNSB into attainment with the EPA standards. Below are summaries of the key points included within the comments:

- The Chena Power Plant is subject to a new PM2.5 emission limit that hasn't been recently vetted for its achievability. Aurora would like the ADEC to include a contingency within the context of the SIP in the event the limit is unachievable by the facility.
- The major sources in the NAA, including Aurora, have been issued new minor permits with conditions that are being proposed to the EPA for approval. Aurora suggests that these conditions not be included within the context of a federally enforceable permit prior to the EPA's approval of the conditions.
- Aurora and other major source facilities have provided to the ADEC updated SO2 BACT information because the ADEC is uncertain whether the EPA will approve the major source SO2 precursor demonstration. The ADEC has disregarded the single most important conclusion of Aurora's efforts which is that all the SO2 technologies referenced are not technologically feasible. ADEC also disregarded the second most important conclusion which is that even if DSI were technologically feasible it is cost ineffective. Aurora would like the ADEC to accept and support the supplemental BACT information as provided since they are grounded in real-world data from completed construction and installation projects for boilers and controls within the Fairbanks area.
- • Major sources within the FNSB Serious NAA have very little recourse to industrial development due to air quality regulations. Since the EPA is willing to apply IPT to the contingency planning for the area, perhaps the EPA would support the development of an IPT and banking program which would facilitate industrial development while bringing the area into attainment.

  Response: Conclusion comment acknowledged, and individual aspects addressed by specific Comments 2 through 4.

  Revisions based on response: None.

Corrections Made by DEC to Aurora's BACT Determination

Aurora submitted comments on Preliminary Minor Permit AQ0315MSS02 Rev. 1 noting that EU ID 3's potential $PM_{2.5}$ emissions as calculated in the renewal Operating Permit AQ0315TVP04 are 0.24 tpy instead of 0.23 tpy. DEC therefore updated the limit in Aurora's BACT Determination document in Tables 4-4 and 6-2 for accuracy.

Doyon Utilities, LLC Comments

Doyon Comment 1: Page 182, Section 7.7.13.8.2. Doyon Utilities, LLC (DU) supports the sulfur dioxide (SO_2) major source precursor demonstration (presented in Vol. II: III.D.7.8.18). DU appreciates the ADEC effort in preparing this analysis to demonstrate that SO_2 emissions from existing major stationary sources in the nonattainment area do not significantly contribute to ambient $PM_{2.5}$ concentrations that exceed the $PM_{2.5}$ 24- hour ambient standard.

Response: DEC appreciates Doyon's support on this undertaking.

Revisions based on response: None

Doyon Comment 2: Page 182, Section 7.7.13.8.2.1. DU notes the difficult effort that may be needed to revise a permit condition that is based on specific SIP language. DU encourages ADEC to ensure that all BACT limits and compliance assurance requirements provided in the SIP are clearly and consistently stated and are fully attainable to avoid the need for future SIP and permit condition revisions.

Response: Comment acknowledged.

Revisions based on response: See responses to the more specific comments below.

Doyon Comment 3: Page 183, Section 7.7.13.8.4, Table 7.7-44. DU would like to better understand the timeline to demonstrate compliance with the $PM_{2.5}$ emission limit for the coal-fired boilers. The proposed SIP amendments do not provide a deadline for conducting the initial source tests. Adequate time will be needed to budget and allocate funds to conduct source testing on the six coal-fired boilers. Adequate time will be needed to retain a source testing firm to conduct the testing, particularly if several other Fairbanks-area facilities are also required to conduct source testing in the same timeframe. Testing during the winter months (which DU considers to be November through April) is not feasible for two reasons:

a. The configuration of the stacks would expose the sampling trains to temperatures well below freezing, which would present significant challenges to conducting successful testing.
b. The six coal-fired boilers provide steam for space heating to the entirety of the Fort Wainwright garrison. The plant must carefully balance heating demand and boiler loads during mid-winter in Fairbanks. Arranging boiler availability and proper load conditions for source testing during the winter season adds an untenable level of complexity to a plant providing critical, life-safety heat for thousands.

Testing during summer months would present operational challenges. The demand for steam is low during summer months. Operating boilers at or near full load to conduct source testing would result in significant operational inefficiencies.

Please make the deadline for conducting the initial source testing at least 180 days after the effective date of the BACT limit in the SIP or 180 days following the end of the winter season following the effective date of the BACT limit, whichever is the later date.

Response: The deadline for conducting the initial source tests on the affected coal-fired boiler are provided in the Minor Permit AQ1121MSS04 Revision 1 that has been incorporated into the SIP. Condition 5.1a requires "a one-time source test on any two of EU IDs 1 through 6, after the control device, in accordance with Section 6, within 180 days of permit issuance, or by June of the year following the date of permit issuance, whichever comes later, to demonstrate compliance with the $PM_{2.5}$ emissions limit." DEC notes this comment and will address the Permittee's comment accordingly on the public noticed preliminary permit pertaining to the same issue.

DEC initially proposed a one-time source test, after the control device, in accordance with Section 6, within 180 days of permit issuance, or by June of the year following the date of permit issuance, whichever comes later, to demonstrate compliance with the $PM_{2.5}$ emissions limit. DEC acknowledges the challenges that will need to be addressed in order to comply with the source testing requirements. In some cases, sources prefer to conduct source testing over the winter due to load demand and it may be too late for them to schedule source testing within this coming winter. In addition, the challenges for procuring a source tester in Alaska without significant lead time are not uncommon.

Therefore, in response to comments received from stationary sources concerning time allowed to conduct source testing for $PM_{2.5}$ emissions, we plan to uniformly allow sources to conduct the required source testing within 12 months of permit issuance.

Revisions based on response: Final Minor Air Quality Permits will be issued allowing source testing within 12 months of permit issuance.

Doyon Comment 4: Page 183, Section 7.7.13.8.4, Table 7.7-44. Please revise Table 7.7-44 to ensure consistency with the BACT determination and the DU comments provided in this submission addressing the BACT determination. DU is providing some specific edits that may not capture all the changes ADEC must make to ensure consistency with the BACT determination and DU comments.

Table 7.7-44
DEC BACT and SIP Findings Summary Table for Fort Wainwright

Pollutant	BACT Emission Limit	BACT Control Device or Operational Limitation	Effective Dates of Control/Limit
DU *EUs 1 through 6 – Coal Fired Boilers - 230 MMBtu/hr (each)*			
NOx	Precursor Demonstration[1]	No Additional Controls	N/A
$PM_{2.5}$	0.045 lb/MMBtu (3-hr avg.) ~~State Opacity Standard Under 50.055(a)(9)~~	Full Stream Baghouse and Good Combustion Practices	Effective no later than December 31, 2024[3]
SO_2	Precursor Demonstration[2]	No Additional Controls	N/A
Emergency Engines, Generators, and Fire Pumps			
NOx	Precursor Demonstration[1]	No Additional Controls	N/A
$PM_{2.5}$	0.015 - 1.0 g/hp-hr (3-hr avg.)	Good Combustion Practices and Limited Operation	Effective no later than December 31, 2024[3]
SO_2	Precursor Demonstration[2]	No Additional Controls	N/A
FWA *EUs 8 through 10 and 40[4] – Fuel Oil Boilers*			
NOx	Precursor Demonstration[1]	No Additional Controls	N/A
$PM_{2.5}$	0.016 lb/MMBtu (3-hr avg.)	Good Combustion Practices (EUs 8-10 and 40) Limited Operation (EUs 8 – 10)	Effective no later than December 31, 2024[3]
SO_2	Precursor Demonstration[2]	No Additional Controls	N/A
EUs 7a, 7b, 7c, 51a, and 51b – Material Handling Sources (Coal Prep and Ash Handling ***Dust Collectors****)*			
$PM_{2.5}$	0.0025 - 0.02 gr/dscf	Enclosed Emission Points, ~~Dust Collectors~~ and Good Operating Practices	Effective no later than December 31, 2024[3]
EU 52 – Emergency Coal Storage Pile and Operations			
$PM_{2.5}$	1.42 TPY	~~Chemical Stabilizers and~~ **Wind Awareness, Compaction,** Water Suppression as Necessary, **and Snow Cover as applicable** ~~Wind Fencing, and Cover Haul Vehicles~~	Effective no later than December 31, 2024[3]

Response: DEC acknowledges that Doyon is prevented from using chemical stabilizers for the emergency coal storage pile and operations and that the coal storage area is too large for wind fencing to be effective. At the same time DEC acknowledges the demonstrated efficacy of Compaction for preventing fugitive dust and also to prevent spontaneous coal combustion.

Revisions based on response: The subhead titles and control measures have been edited as proposed. However, DEC retained the State's opacity standard as a BACT limit for the reasons stated in response to Doyon Comment 13.

Doyon Comment 5: Appendix III.D.7.7-1048 through 1099, Best Available Control Technology (BACT) Determination. DU has the following general comment about this BACT determination. The document presents the selected BACT limits in Step 5 of the various BACT analyses. Some of the BACT selections include certain monitoring, recordkeeping, and reporting (MR&R) requirements to demonstrate compliance with BACT limits. Tables in Section 6 of the BACT determination present "summaries" of the BACT limits, but also include compliance methods for which the underlying rationale or other explanations are not provided elsewhere. Following the BACT determination (pages 1091 through 1099), other tables present separate lists of BACT requirements and associated MR&R requirements for which underlying rationale or other explanations are not provided elsewhere. As a result, each BACT limit and the associated requirements are presented in a disjointed fashion and differently in each section of the document. The BACT determination is not entirely internally consistent.

BACT is a federally enforceable emission limit based on technology that is most cost effective. The U.S. Environmental Protection Agency (EPA) has provided copious guidance documents which prescribe specific steps and methods to prepare a BACT analysis. The MR&R requirements that accompany any selected BACT limit are to ensure that the BACT limit is federally enforceable and that the owner/operator is demonstrating compliance with the BACT limit. This BACT determination should logically step through the BACT analysis process for each emissions unit and emission control technology being considered. The determination should be very clear as to the BACT limit, averaging period, and initial and ongoing MR&R requirements, and provide the appropriate supporting rationale for each limit and the MR&R. The MR&R requirements should be clear and specifically tied to a particular BACT limit. As written, this BACT determination does not clearly present the BACT limits and the MR&R requirements specific to each limit. DU requests that ADEC take the following steps when finalizing the BACT determination.

- Ensure each section of the BACT analysis follows the prescribed 5-step BACT process.
- Clearly identify the selected BACT emission limits.
- Clearly address MR&R requirements separately from BACT limits, tie each MR&R requirement to a particular BACT limit, and provide appropriate rationale for the selected MR&R requirements.

Response: DEC acknowledges this general comment pertaining to the BACT determination process and document organization.

Revisions based on response: DEC removed the MR&R requirements from Step 5 of the BACT process. The $PM_{2.5}$ MR&R document that was included in the control strategies appendix of the SIP has been replaced with Minor Permit AQ1121MSS04 Revision 1 in the final SIP submittal. The SO_2 MR&R requirements are found in the control strategies

appendix of the SIP. See details in the responses to Doyon Comments 6 through 64 below.

Doyon Comment 6: Appendix III.D.7.7-1051, Section 1, first paragraph. This sentence was revised in this version of the SIP but was not flagged as a change. The previous SIP version was correct. The emissions units (EUs) at the Central Heat and Power Plant (CHPP) at Fort Wainwright are owned and operated by Doyon Utilities, LLC (DU). Please revise the second sentence as follows.

> The EUs located **within the military installation** ~~at the Central Heat and Power Plant (CHPP)~~ at Fort Wainwright in Fairbanks, AK are either owned and operated by a private utility company, Doyon Utilities, LLC (DU), or by U.S. Army Garrison Fort Wainwright (FWA).

Response: DEC made the revision as requested.

Revisions based on response: First paragraph revised per requested revisions.

Doyon Comment 7: Appendix III.D.7.7-1051, Section 1, third paragraph. The paragraph states that this BACT addendum provides BACT analyses for $PM_{2.5}$ and SO_2 emissions but does not provide an explanation or reference to the SO_2 major source precursor demonstration in Vol. II: III.D.7.8.18. Please add language to this paragraph to ensure that this BACT determination includes the statement that BACT for SO_2 is not required based on the results of the SO_2 precursor demonstration. DU notes that similar discussions were included in BACT addenda for other major stationary sources and suggests the following language.

> Since preparing the SIP amendments adopted on November 18, 2020, the Department conducted extensive modeling and found that SO_2 emissions from stationary sources do not significantly contribute to ground level $PM_{2.5}$ concentrations, and that SO_2 BACT emission limits are therefore not required for major stationary sources in the Fairbanks North Star Borough. SO_2 BACT determinations have, however, been included in in this BACT Determination Addendum because the SO_2 major source precursor demonstration has not yet been approved by EPA.

Response: For clarity and consistency, DEC has added the paragraph pertaining to BACT for SO_2 as not required based on the results of the SO_2 precursor demonstration.

Revisions based on response: Added the paragraph, as requested.

Doyon Comment 8: Appendix III.D.7.7-1052, Section 2, Table A. Please make the following corrections to certain DU emissions units in Table A, and throughout the BACT determination document, consistent with the information presented in the 2019 DU-FWA Title V renewal application and the 2021 application amendment.

EU ID	Description of EU	Rating/Size	Location
29a	Emergency ~~Pump~~ **Generator** Engine	74 hp	Building 3565
30a	Emergency ~~Pump~~ **Generator** Engine	~~80~~ **91** hp	Building 3403
31a	Emergency ~~Pump~~ **Generator** Engine	74 hp	Building 3724
32a	Emergency ~~Pump~~ **Generator** Engine	~~80~~ **91** hp	Building 4162
33a	Emergency ~~Pump~~ **Generator** Engine	75 hp	Building 1002
37~~a~~	Emergency ~~Pump~~ **Generator** Engine	75 hp	~~Building~~ **MH** 507

Response: DEC made the revisions as requested.

Revisions based on response: Table A of Section 2 revised per revisions requested.

Doyon Comment 9: Appendix III.D.7.7-1054, Section 2, Step 1. Please revise the description of Doyon to "DU" in the final sentence of this paragraph, and throughout the document, for consistency. The correct nomenclature for Doyon Utilities, LLC (DU) is presented in the first paragraph of this BACT determination.

Response: DEC made the revision as requested.

Revisions based on response: Step 1 of Section 2 revised per revision requested.

Doyon Comment 10: Appendix III.D.7.7-1058, Section 4.1, Step 4. Please revise the list of controls proposed by Fort Wainwright to remove items (c) and (d). These requirements (conducting a $PM_{2.5}$ performance test and complying with State opacity standards) were not proposed as BACT limits by Fort Wainwright or DU. DU proposed these items as (MR&R) requirements in a March 22, 2023, comment letter to EPA addressing the EPA proposed rule to partially approve and partially disapprove the Serious SIP.

a. DU proposed $PM_{2.5}$ performance testing as MR&R provisions to demonstrate compliance with the $PM_{2.5}$ BACT emission limit.
b. DU proposed complying with the State opacity standards (Conditions 3 through 6 of Permit AQ1121TVP02 Revision 1) as MR&R provisions to demonstrate compliance with the BACT requirement to operate the baghouses.

Response: The $PM_{2.5}$ MR&R document that was included in the control strategies appendix of the SIP has been replaced with Minor Permit AQ1121MSS04 Revision 1 in the final SIP submittal. See related response to Doyon Comment 13.

Revisions based on response: Items (c) and (d) in Appendix III.D.7.7-1058, Section 4.1, have been removed, as requested.

Doyon Comment 11: Appendix III.D.7.7-1058, Section 4.1, Step 5. Please revise the language in item (a) of the selected BACT for the Industrial Coal-Fired Boilers as follows.

(a) $PM_{2.5}$ emissions from DU EUs 1 through 6 shall be controlled by operating and maintaining fabric filters (full stream baghouse) ~~and using good combustion practices~~ at all times the units are in operation;

The requirement to use good combustion practices is duplicated immediately below in item (b) of this paragraph. Please note that the phrase "and using good combustion practices" was added to item (a) but was not flagged as a change.

Response: DEC made the revisions as suggested. Table 4-2 lists the BACT requirement for Fort Wainright to use full steam baghouse and good combustion practices, and item (b) already lists out good combustion practices.

Revisions based on response: Item (a) in Appendix III.D.7.7-1058, Section 4.1, Step 5 revised according to requested revision.

Doyon Comment 12: Appendix III.D.7.7-1059, Section 4.1, Step 5. Please revise the last sentence in footnote 12 in item (c) of the list of selected BACT for the Industrial Coal-Fired Boilers to reflect that the heat and ash contents presented in the Usibelli datasheet are "typical," as follows.

Typical heat and ash content of the Usibelli coal ~~is~~ **are** identified in the coal data sheet at: http://usibelli.com/coal/data-sheet.

Note that the emission limit of 0.045 lb/MMBtu in item (c) was revised in this version of the document but was not flagged as a change.

Response: DEC made the revisions as suggested.

Revisions based on response: Footnote 12 in Appendix III.D.7.7-1059, Section 4.1, Step 5 is revised, per requested revisions above.

Doyon Comment 13: Appendix III.D.7.7-1059, Section 4.1, Step 5. Please revise the list of the selected BACT for the Industrial Coal-Fired Boilers to remove items (d) and (e). The source test requirement was proposed as MR&R to demonstrate compliance with the $PM_{2.5}$ numerical emission limit, not as an additional BACT limit. Complying with the state opacity standard was proposed as MR&R to demonstrate compliance with the BACT requirement to operate the baghouse. This BACT determination does not identify these requirements as available control technologies or carry them through the BACT analysis. This report does not provide any rationale for including these requirements as BACT limits. Compliance with opacity standards is not addressed as an available control technology for $PM_{2.5}$ emissions in Step 1 of Section 4.1. These items should be included in the MR&R addendum tables that follow the BACT determination on page Appendix III.D.7.7-1091. DU notes that item (e), "Maintain compliance with the State opacity standards in 50.055(a)(9)" was added to this version of the BACT determination but was not flagged as a change.

Response: The $PM_{2.5}$ MR&R document that was included in the control strategies Appendix of the SIP has been replaced with Minor Permit AQ1121MSS04 Revision 1 in the final SIP submittal. DEC also acknowledges that item (e) was not flagged as a change in the public notice version. In the final SIP submittal, DEC removed bolded and underlined text to note changes from the previous versions. DEC agrees to remove (d) as that is an MR&R requirement which is included in Minor Permit AQ1121MSS04 Rev. 1 and does not need to be duplicated in the Appendix. However, DEC is not removing the requirement to maintain compliance with the state opacity standard under (e).

The State's opacity standard is not considered a control device but was selected as a related limit to the emissions limit selected under (c), and therefore does not need to be brought through the BACT determination process. While a quantitative correlation between the State's opacity standard and the proposed $PM_{2.5}$ emissions limit of 0.045 lb/MMBtu has not been established, the direct proportionality of opacity level and particulate matter emissions concentration is widely accepted.

Given that the demonstration of compliance with the proposed $PM_{2.5}$ emission limit is through a one-time source test only, DEC saw appropriate to include a surrogate limit that can be measured on a continuous basis. While DEC may implement additional source testing requirements as part of Title V permitting program, compliance demonstration of the opacity standard supports in some fashion that PM and $PM_{2.5}$ emissions are being kept under the established BACT emission limit.

DEC believes that compliance with opacity standards support the overall effort for bringing the nonattainment area into compliance with the $PM_{2.5}$ standards. As historical precedent, DEC notes that a similar requirement was established to meet a 10% opacity standard in the BACT determination for gas-fired turbines at Alaska Gasline Development Corporation's Liquefaction Plant under Construction Permit AQ1539CPT01, even if was not located in a nonattainment area for $PM_{2.5}$.

Revisions based on response: Item (d) in Appendix III.D.7.7-1059, Section 4.1, Step 5 have been deleted.

Doyon Comment 14: Appendix III.D.7.7-1063, Section 4.3, Step 1, (f). The statement in item (f) of this section is imprecise and unclear. The RACT/BACT/LAER Clearinghouse (RBLC) is an information source to consider when identifying available control technologies. Listings in the RBLC do not impose requirements, but, instead, provide information about BACT determination made by air quality permitting agencies. Per EPA guidance, an NSPS defines the minimal level of control to be considered in the BACT analysis. Please revise the language in (f) as follows to improve the accuracy of this statement.

~~RBLC PM2.5 determinations for federal emission standards require the engines meet the requirements of 40 C.F.R. 60 NSPS Subpart IIII, 40 C.F.R 63 Subpart ZZZZ, non-road engines (NREs), or EPA tier certifications.~~ **The** NSPS **in 40 CFR 60** Subpart IIII applies

to stationary compression ignition internal combustion engines that are manufactured or reconstructed after July 11, 2005. The Department considers NSPS Subpart IIII a technically feasible control technology for the large diesel-fired engines **that are subject to Subpart IIII.**

Response: DEC made the revisions requested.

Revisions based on response: Step 1, item (f) of Section 4.3 in Appendix III.D.7.7-1063 revised per revisions requested.

Doyon Comment 15: Appendix III.D.7.7-1064, Section 4.3, Table 4-6. Please revise the BACT emission limit for EU 8. The emission limit of 0.15 g/hp-hr in the table does not include the "not-to-exceed" (NTE) multiplier of 1.25 per 40 Code of Federal Regulations (CFR) 60.4212(c), 40 CFR 1039.101(e), and ADEC policy. The $PM_{2.5}$ BACT emission limit for EU 8 should be 0.19 g/hp-hr, or 0.25 g/kW-hr.

BACT Limit: ~~0.15~~ **0.19** g/hp-hr

Response: DEC concurs that an NTE multiplier of 1.25 is necessary for this engine tier.

Revisions based on response: Table 4-6 of Section 4.3 in Appendix III.D.7.7-1064 revised per revisions requested.

Doyon Comment 16: Appendix III.D.7.7-1067, Section 4.4, Step 5 - Selection of $PM_{2.5}$ BACT for the Small Diesel-Fired Engines. Please revise the EU ID for EU 37 in item (b) as follows. No EU 37a exists in the DU Fort Wainwright inventory.

(b) Limit non-emergency operation of DU EUs 9, 14, 22, 23, 29a, 30a, 31a, 32a, 33a, 34, 35, 36, 37~~a~~ FWA EUs 26 through 39, 52, and 55 through 69 to no more than 100 hours per year each;

Response: DEC made the revision requested.

Revisions based on response: Step 5, item (b) of Section 4.4 in Appendix III.D.7.7-1067 revised per revisions requested.

Doyon Comment 17: Appendix III.D.7.7-1067, Section 4.4, Table 4-9. Please revise the BACT Limit for EU 14 because the emission limit of 0.2 g/kW-hr given in the table does not include the NTE multiplier of 1.25 per 40 CFR 60.4212(c), 40 CFR 1039.101(e), and ADEC policy. Exhaust emissions from stationary CI ICE subject to Tier 3 emission standards must not exceed the NTE numerical requirements. The $PM_{2.5}$ BACT emission limit for EU 14 should be 0.25 g/kW-hr.

BACT Limit: ~~0.2~~ **0.25** g/kW-hr

Response: DEC concurs that a NTE multiplier of 1.25 is necessary for this engine tier.

Revisions based on response: Table 4-9 of Section 4.4 in Appendix III.D.7.7-1067 revised per revisions requested.

Doyon Comment 18: Appendix III.D.7.7-1067, Section 4.4, Table 4-9. Please revise the EU Descriptions for EUs 29a, 30a, 31a, 32a, 33a, and 37 consistent with the information provided in the 2019 DU-FWA Title V permit renewal application and the 2021 application amendment, as follows. In addition, please revise the EU ID for EU 37 from "37a" to "37." As addressed in previous comments, no EU 37a exists in the DU-FWA emission inventory.

Emergency Generator Engine ~~Lift Pump Engine~~

Response: DEC made the revisions requested. Additionally, DEC changed EU 36 to EU 36a and changed the description to emergency generator engine, with a 161 hp rating, and a $PM_{2.5}$ E.F. of 0.375 g/kW-hr in the BACT determination document as well as the SO_2 BACT MR&R document to account for an off-permit change from Doyon dated July 26, 2024.

Revisions based on response: Table 4-9 of Section 4.4 in Appendix III.D.7.7-1067 revised per revisions requested.

Doyon Comment 19: Appendix III.D.7.7-1067, Section 4.4, Table 4-9. EU 30a is a Tier 3-certified engine. The applicable emission limit is 0.4 g/kW-hr and should include the NTE multiplier of 1.25 per 40 CFR 60.4212(c), 40 CFR 1039.101(e), and ADEC policy. The $PM_{2.5}$ BACT emission limit for EU 30a should be 0.5 g/kW-hr. Please revise the Size and BACT Limit entries in this table for EU 30a as follows.

Size: ~~80~~ **91** hp
BACT Limit: ~~0.3~~ **0.5** g/~~hp~~**kW**-hr

Response: Comment Noted. DEC concurs that a NTE multiplier of 1.25 is necessary for this engine tier.

Revisions based on response: Table 4-9 of Section 4.4 in Appendix III.D.7.7-1067 revised per revisions requested.

Doyon Comment 20: Appendix III.D.7.7-1067, Section 4.4, Table 4-9. EU 32a is a Tier 3-certified engine. The applicable emission limit is 0.4 g/kW-hr and should include the NTE multiplier of 1.25 per 40 CFR 60.4212(c), 40 CFR 1039.101(e), and ADEC policy. The $PM_{2.5}$ BACT emission limit for EU 32a should be 0.5 g/kW-hr. Please revise the Size and BACT Limit for EU 32a as follows.

Size: ~~80~~ **91** hp
BACT Limit: ~~0.3~~ **0.5** g/~~hp~~**kW**-hr

Response: Comment Noted. DEC concurs that a NTE multiplier of 1.25 is necessary for this engine tier.

Revisions based on response: Table 4-9 of Section 4.4 in Appendix III.D.7.7-1067 revised per revisions requested.

Doyon Comment 21: Appendix III.D.7.7-1067, Section 4.4, Table 4-9. EU 33a is a Tier 3-certified engine. The applicable emission limit is 0.4 g/kW-hr and should include the NTE multiplier of 1.25 per 40 CFR 60.4212(c), 40 CFR 1039.101(e), and ADEC policy. The $PM_{2.5}$ BACT emission limit for EU 33a should be 0.5 g/kW-hr. Please revise the BACT Limit for EU 33a as follows.

BACT Limit: ~~0.3~~ **0.5** g/~~hp~~**kW**-hr

Response: Comment Noted. DEC concurs that a NTE multiplier of 1.25 is necessary for this engine tier.

Revisions based on response: Table 4-9 of Section 4.4 in Appendix III.D.7.7-1067 revised per revisions requested.

Doyon Comment 22: Appendix III.D.7.7-1067, Section 4.4, Table 4-9. EU 35 is a Tier 3-certified engine. The applicable emission limit is 0.4 g/kW-hr and should include the NTE multiplier of 1.25 per 40 CFR 60.4212(c), 40 CFR 1039.101(e), and ADEC policy. The $PM_{2.5}$ BACT emission limit for EU 35 should be 0.5 g/kW-hr. Please revise the BACT Limit for EU 35 as follows.

BACT Limit: ~~0.3~~ **0.5** g/~~hp~~**kW**-hr

Response: Comment Noted. DEC concurs that a NTE multiplier of 1.25 is necessary for this engine tier.

Revisions based on response: Table 4-9 of Section 4.4 in Appendix III.D.7.7-1067 revised per revisions requested.

Doyon Comment 23: Appendix III.D.7.7-1067, Section 4.4, Table 4-9. EU 37 is a Tier 3-certified engine. The applicable emission limit is 0.4 g/kW-hr and should include the NTE multiplier of 1.25 per 40 CFR 60.4212(c), 40 CFR 1039.101(e), and ADEC policy. The $PM_{2.5}$ BACT emission limit for EU 37 should be 0.5 g/kW-hr. Please revise the BACT Limit for EU 37 as follows.

BACT Limit: ~~0.3~~ **0.5** g/~~hp~~**kW**-hr

Response: Comment Noted. DEC concurs that a NTE multiplier of 1.25 is necessary for this engine tier.

Revisions based on response: Table 4-9 of Section 4.4 in Appendix III.D.7.7-1067 revised per revisions requested.

Doyon Comment 24: Appendix III.D.7.7-1068, Section 4.5, Table 4-10. Table 4-10. Please correct the table identifier for Table 4-10 from "Table 4_{10}" to "Table 4-10" in the text and in the title of the table.

Response: DEC made the revisions to "Table 4-10" has requested

Revisions based on response: Table 4-10 revised per comment above.

Doyon Comment 25: Appendix III.D.7.7-1068, Section 4.5. Please revise this section to separately address emission control technologies for fully enclosed processes which exhaust through vents with dust collectors (EUs 7a through 7c, 51a, and 51b), as opposed to the coal stockpile, EU 52, which is not enclosed and is not a point source of PM emissions. DU notes that $PM_{2.5}$ BACT requirements and MR&R requirements for EUs 7a through 7c, 51a, 51b, and 52 are currently addressed in Conditions 9 and 10 of Permit AQ1121MSS04.

Response: DEC agrees that Steps 1 and 2 in Section 4.5 are somewhat unclear as written.

Revisions based on response: Steps 1 and 2 in Section 4.5 are revised to more clearly identify the control technologies for enclosed processes and those that are not enclosed.

Doyon Comment 26: Appendix III.D.7.7-1070, Section 4.5, Step 4 – Proposed BACT, item (d). DU did not propose to conduct $PM_{2.5}$ performance tests to demonstrate compliance with the emission limit for EUs 7a through 7c, 51a, and 51b. Please delete item (d). DU proposed appropriate MR&R requirements for the $PM_{2.5}$ emission limit for these emissions units, which ADEC incorporated into Conditions 9.1 through 9.3 of Permit AQ1121MSS04. Please update Step 4 of Section 4.5 to reflect the information DU provided in the application for Permit AQ1121MSS04.

Response: The change is made as requested. As the comment notes, the MR&R requirements in the referenced minor permit do not include source testing.

Revisions based on response: Item (d) is removed from Section 4.5, Step 4.

Doyon Comment 27: Appendix III.D.7.7-1070, Section 4.5, Step 4 – Proposed BACT, item (e). This paragraph mentions the September 2003 Fort Wainwright Dust Control Plan, prepared by

the United States Army Center for Health Promotion and Preventive Medicine Alaskan Field Office in Conjunction with Oak Ridge Institute for Science and Education. Please revise this paragraph to note that this plan is no longer in effect and has been superseded.

Response: The reference to the 2003 Fort Wainwright Dust Control Plan is replaced because it is no longer in effect and has been superseded.

Revisions based on response: Section 4.5, Step 4, Item (e) is revised to reference 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 as is done in Section 4.5, Step 5, Item (c).

Doyon Comment 28: Appendix III.D.7.7-1071, Section 4.5, Step 5 - Selection of $PM_{2.5}$ BACT for the Material Handling Equipment, item (a). Please revise the language in this item as shown below to clarify that the dust collectors are the emissions units.

$PM_{2.5}$ emissions from the material handling equipment shall be controlled by operating the South and North Coal Handling Systems and the Underbunker Conveyors ~~EUs 7a-7c~~, and the Fly and Bottom Ash Handling Systems EUs ~~51a and 51b~~, with enclosed conveying systems equipped with dust collectors, **EUs 7a through 7c, 51a, and 51b,** at all times the units are in operation;

Response: DEC made the revisions requested.

Revisions based on response: Step 5, item (a) of Section 4.5 in Appendix III.D.7.7-1071 revised per revisions requested.

Doyon Comment 29: Appendix III.D.7.7-1071, Section 4.5, Step 5 - Selection of $PM_{2.5}$ BACT for the Material Handling Equipment, item (d). EUs 7a , 7b, 7c, 51a, and 51b are not fugitive emissions sources. Because these sources do not emit fugitive emissions, ADEC revised the MR&R requirements to require operation of the existing fabric filter equipment for EUs 7a, 7b, 7c, 51a, and 51b in Permit AQ1121MSS04, Condition 9. Please revise this requirement as shown for consistency with the existing permit requirement.

Compliance with the $PM_{2.5}$ emission rates for the material handling units **DU EUs 7a, 7b, 7c, 51a, and 51b** shall be demonstrated by following the ~~fugitive dust control plans and the~~ manufacturer's operating and maintenance procedures at all times of operation.

Response: Section 4.5, Step 5, Item (d) is revised to clarify the units subject to PM2.5 emission limits and correctly identify the units that must comply with a Fugitive Dust Control Plan. A fugitive dust control plan is only required for EU 52.

Revisions based on response: In Section 4.5, Step 5, Item (d), "material handling units" is replaced with "dust collectors" and EU IDs are added as requested. The reference to the fugitive dust control plan is removed as requested.

Doyon Comment 30: Appendix III.D.7.7-1071, Section 4.5, Table 4-12. Please revise the Proposed BACT Control for EU 52 to be consistent with the BACT requirement identified in item (c) of Step 5. Note that wind screens are identified as not technically feasible in Step 1, item (g) of the analysis, so wind fencing should not be identified as a BACT control. DU agrees that wind fencing is not technically feasible for EU 52 due to the size and height of the coal storage pile. While haul vehicles are used in conjunction with ash disposal operations at the CHPP, coal is delivered by rail. Covered haul vehicles is not identified as an available or technically feasible control technology in the BACT analysis and should not be identified as a BACT control.

Watering is feasible during summer months for the active face of the storage pile and the road providing access around the pile. Watering the entire coal pile is not feasible due to the size and height of the coal storage pile.

The use of chemical treatments, including chemical stabilizers, is not authorized by the Army environmental department at Fort Wainwright. The outdoor use of any chemical products is strictly limited. These limits encompass the Fort Wainwright pesticide program, fertilizers, and even which soaps can be used for washing vehicles. These limits are due in part to the fact that a Superfund site exists on Fort Wainwright. The Fort Wainwright Municipal Separate Storm Sewer Systems (MS4) permit also contains strict limits for non-stormwater discharges to the ground and does not allow for the use of chemical dust control methods. DU strongly emphasizes that the Army Best Management Practices for dust control at Fort Wainwright rely on the use of water only.

Based on the information presented above, DU requests the following revisions to the Proposed BACT Control for EU 52 in Table 4-12:

~~Chemical Stabilizers, Wind Fencing, Covered Haul Vehicles, Watering, and~~ Wind Awareness, **Compaction, Watering used on active area of pile and road around the pile as needed during summer months, and Snow Cover on non-active faces of the coal storage pile during winter months.**

Response: DEC acknowledges that Doyon is prevented from using chemical stabilizers for the emergency coal storage pile and operations and that the coal storage area is too large for wind fencing to be effective. At the same time DEC acknowledges the demonstrated efficacy of Compaction for preventing fugitive dust and also to prevent spontaneous coal combustion

Revisions based on response: The proposed BACT control in Table 4-12 was amended to read: "Wind Awareness, Compaction, Water Suppression as necessary, and snow cover as applicable"

Doyon Comment 31: Appendix III.D.7.7-1071, Section 5, BACT Determination for SO_2. DU has provided BACT analysis information to ADEC in support of this SO_2 BACT determination. Please revise this paragraph to include Doyon Utilities, LLC, as follows.

> The Department based its SO_2 assessment on BACT determinations found in the RBLC, internet research, and BACT analyses submitted to the Department by GVEA for the North Pole Power Plant and Zehnder Facility, Aurora for the Chena Power Plant, US Army **and Doyon Utilities, LLC** for Fort Wainwright, and UAF for the Combined Heat and Power Plant.
>
> Response: DEC made the revision requested.
>
> Revisions based on response: Section 5 in Appendix III.D.7.7-1071 revised per revisions requested.

Doyon Comment 32: Appendix III.D.7.7-1073, Section 5.1, Step 1, paragraph (f). Please provide a citation for information presented on circulating dry scrubber (CDS) technology provided in this paragraph.

> Response: The general description of the CDS technology was derived from ubiquitous sources on the internet from widely accepted companies or institutions. e.g.
> https://www.babcock.com/home/products/circulating-dry-scrubber-cds/
> https://www.power-eng.com/emissions/air-pollution-control-equipment-services/circulating-dry-scrubbers-a-new-wave-in-fgd/
> https://www.babcock.com/assets/PDF-Downloads/Emissions-Control/PS-453-Circulating-Dry-Scrubber-Babcock-Wilcox.pdf
>
> Revisions based on response: None.

Doyon Comment 33: Appendix III.D.7.7-1074, Section 5.1, Step 2. DU addressed the environmental impacts of technically feasible technologies in Step 4 of the BACT analysis, including the possibility of ice fog formation due to increased stack moisture content from the use of WFGD, SDA, or CDS. The rationale is unclear for presenting information about collateral environmental impacts in Step 2, Eliminate Technically Infeasible Control Technologies, unless ADEC is determining that WFGD and/or other technologies are technically infeasible due to this issue. Regardless of where ADEC ultimately places this language, DU suggests the following revisions to this paragraph for clarity.

> While all identified control devices have been determined technically feasible for the industrial coal-fired boilers, ~~Doyon~~ **DU** identified collateral environmental impact for wet systems, also ~~given~~ **giving** rise to safety concerns for the stationary source and surrounding community due to ice fog events. ~~Doyon~~ **DU** ~~made reference~~ **cited an**

incident in which ~~to~~ ice fog directly contribut**ed** ~~ing~~ to accidents on the neighboring highway and a crashed plane at a nearby airfield.

Response: The Department made the revisions requested.

Revisions based on response: Step 2 of Section 5.1 in Appendix III.D.7.7-1074 revised per revisions requested.

Doyon Comment 34: Appendix III.D.7.7-1074, Section 5.1, Step 3. This BACT determination uses the SO_2 emission control efficiencies calculated by DU in the November 2023 BACT analysis update. The emission control efficiencies presented in Step 3 should be consistent with the emission reductions discussed in Steps 4 and 5 of the BACT determination. Please revise the control efficiencies, rank the controls in order of efficiency as follows, and add citations for the sources of these control efficiencies.

(a) Wet Scrubbers **(WFGD)** (~~99~~ **93**% Control)
(b) Dry Sorbent Injection (93% Control)
(c) Circulating Dry Scrubber (CDS) (~~99~~ **88**% Control)
(d) Spray Dry Absorbers (SDA) (~~95~~ **88**% Control)
~~(e) Dry Sorbent Injection (Duct Sorbent Injection) (93+% Control)~~
(e) Good Combustion Practices (Less than 40% Control)
(f) Low Sulfur Coal (0% Control, Baseline)

Response: DEC has verified and made the revisions requested.

Revisions based on response: Step 3 in Appendix III.D.7.7-1074, Section 5.1 revised per revisions requested and included a footnote in Step 3 to specify that the control efficiencies listed are those from DU's vendor quotes.

Doyon Comment 35: Appendix III.D.7.7-1074, Section 5.1, Step 4. Please revise this paragraph as shown to more accurately describe the information presented in the DU 2023 BACT analysis amendment.

~~Fort Wainwright~~ **DU** BACT Proposal

~~Fort Wainwright~~ **DU** provided an updated economic analysis from Black and Veatch on November 13, 2023, ~~for the installation of~~ **addressing** WFGD (caustic and limestone), SDA, CDS, and DSI control technology systems. This updated analysis also included new removal efficiencies for DSI based on information from BACT Process Systems, ~~LLC~~ **Inc.** and United Conveyor, LLC. ~~DU's~~ **The November 2023 DU** analysis ~~now assumes~~ **applies** a 93 ~~%~~ **percent SO_2** removal rate for DSI, which ~~matches the highest~~ **is the same control** efficiency ~~in their analyses for~~ **as** WFGD. **The SO_2 removal rates**~~, and is higher than the removal efficiency for the more expensive~~ CDS and SDA control systems **are less than 93 percent. SDA and CDS also have higher capital costs than**

the other technologies considered. A summary of the **DU** analysis is shown below **in Table 5-2**.

Response: For accuracy and clarity, DEC made the revisions requested.

Revisions based on response: Step 4 in Appendix III.D.7.7-1074, Section 5.1 revised per revisions requested.

Doyon Comment 36: Appendix III.D.7.7-1074, Section 5.1, Table 5-2. Please revise the title of Table 5-2 as follows.

~~Fort Wainwright~~ **Doyon Utilities** Economic Analysis for Technically Feasible SO_2 Controls

Response: DEC made the revisions as requested.

Revisions based on response: Table 5-2 title revised per requested revisions.

Doyon Comment 37: Appendix III.D.7.7-1074, Section 5.1, Table 5-2. Please revise Table 5-2 to include the control efficiency for each alternative and to present the technologies in ranked order, as shown below. Note that Footnote 17, which cites an 80% removal efficiency for DSI, is no longer applicable based on the latest revisions to this BACT determination. The economic analysis presented in Table 5-2 for DSI is now based on 93% removal efficiency. Please delete Footnote 17.

Control Alternative	Potential to Emit (tpy)	Control Efficiency (pct.)	Emission Reduction (tpy)	Total Capital Investment ($)	Total Annual Costs ($/year)	Cost Effectiveness ($/ton)
WFGD - Caustic	101	93	1369	110,262,000	18,832,000	13,755
WFGD - limestone	101	93	1369	126,374,000	19,474,000	14,224
Dry Sorbent Injection	**101**	**93**	**1369**	**28,424,000**	**9,082,000**	**6,636**
Spray-Dry Adsorption	176	88	1293	166,101,000	22,812,000	17,638
CDS	176	88	1293	196,447,000	27,096,000	20,950
~~Dry Sorbent Injection[17]~~	~~101~~		~~1369~~	~~28,424,000~~	~~9,082,000~~	~~6,636~~
Capital Recovery Factor = 0.0931 (8.5% interest rate for a 30-year equipment life)						

Response; DEC has made the revisions requested, consistent with the responses to Doyon Comments 34 and 42.

Revisions based on response: Table 5-2 revised per requested revisions.

Doyon Comment 38: Appendix III.D.7.7-1075, Section 5.1, Step 4, second paragraph. The DU proposed BACT, per the 2021 analysis and 2023 amendment, is DSI. DU concluded that WFGD, SDA, and CDS were not cost-effective. The summary of the DU analysis should be correctly presented in this paragraph.

Response: The paragraph states that the use of WFGD, CDS, or SDA is not justified "based on the excessive cost per ton of SO_2 removed per year compared to DSI". Therefore, no revision based on the comment is necessary.

Revisions based on response: None

Doyon Comment 39: Appendix III.D.7.7-1075, Section 5.1, Step 4, third paragraph. This section should be consistent with the DU 2021 and 2023 analyses. Essentially, the DU November 2023 updated BACT analysis indicates that DSI has the same removal rate as the other highest-ranked technologies and is cost-effective at $6,636 per ton of SO_2 removed. Additionally, the initial source test requirement in item (e) is a monitoring requirement to demonstrate compliance with the BACT limit. This requirement was not proposed as a BACT limit. Please revise the language describing the DU proposed BACT for SO_2 emissions from the coal-fired boilers as follows.

~~Fort Wainwright~~ **DU** proposes the following as BACT for SO_2 emissions from the coal-fired boilers:

(a) SO_2 emissions from the operation of the coal-fired boilers will be controlled ~~by limited operation, good combustion practices, and low sulfur fuel at all times the boilers are in operation~~ **by operation of dry sorbent injection system(s).**
(b) SO_2 emissions from the coal-fired boilers will be controlled by burning low sulfur coal at all times the boilers are in operation.
(c) SO_2 emissions from the coal-fired boilers will not exceed ~~0.49~~ **0.04** lb/MMBtu.
(d) SO_2 emissions from the coal-fired boilers will be controlled by limiting the allowable coal combustion to no more than 336,000 tons per year.
~~(e) Initial compliance with the proposed SO_2 emission limit will be demonstrated by conducting a performance test to obtain an emission rate.~~

Response: For consistency and accuracy, DEC made the revisions as requested. Additionally, the method for determining compliance is in the SO_2 MR&R document that is included in the control strategies appendix of the SIP.

Revisions based on response: Third paragraph of Step 4, Section 5.1 in Appendix III.D.7.7-1074 is revised per revisions requested.

Doyon Comment 40: Appendix III.D.7.7-1075, Section 5.1, Step 4, fourth paragraph and Table 5-3. Please revise this paragraph as follows and incorporate the same edits into Table 5-3 as described above for Table 5-2.

The Department did not revise the cost analysis provided on November 13, 2023 by DU because we find that the economic analysis conducted by Black & Veatch is reasonable to determine cost effectiveness of each potential technology for SO_2 Emissions reduction. It is possible that costs for an individual control technology could be slightly lower or higher, but that would not change the overall finding that DSI with a 93% SO_2 removal rate is cost effective and the other control technologies will cost substantially more while returning little to no added reductions of SO_2. **The Department analysis is unchanged from the DU analysis presented in** Table 5-2 above, **and is presented in Table 5-3**~~is repeated below~~:.

Response: For clarity and accuracy, DEC made the revisions, as requested.

Revisions based on response: Appendix III.D.7.7-1075, Section 5.1, Step 4, fourth paragraph and Table 5-3 have been revised, as requested

Doyon Comment 41: Appendix III.D.7.7-1075, Section 5.1, Step 4, "Department Evaluation of BACT for SO_2 Emissions from the Industrial Coal-Fired Boilers." This paragraph states that the Department did not revise the cost analysis that DU provided in November 2023. The 2023 DU analysis incorporated the 0.25 wt. pct. sulfur limit into the baseline emissions. The proposed BACT determination does not include a coal sulfur content limit. Based on the statement that this BACT determination does not revise the November 2023 analysis, DU is assuming that ADEC would retain the 0.25 wt. pct. coal sulfur limit as a SIP limit if EPA were to disapprove the SO_2 major source precursor demonstration. DU agrees that the 0.25 wt. pct. coal sulfur limit should not be a BACT limit.

Response: DEC maintains its position that 0.25 wt. pct. coal sulfur limit is not a BACT limit, as stated in Footnote 20.

Revisions based on response: None.

Doyon Comment 42: Appendix III.D.7.7-1075, Section 5.1, Table 5-3, Footnote 18. Footnote 18, which cites an 80% removal efficiency for DSI, is no longer applicable based on the latest revisions to this BACT determination. The economic analysis presented in Table 5-3 for DSI is now based on 93% removal efficiency. Please delete Footnote 18.

Response: Footnote 18 is removed because it is no longer applicable.

Revisions based on response: Footnote 18 is removed. Footnote 17 contained the same language and is also removed.

Doyon Comment 43: Appendix III.D.7.7-1076, Section 5.1, Step 5, item (d). Please revise this item to clarify that the initial source test requirement is a MR&R requirement to demonstrate compliance with the SO_2 numerical emission limit, not an additional BACT limit.

Response: The method for determining compliance is in the SO_2 MR&R document that is included in the control strategies appendix of the SIP.

Revisions based on response: Item (d) in Appendix III.D.7.7-1076, Section 5.1, Step 5 has been deleted.

Doyon Comment 44: Appendix III.D.7.7-1076, Section 5.1, Table 5-4. The control method of Dry Sorbent Injection for the Chena Facility is a revision in this version of the SIP but was not flagged as a change. According to Footnote 22, the BACT SO_2 limit was developed based on previous source tests and does not appear to be based on DSI control technology. Please confirm the accuracy of this entry in Table 5-4.

Response: DEC acknowledges the comment pertaining to the Dry Sorbent Injection as a control method for the Chena Facility not flagged as a change in the public noticed version. Footnote 22 is accurate in that the proposed SO_2 emissions limit of 0.301 lb/MMBtu is based on the average of two recent source tests.

Revisions based on response: The final SIP submittal has removed bolded and underlined text to signify changes from the previous versions.

Doyon Comment 45: Appendix III.D.7.7-1079, Section 5.3, Step 1 - Identification of SO_2 Control Technology for the Large Diesel-Fired Engines, paragraph (b). The paragraph addressing federal emission standards as an available control technology is imprecise and unclear. The RBLC is an information source to consider when identifying available control technologies. Listings in the RBLC do not impose requirements but, instead, provide information about BACT determinations made by air quality permitting agencies. Per EPA guidance, an NSPS defines the minimal level of control to be considered in the BACT analysis. Please revise the language as follows.

~~RBLC determination for federal emission standards require the engines meet requirements of 40 C.F.R 60 NSPS Subpart IIII, 40 C.F.R 63 Subpart ZZZZ, non-road engines (NREs), or EPA tier certifications.~~ **The** NSPS **40 CFR 60** Subpart IIII applies to stationary compression ignition internal combustion engines that are manufactured or reconstructed after July 11, 2005. The Department considers meeting the technology-based NSPS of Subpart IIII as a technically feasible control technology for the large diesel-fired engines **that are subject to Subpart IIII**.

Response: DEC made the revisions requested.

Revisions based on response: Step 1, paragraph (b) of Section 5.3 in Appendix III.D.7.7-1079 revised per revisions requested.

Doyon Comment 46: Appendix III.D.7.7-1082, Section 5.4, Step 5, item (a). Please revise the identifier for EU 37 from "EU 37a" to "EU 37." As explained above, no EU 37a exists in the DU Fort Wainwright inventory.

Response: DEC made the revision requested.

Revisions based on response: Step 5, item (a) of Section 5.4 in Appendix III.D.7.7-1082 revised per revisions requested.

Doyon Comment 47: Appendix III.D.7.7-1083, Section 5.4, Step 5, Table 5-10. Please correct the table identifier for Table 5-10 from "Table 5_{10}" to "Table 5-10" in the text and in the title of the table.

Response: DEC made the revision requested.

Revisions based on response: Table identifier for Table 5-10 of Section 5.4 in Appendix III.D.7.7-1083 revised per revisions requested.

Doyon Comment 48: Appendix III.D.7.7-1084 through 1090, Tables 6-2 through 6-4. These tables are presented as a "BACT determination summary" but without further context. Each table includes a column labeled "Time Average / Method of Compliance," but most entries in that column are not accompanied by an explanation of the reason the requirements are applicable and/or appropriate. Many of the entries in that column are not addressed or discussed in any manner elsewhere in the BACT determination. Please explain the rationale ADEC used to conclude that these methods of compliance are applicable and appropriate. DU does not necessarily disagree with all of the "Method of Compliance" entries, but explanations for how these requirements were developed should be provided.

Response: Tables 6.2 through 6.4 are summary tables showing the proposed $PM_{2.5}$ and SO_2 BACT Limits. They are intended as "at-a-glance" view of proposed limits for each affected emissions unit in Fort Wainwright. DEC removed the column labeled "Time Average / Method of Compliance" as that information is more thoroughly explained in the SO_2 MR&R document and Minor Permit AQ1121MSS04 Rev. 1, both of which are included as appendices in the final SIP submittal.

Revisions based on response: Removed the column labeled "Time Average / Method of Compliance.

Doyon Comment 49: Appendix III.D.7.7-1084, Section 6, Table 6-2. For EUs DU 1 through DU 6, the table states that the "Time Average / Method of Compliance" entry for the $PM_{2.5}$ BACT limit is "Compliance with NESHAP DDDDD applicable PM emission standards." Compliance with 40 CFR 63 Subpart DDDDD is not addressed in Section 4.1, the PM2.5 BACT determination for EUs 1 through 6. DU believes that the Method of Compliance in this table

should be consistent with the requirements identified in Step 5 of the BACT determination for these boilers. This table does not provide the reason compliance with the Subpart DDDDD PM standard is an applicable or appropriate method of compliance for the BACT limit for these EUs. The boilers are required to comply with Subpart DDDDD, but Subpart DDDDD regulates filterable particulate matter. Subpart DDDDD does not regulate $PM_{2.5}$, which is the pollutant of concern in this BACT determination. Step 5 of Section 4.1 states that the averaging time for the $PM_{2.5}$ BACT limit is 3 hours. Please revise the "Time Average / Method of Compliance" field for EUs 1 through 6 to read as follows.

~~Compliance with NESHAP DDDDD applicable PM emission standards~~
3- hour average, EPA Methods 201 or 201A and 202

Please also remove the word "Six" for each of the "Description" entries for these boilers. For example, EU 1 is identified as Coal-Fired Boiler 3.

Response: DEC removed the column labeled "Time Average / Method of Compliance." See related response to Doyon Comment 48. DEC has also corrected the typographical error by deleting "Six" before "Coal Fired Boilers."

Revisions based on response: Removed the column labeled "Time Average / Method of Compliance and deleted "Six" before "Coal Fired Boilers." Note that DEC also removed references to NESHAP Subpart DDDDD in Step 5 of Section 4.2 of this document as well as for the corresponding boilers in the SO_2 MR&R document in order to maintain consistency with the requirements in Minor Permit AQ1121MSS04 Rev. 1.

Doyon Comment 50: Appendix III.D.7.7-1084, Section 6, Table 6-2. Please make the following revisions to Table 6-2 for the DU-owned engines for consistency with Sections 4.3 and 4.4, and Table 4-9 of this BACT determination.

a. EU DU 37 – Please revise the EU ID from "DU 37a" to "DU 37" as explained in previous comments.
b. EUs DU 29a, DU30a, DU 31a, DU 32a, DU 33a, and DU 37 – Please revise the Descriptions for each of these engines to "Emergency Generator Engine," as explained in previous comments.
c. EUs DU 30a and 32a – Please revise the Capacity of each of these engines to "91 hp," as explained in previous comments.
d. EU DU 8 – Please revise the Proposed BACT Limit from "0.15 g/hp-hr" to "0.19 g/hp-hr," as explained in the above comment on Section 4.3 which addresses this emission limit.
e. EU DU 14 – Please revise the Proposed BACT Limit from "0.2 g/kW-hr" to "0.25 g/kW-hr," as explained in the above comment on Section 4.4 which addresses this emission limit.

f. EU DU 35 – Please revise the Proposed BACT Limit from "0.3 g/hp-hr" to "0.5 g/kW-hr," as explained in the above comment on Section 4.4 which addresses this emission limit.

g. EUs DU 29a and 31a – Please revise the Proposed BACT Limit from "0.3 g/kW-hr" to "0.3 g/hp-hr," for consistency with the correct limit presented in Table 4-9 of the analysis.

h. EUs DU 30a, 32a, 33a, and 37 – Please revise the Proposed BACT Limit from "0.3 g/kW-hr" to "0.5 g/kW-hr," as explained in the above comments on Section 4.4 which address these emission limits.

i. EUs DU 9 through DU 37 (all small DU-owned engines) – Please revise the Time Average/Method of Compliance entry for these engines as shown below. The requirement of "Good Air Pollution Control permit condition" is not addressed in Section 4.4 of the BACT determination and is not necessary because both 40 CFR 60 Subpart IIII and 40 CFR 63 Subpart ZZZZ require operating and maintaining engines consistent with good air pollution practices.

> NSPS Subpart IIII**, or** NESHAP Subpart ZZZZ **as applicable**, tracking hours of operation~~, and Good Air Pollution Control permit condition~~

j. EUs DU 9 through DU 37 (all small DU-owned engines) – Please revise the Proposed BACT Control entry for these engines to reflect that the limited operation is 100 hours per year, each, for non-emergency operation.

k. General comment – Please ensure that this table is consistent with the selected BACT requirements in Sections 4.3 and 4.4, and Table 4-9, of the BACT determination.

Response: DEC made the corrections requested in Doyon Comment 50 items (a) through (h), consistent with the responses to previous related comments. For item (i), DEC removed the column "Time Average / Method of Compliance" (see related response to Comment 48). For item (j), DEC removed the entry for "50 hours for nonemergency operations" as that was incorrectly carried over from the previous SIP round. For item (k), DEC has verified Table 6-2 is consistent with the selected BACT requirements in Sections 4.3 and 4.4, and Table 4-9.

Revisions based on response: Revisions made as requested.

Doyon Comment 51: Appendix III.D.7.7-1086, Section 6, Table 6-3. The $PM_{2.5}$ BACT determination in Section 4.5 for EUs 7a, 7b, and 7c does not address compliance with 40 CFR 60 Subpart Y, the State opacity standards, or good pollution control practices, but these items are identified as methods of compliance for the BACT emission limits for these EUs. As DU noted above in comments addressing Section 4.5 of the BACT determination, appropriate MR&R requirements to demonstrate compliance and ensure that the limits are enforceable have been included in Condition 9 of Permit AQ1121MSS04. The BACT determination does not provide any analysis or support for the reason compliance with Subpart Y, the State opacity standard, or good pollution control practices would be an appropriate method of demonstrating compliance

with the selected BACT limit. Please ensure that this table is consistent with the BACT determination for the material handling units by revising the text as follows.

~~Comply with NSPS Subpart Y and State opacity standards, and good pollution control practices~~ **Operate the dust collectors at all times**

Response: DEC removed the column labeled "Time Average / Method of Compliance" (see related response to Doyon Comment 48).

Revisions based on response: Removed the column labeled "Time Average / Method of Compliance.

Doyon Comment 52: Appendix III.D.7.7-1087, Section 6, Table 6-3. For EU 52, please revise the Method of Compliance as follows.

Comply **with** fugitive dust control plan ~~implementation~~

Response: DEC removed the column labeled "Time Average / Method of Compliance" (see related response to Doyon Comment 48).

Revisions based on response: Removed the column labeled "Time Average / Method of Compliance.

Doyon Comment 53: Appendix III.D.7.7-1087, Section 6, Table 6-3. For EU 52, please revise the Proposed BACT Control as follows, for consistency with the BACT determination in Section 4.5 and previous DU comments on Section 4.5.

~~Chemical Stabilizers, Wind Fencing, Covered Haul Vehicles, Watering, and~~ Wind Awareness, **Compaction, Watering used on active area of pile and road around the pile as needed during summer months, and Snow Cover on non-active faces of the coal storage pile during winter months**

Response: See response to Comment 30 above.

Revisions based on response: The proposed BACT control in Table 6-3 was amended to read: "Wind Awareness, Compaction, Water Suppression as necessary, and snow cover as applicable"

Doyon Comment 54: Appendix III.D.7.7-1086, Section 6, Table 6-3. The $PM_{2.5}$ BACT determination in Section 4.5 for EUs 51a and 51b does not address compliance with good pollution control practices, but this item is identified as a method of compliance for the BACT emission limit for these EUs. As DU noted above in comments addressing Section 4.5 of the

BACT determination, appropriate MR&R requirements to demonstrate compliance and ensure that the limits are enforceable are included in Condition 9 of Permit AQ1121MSS04. The BACT determination does not provide any analysis or support for the reason compliance with good pollution control practices would be an appropriate method of demonstrating compliance with the selected BACT limit. Please ensure that this table is ultimately consistent with the BACT determination for the material handling units by revising the text as follows.

~~Comply with good pollution control practices~~ **Operate the dust collectors at all times**

Response: DEC removed the column labeled "Time Average / Method of Compliance" (see related response to Doyon Comment 48).

Revisions based on response: Removed the column labeled "Time Average / Method of Compliance.

Doyon Comment 55: Appendix III.D.7.7-1088, Section 6, Table 6-4. Please make the following revisions to Table 6-4 for the DU-owned emissions units for consistency with Sections 5.3 and 5.4 of this BACT determination.

a. Column header – Please correct the typographic error in the "Time Average/Method of Compliance Demonstration" header.
b. EUs DU 1 through DU 6 - Please remove the word "Six" from each of the "Description" entries for these boilers. For example, EU 1 is identified as "Coal-Fired Boiler 3."
c. EU DU 37 – Please revise the EU ID from "DU 37a" to "DU 37" as explained in previous comments.
d. EUs DU 29a, DU30a, DU 31a, DU 32a, DU 33a, and DU 37 – Please revise the Descriptions for each of these engines to "Emergency Generator Engine," as explained in previous comments.
e. EUs DU 30a and 32a – Please revise the Capacity of each of these engines to "91 hp," as explained in previous comments.
f. EUs DU 8 through DU 37 (all DU-owned engines) – Please revise the Time Average/Method of Compliance entry for these engines as shown below. The requirement to "track fuel receipts" is imprecise because fuel sulfur content can be provided on documentation other than receipts.

   Per fuel delivery / ~~Track fuel receipts~~ **Document sulfur content of fuel received**

g. EU DU 8 – Please revise the Proposed BACT Control entry as follows. This requested change is consistent with the BACT determination in Section 5.3, Step 5. Item (b) of Step 5 limits DU EU 8 to operating no more than 500 hours per year, while item (d) limits the non-emergency operation of FWA EUs 50 through 54 to no more than 100 hours per year, each.

   Good Combustion Practices

Limited Operation:
DU EU 8 – 500 hours/year
(FWA EU 50-54 - 100 hours/year each, for non-emergency operation)

Response: For accuracy, consistency, and clarity, DEC made the revisions, as requested, except for item (a). For items (a) and (f) DEC removed the column "Time Average / Method of Compliance"; a more detailed SO_2 MR&R requirements tables are included in the control strategies appendix of the SIP.

Revisions based on response: Table 6-4 of Appendix III.D.7.7-1088, Section 6 has been amended according to requested revisions, except that the column "Time Average / Method of Compliance" has been deleted.

Doyon Comment 56: Appendix III.D.7.7-1091 through 1096. These tables, presenting the $PM_{2.5}$ BACT MR&R requirements, are provided without explanatory text or other context. As a general comment, these tables should be consistent with the BACT determination presented in this appendix.

Response: The $PM_{2.5}$ MR&R document that was included in the control strategies appendix of the SIP has been replaced with Minor Permit AQ1121MSS04 Rev. 1 in the final SIP submittal.

Revisions based on response: PM2.5 MR&R replaced by Minor Permit AQ1121MSS04 Rev. 1.

Doyon Comment 57: Appendix III.D.7.7-1091, $PM_{2.5}$ BACT MR&R for the coal-fired boilers. Please revise the table to ensure consistency with the BACT determination and previous DU comments. Please ensure that all requirements are clearly and specifically stated. DU is providing specific edits in the table below that may not capture all the changes ADEC must make to ensure consistency with the BACT determinations and previous DU comments.

Emission Units: EU IDs 1, 2, 3, 4, 5, and 6 (230 MMBtu/hr – Coal Boilers)

Pollutant of Concern: $PM_{2.5}$	
BACT Measure	**Monitoring, Recordkeeping and Reporting Requirements**
0.045 lb/MMBtu (3-hr avg);	• Conduct a one-time performance test using **procedures specified in 40 CFR 60, Appendix A-3, Method 5 and 50 CFR 51, Appendix M, Methods 201 or 201A** ~~EPA Method 201A~~ and 202 at maximum load to demonstrate compliance and submit results to the Department. • Report source test results as required by Operating Permit.
Use of full stream baghouse at all times the boilers are in operation	• Certify in ~~Facility~~ **each semi-annual** Operating Report that full stream baghouse is operated at all times the boilers are in operation. • Operate, inspect, and maintain the baghouses according to the manufacturer's instructions and recommendations. • **Certify the baghouses are operated and maintained per manufacturer operating and maintenance recommendations** ~~Include a summary of inspection and maintenance conducted~~ in each semi-annual operating report.
Good Combustion Practices	• Keep records of maintenance conducted on emission units to comply with this BACT measure. • Keep a copy of the manufacturer's and the operator's recommended maintenance procedures.
~~Maintain compliance with State opacity standards listed under 50.055(a)(9)~~	• ~~Monitor, record, and report visible emissions using Continuous Opacity Monitoring System (COMS) installed and Maintained as directed in the corresponding Operating Permit.~~

Response: The $PM_{2.5}$ MR&R document that was included in the control strategies appendix of the SIP has been replaced with Minor Permit AQ1121MSS04 Rev. 1 in the final SIP submittal.

Revisions based on response: $PM_{2.5}$ MR&R replaced by Minor Permit AQ1121MSS04 Rev. 1.

Doyon Comment 58: Appendix III.D.7.7-1092, $PM_{2.5}$ BACT MR&R for large diesel-fired engines. Please revise the table to ensure consistency with the BACT determination and previous DU comments. Please ensure that all requirements are clearly and specifically stated. Please address the following concerns.

a. This table does not include the requirement to combust only ULSD, which is given in Step 5, item (d) of the BACT determination for EU 8 in Section 4.3 of the BACT determination.
b. Per DU comments on Section 4.3 of the BACT determination, the $PM_{2.5}$ emission limit of 0.19 g/hp-hr for DU EU 8 includes the not-to-exceed multiplier of 1.25 per 40 CFR 60.4212(c), 40 CFR 1039.101(e) and ADEC policy.

DU is providing some specific edits that may not capture all the changes ADEC must make to ensure consistency with the BACT determinations and previous DU comments.

Emission Units: DU EU ID 8 (Large Diesel – Fired Engine 2,937 hp) and FWA EU IDs 50, 51, 53 (Large Diesel – Fired Engine 762, 762, and 587 hp, respectively)

Pollutant of Concern: $PM_{2.5}$	
BACT Measure	**Monitoring, Recordkeeping and Reporting Requirements**
0.19 ~~0.15~~ g/hp-hr	• For DU EU ID 8, **keep records of maintenance conducted in accordance with manufacturer instructions as required by 40 CFR 60 Subpart IIII. Annually, certify compliance with Condition 23.3b of Operating Permit AQ1121TVP02 Revision 2 in the Annual Compliance Certification required by the Operating Permit.** • FWA IDs 50 and 51, report compliance with maintenance requirements under 40 CFR 60 Subpart IIII. • For FWA EU ID 53, demonstrate compliance by complying with the Good Air Pollution Control Practice Condition 70 in Operating Permit AQ0236TVP04.
Combust only ULSD	• **For each shipment of fuel, test the sulfur content or keep receipts that specify fuel grade, date and time, and quantity of fuel received. Keep records of the results of sulfur content tests and receipts for fuel shipments.** • **Include a summary of fuel test results and shipping receipts for the reporting period in each semi-annual operating report.**
Good Combustion Practices	• For DU EU ID 8, **keep records of maintenance conducted in accordance with manufacturer instructions as required by 40 CFR 60 Subpart IIII. Annually, certify compliance with Condition 23.3b of Operating Permit AQ1121TVP02 Revision 2 in the Annual Compliance Certification required by the Operating Permit.** • ~~And~~ FWA IDs 50 and 51, report compliance with maintenance requirements under 40 CFR 60 Subpart IIII. • For FWA EU ID 53, demonstrate compliance by complying with the Good Air Pollution Control Practice Condition 70 in Operating Permit AQ0236TVP04.
Limit DU EU 8 to 500 hours/yr Limit non-emergency operation of FWA EUs 50, 51, and 53 to 100 hours/yr each	• For DU EU ID 8: Demonstrate compliance by complying with Condition 2 of Minor Permit AQ1121M**S**S02. • For FWA EU IDs 50 and 51, demonstrate compliance by complying with the NSPS Subpart IIII emergency engine requirements listed in 40 CFR 4211(f). • For FWA EU ID 53, demonstrate compliance by monitoring the engine's operating hours and reporting in the operating report.

Response: The $PM_{2.5}$ MR&R document that was included in the control strategies appendix of the SIP has been replaced with Minor Permit AQ1121MSS04 Rev. 1 in the final SIP submittal.

Revisions based on response: $PM_{2.5}$ MR&R replaced by Minor Permit AQ1121MSS04 Rev. 1. Federal requirements in AQ1121MSS04 Rev. 1 are replaced by good combustion practices requirements.

Doyon Comment 59: Appendix III.D.7.7-1093, $PM_{2.5}$ BACT MR&R for small diesel-fired engines less than 500 hp. Please revise the tables to ensure consistency with the BACT

determination and previous DU comments. Please ensure that all requirements are clearly and specifically stated. Please address the following concerns.

a. Per DU comments on Section 4.4 of the BACT determination, the $PM_{2.5}$ emission limit of 0.25 g/kW-hr for DU EU 14 includes the NTE multiplier of 1.25 per 40 CFR 60.4212(c), 40 CFR 1039.101(e) and ADEC policy.
b. Please see DU comments on Section 4.4 and specifically Table 4-9 of the BACT determination regarding the correct $PM_{2.5}$ emission limits for DU EUs 29a, 30a, 31a, 32a, 33a, 35, and 37.

DU is providing some specific edits that may not capture all the changes ADEC must make to ensure consistency with the BACT determinations and previous DU comments.

Emission Units: EU IDs DU: 9, 22, 23, 34, 36 ; FWA: 29, 31, 32, 33, 34, 35, 36, 37, 38, 39, 52, 55, 57, 59, 61, 63 (Small Diesel-Fired Engines <500 hp)

Pollutant of Concern: $PM_{2.5}$	
BACT Measure	**Monitoring, Recordkeeping and Reporting Requirements**
2.2 E-3 lb/hp-hr Combust only ULSD Good Combustion Practices Limit of 100 hours per year each for non-emergency operation	• Monitor operation of non-emergency use to ensure a limit of 100 hours per year each per engine. • Certify following good combustion practices in each ~~Facility~~ **semi-annual** operating report. • **For each shipment of fuel, test the sulfur content or keep receipts that specify fuel grade, date and time, and quantity of fuel received. Keep records of the results of sulfur content tests and receipts for fuel shipments.** • **Include a summary of fuel test results and shipping receipts for the reporting period in each semi-annual operating report.** ~~Report fuel amount and type in each corresponding Facility Operating Report.~~

Emission Units: EU IDs DU: 14; FWA: 26, 28, 30, 60a, 64, 65, 66, and 68 (Small Diesel-Fired Engines <500 hp)

Pollutant of Concern: $PM_{2.5}$	
BACT Measure	**Monitoring, Recordkeeping and Reporting Requirements**
0.25 ~~0.2~~ g/kW-hr Combust only ULSD Good Combustion Practices Limit of 100 hours per year each for non-emergency operation	• Monitor operation of non-emergency use to ensure a limit of 100 hours per year each per engine. • Certify following good combustion practices in each ~~Facility~~ **semi-annual** operating report. • **For each shipment of fuel, test the sulfur content or keep receipts that specify fuel grade, date and time, and quantity of fuel received. Keep records of the results of sulfur content tests and receipts for fuel shipments.** • **Include a summary of fuel test results and shipping receipts for the reporting period in each semi-annual operating report.** ~~Report fuel amount and type in each corresponding Facility Operating Report.~~

Emission Units: EU IDs DU 29a, 30a, 31a, 32a, 33a, 35, 37~~a~~; FWA: None (Small Diesel-Fired Engines <500 hp)

Pollutant of Concern: $PM_{2.5}$	
BACT Measure	**Monitoring, Recordkeeping and Reporting Requirements**
0.3 g/hp-hr **(DU EUs 29a and 31a)** **0.5 g/kW-hr (DU EUs 30a, 32a, 33a, 35, 37)** Good Combustion Practices Combust only ULSD Limit of 100 hours per year each for non-emergency operation	• Monitor operation of non-emergency use to ensure a limit of 100 hours per year each per engine. • Certify following good combustion practices in each ~~Facility~~ **semi-annual** operating report. • **For each shipment of fuel, test the sulfur content or keep receipts that specify fuel grade, date and time, and quantity of fuel received. Keep records of the results of sulfur content tests and receipts for fuel shipments.** • **Include a summary of fuel test results and shipping receipts for the reporting period in each semi-annual operating report.** ~~Report fuel amount and type in each corresponding Facility Operating Report.~~

Response: The $PM_{2.5}$ MR&R document that was included in the control strategies appendix of the SIP has been replaced with Minor Permit AQ1121MSS04 Rev. 1 in the final SIP submittal.

Revisions based on response: $PM_{2.5}$ MR&R replaced by Minor Permit AQ1121MSS04 Rev. 1.

Doyon Comment 60: Appendix III.D.7.7-1095 and 1096, $PM_{2.5}$ BACT MR&R for material handling EUs 7a through 7c, 51a, 51b, and 52. Please revise the tables to ensure consistency with the BACT determination, previous DU comments, and the existing requirements in Permit AQ1121MSS02, including addressing the following concerns.

a. Fugitive dust control requirements are not applicable to point source emissions units EUs 7a through 7c, 51a, and 51b, which are dust collectors. Please see the DU comments on Section 4.5 of the BACT determination, above. Table A in Section 2 of the BACT determination identifies the emissions units subject to BACT review and correctly identifies these emissions units as dust collectors. The BACT determination should address $PM_{2.5}$ emissions from these dust collectors. ADEC confirmed which emissions units were subject to BACT review in a letter to DU on February 3, 2016, in response to the $PM_{2.5}$ Serious Nonattainment BACT Analysis Protocol for the Fort Wainwright (Privatized Emission Units) that DU submitted to ADEC on December 11, 2015. These documents and correspondence are provided on pages 316 through 338 of Appendix III.D.7.7 of the existing $PM_{2.5}$ Serious SIP, adopted on November 19, 2019. While not flagged as a change, these MR&R tables have been added to the BACT determination appendix and include requirements for the coal and ash handling systems which are not addressed in the text of the BACT determination in Section 4.5. ADEC has not provided a rationale for addressing these processes which are not identified as emissions units subject to BACT review in Table A of the BACT determination. The BACT

determination should be consistent with the approach that ADEC and DU agreed upon in 2016.

b. Please refer to DU comments above addressing feasible and infeasible dust control methods for EU 52. The Army does not permit the use of chemical stabilizers at Fort Wainwright.

c. The BACT determination does not analyze or select BACT requirements for ash loading. The October 2020 DU Fugitive Dust Control Plan addresses ash disposal processes. If ADEC determines that the ash disposal process should be included in the BACT determination, that analysis should be presented separately from the analysis for the dust collectors. DU suggests the following BACT and MR&R for the ash disposal process.

> Comply with the fugitive dust control plan for ash disposal processes. Certify compliance with the applicable fugitive dust control plan requirements for the ash disposal process in each semi-annual operating report.

Emission Units: EU IDs DU: 7a (South Coal Handling Dust Collector)

Pollutant of Concern: $PM_{2.5}$	
BACT Measure	**Monitoring, Recordkeeping and Reporting Requirements**
0.0025 gr/dscf Dust Collector ~~and enclosed coal handling systems~~	• Monitor that the dust collector is operating when the south coal handling system is in operation. • Monitor that manufacturer's operating and maintenance procedures for the dust collector are followed. Maintain records of maintenance conducted, and report summaries of such maintenance in each Facility Operating Report. • ~~Submit an initial compliance certification indicating that coal handling and conveying systems are enclosed.~~ • ~~Monitor that door(s) and access panels to coal handling and conveying systems are closed while in operation.~~ • ~~Keep records identifying each time that the EU is operated outside a required enclosure.~~ • ~~Report as a permit deviation whenever the south coal handling system is operated without a dust Collector and/or required enclosures.~~

Emission Units: EU IDs DU: 7b and 7c (South Under Bunker and North Coal Handling Dust Collectors)

Pollutant of Concern: $PM_{2.5}$	
BACT Measure	**Monitoring, Recordkeeping and Reporting Requirements**
0.02 gr/dscf Dust Collectors ~~and enclosed coal handling systems~~	• Monitor that the dust collectors are operating when the South Under Bunker Flight Conveyor and North Coal Handling systems are in operation. • Monitor that manufacturer's operating and maintenance procedures for the dust collector are followed. Maintain records of maintenance conducted, and report summaries of such maintenance in each Facility Operating Report. • ~~Submit an initial compliance certification indicating that coal handling and conveying systems are enclosed.~~ • ~~Monitor that door(s) and access panels to coal handling and conveying systems are closed while in operation.~~ • ~~Keep records identifying each time that the EU(s) are operated without the dust collection systems or outside a required enclosure(s).~~ • ~~Report as a permit deviation whenever either the south under bunker flight conveyor or North Coal Handling systems are operated without a dust Collector and required enclosure(s).~~

Emission Units: EU IDs DU: 51a and 51b (Fly Ash, and Bottom Ash Dust Collectors)

Pollutant of Concern: $PM_{2.5}$	
BACT Measure	**Monitoring, Recordkeeping and Reporting Requirements**
0.02 gr/dscf Dust Collectors ~~and enclosed ash handling systems~~	• Monitor that the fly ash and bottom ash **dust collectors** ~~dust collection systems~~ are operating **when the respective ash handling system is operating** ~~at all times fly and bottom ash is conveyed to truck loading locations~~. • Monitor that manufacturer's operating and maintenance procedures for the dust collectors are followed. Maintain records of maintenance conducted, and report summaries of such maintenance in each Facility Operating Report. • ~~Submit an initial compliance certification indicating that ash handling and conveying systems are enclosed.~~ • ~~Monitor that door(s) and access panels to ash handling and conveying systems are closed while in operation.~~ • ~~Keep records identifying each time that the EU is operated outside a required enclosure.~~ • ~~Report as a permit deviation whenever either the fly or bottom ash conveying systems are operated without a dust collection system or required enclosure(s).~~ • ~~Monitor that overhead door(s) at ash loading building are closed while loading the trucks. Monitor that ash truck bodies are free of ash before they leave the building, and that their loads are tarped before they leave the building area. Monitor the implementation of a fugitive dust control program that includes provisions to minimize fugitive dust from coal ash handling operations.~~

Emission Units: EU IDs DU: 52 (Emergency Coal Storage Pile and Operations)

Pollutant of Concern: $PM_{2.5}$	
BACT Measure	**Monitoring, Recordkeeping and Reporting Requirements**
1.42 TPY **Use Wind Awareness, Compaction, Watering used on active area of pile and road around the pile as needed during summer months, and Snow Cover on non-active faces of the coal storage pile during winter months** ~~Use chemical stabilizers on dirt roads, install wind fencing, cover haul vehicles, water roads and dirt piles and wind awareness~~	• For the reporting period, certify compliance with the fugitive dust control plan requirements for EU 52 in each semi-annual operating report. ~~Monitor that chemical stabilizers are used to control fugitive dust on dirt roads as deemed necessary.~~ • ~~Monitor that wind fencing is in place around coal piles, where appropriate.~~ • ~~Report whether these measures have been implemented during each Facility Operating Report.~~

Response: The $PM_{2.5}$ MR&R document that was included in the control strategies appendix of the SIP has been replaced with Minor Permit AQ1121MSS04 Rev. 1 in the final SIP submittal.

Revisions based on response: $PM_{2.5}$ MR&R replaced by Minor Permit AQ1121MSS04 Rev. 1.

Doyon Comment 61: Appendix III.D.7.7-1097 through 1099. These tables, presenting the SO_2 BACT MR&R requirements, are provided without explanatory text or other context. As a general comment, these tables should be consistent with the BACT determination presented in this appendix.

Response: DEC acknowledges the comment and the detailed revisions requested in each table in the following related comments.

Revisions based on response: See responses to Doyon Comments 62 through 64.

Doyon Comment 62: Appendix III.D.7.7-1097, SO_2 BACT MR&R for the coal-fired boilers. Please revise the table to ensure consistency with the BACT determination and previous DU comments. Please ensure that all requirements are clearly and specifically stated. DU is providing some specific edits that may not capture all the changes ADEC must make to ensure consistency with the BACT determinations and previous DU comments.

Emission Units: EU IDs 1, 2, 3, 4, 5 and 6 (230 MMBtu/hr – Coal Boilers)

Pollutant of Concern: SO_2	
BACT Measure	**Monitoring, Recordkeeping and Reporting Requirements**
~~0.02~~ **0.04** lb/MMBtu (3-hr avg)	• Conduct an initial SO_2 source test and report results as required ~~in~~ **by** the corresponding Operating Permit
Dry Sorbent Injection	• Install, operate, and maintain dry sorbent injection at all times the units are in operation. • Report **as required by** ~~in~~ the Operating Permit if there are any periods the EUs operated without the dry sorbent injection system.
Good Combustion Practices	• Keep records of maintenance conducted on emission units to comply with this BACT measure. • Keep a copy of the manufacturer's and the operator's recommended maintenance procedures.
Limit combined coal combustion in EU IDs 1 through 6 to 336,000 tons per year.	• Measure and record the total weight of coal prior to combustion in the EUs. • Report the monthly and consecutive 12-month total coal consumption at the stationary source.

Response: For accuracy and clarity, DEC made the following revisions, as requested.

Revisions based on response: The table has been amended according to requested revisions. DEC additionally revised the Good Combustion Practices to include the MR&R of Minor Permit AQ1121MSS04 Rev. 1.

Doyon Comment 63: Appendix III.D.7.7-1098, SO_2 BACT MR&R for the large diesel-fired engines. Please revise the tables to ensure consistency with the BACT determination and previous DU comments. Please ensure that all requirements are clearly and specifically stated. DU is providing some specific edits that may not capture all the changes ADEC must make to ensure consistency with the BACT determinations and previous DU comments. Note that the rationale is unclear for using two separate tables for these engines.

Emission Units: EU IDs DU: 8; FWA: 11, 12, 13, 50, 51, 53, and 54 (Large Diesel-Fired Engines, Fire Pumps, and Generators > 500 hp)

Pollutant of Concern: SO_2	
BACT Measure	**Monitoring, Recordkeeping and Reporting Requirements**
Combust Only Ultra Low Sulfur fuel at no more than 0.0015 percent sulfur by weight	• For each shipment of fuel, test the sulfur content or keep receipts that specify fuel grade, date and time, and quantity of fuel received. Keep records of the results of sulfur content tests and receipts for fuel shipments. • Include ~~a statement in each semi annual operating report~~ a summary of fuel test results and shipping receipts ~~from~~ **for** the reporting period in each semi-annual operating report.
Good Combustion Practices	• For DU EU ID 8, **keep records of maintenance conducted in accordance with manufacturer instructions as required by 40 CFR 60 Subpart IIII. Annually, certify compliance with Condition 23.3b of Operating Permit AQ1121TVP02 Revision 2 in the Annual Compliance Certification required by the Operating Permit.** • **For** FWA IDs 50 and 51, report compliance with maintenance requirements under 40 CFR 60 Subpart IIII. • For FWA EU IDs 11, 12, 13, 53, and 54 demonstrate compliance by complying with the Good Air Pollution Control Practice Condition 70 in Operating Permit AQ0236TVP04.

Emission Units: EU IDs DU: 8; FWA EU 11, 12, 13, 50, 51, 53, and 54 (Diesel-Fired Engines >500 hp)

Pollutant of Concern: SO_2	
BACT Measure	**Monitoring, Recordkeeping and Reporting Requirements**
• Limit DU EU 8 to 500 hours/yr	• Demonstrate compliance by complying with Condition 2 of Minor Permit AQ1121M**S**S02.
• Limit FWA EU 11, 12 and 13 combined hours to 600 hours/yr	• Demonstration compliance by complying with Conditions 5.3 of Minor Permit AQ0236MSS02.
• Limit non-emergency operation of FWA E**U**s 50, 51, 53, and 54 to 100 hours/yr each	• For FWA EU IDs 50 and 51, demonstrate compliance by complying with the NSPS Subpart IIII emergency engine requirements listed in 40 CFR 4211(f). • For FWA EU IDs 53 and 54, demonstrate compliance by monitoring the engine's operating hours and reporting in the operating report.

Response: For accuracy and clarity, DEC agrees to the proposed changes to correct typographical errors and improvements on sentence structure. Regarding the request to reference federal citations, DEC removed all references to NSPS Subpart IIII from the SO_2 MR&R document to avoid having to incorporate by reference such federal regulations.

Revisions based on response: The tables have been amended to correct typographical errors and improvements on sentence structure. DEC removed references to NSPS Subpart IIII and replaced them with the good combustion practices requirements for the engines contained in Minor Permits AQ1121MSS04 Rev. 1 and AQ0236MSS03 Rev. 2.

DEC corrected the reference for the 500 hours/yr for DU EU 8 from Condition 2 of Minor Permit AQ1121MSS02 to Condition 6.1.b of Minor Permit AQ1121MSS04 Rev. 1. DEC revised the MR&R requirements for the combined 600 hours/year on EU IDs 11, 12, and 13 from Condition 5.3 of Minor Permit AQ0236MSS02 to itemizing the requirements. In addition, both tables were merged into one table since they are addressing the same emissions units.

The same revisions pertaining to the reporting requirement for compliance with the ULSD fuel combustion were also made for the table for EU IDs 8 – 10 (19 MMBtu/hr) and 40 (2.6 MMBtu/hr) Diesel-Fired Boilers.

Doyon Comment 64: Appendix III.D.7.7-1098 through 1099, SO_2 BACT MR&R for the small diesel-fired engines. Please revise the table to ensure consistency with the BACT determination and previous DU comments. Please ensure that all requirements are clearly and specifically stated. DU is providing some specific edits that may not capture all the changes ADEC must make to ensure consistency with the BACT determinations and previous DU comments.

Emission Units: EU IDs DU: 9, 14, 22, 23, 29a, 30a, 31a, 32a, 33a, 34, 35a, 36, 37a; FWA EUs: 26 through 39, 52, and 55 through 69 (Small Diesel-Fired Engines, Fire Pumps, and Generators < 500 hp)

Pollutant of Concern: SO_2	
BACT Measure	**Monitoring, Recordkeeping and Reporting Requirements**
Combust Only Ultra Low Sulfur fuel at no more than 0.0015 percent sulfur by weight	• For each shipment of fuel, test sulfur content or keep receipts that specify fuel grade, date and time, and quantity of fuel received. Keep records of the results of sulfur content tests and receipts for fuel shipments. • Include **a summary of fuel test results and shipping receipts for the reporting period in each semi-annual operating report.** ~~a statement in each semi-annual operating report, a summary of fuel test results or shipping receipts from the reporting period.~~
Limit of 100 hours per year each for non-emergency operation	• Monitor operation of non-emergency use to ensure a limit of 100 hours per year each per engine.
Good Combustion Practices	• Keep records of manufacturer's maintenance procedures. • Monitor maintenance schedules to determine whether manufacturer's recommendations are followed. • Certify following good combustion practices in each semi-annual operating report.

Response: For accuracy and clarity, DEC made the following revisions, as requested.

Revisions based on response: The table has been amended according to requested revisions. Additionally, DEC modified the Good Combustion Practices requirements to be consistent with the MR&R of Minor Permits AQ1121MSS04 Rev. 1 and AQ0236MSS03 Rev. 2. DEC corrected the limit of 100 hours per year each for non-emergency operation to include the maintenance checks and readiness testing.

Golden Valley Electric Association (GVEA) Comments

Note – GVEAs footnote has been renumbered to occur in sequence with other footnotes in this document. The footnote number, therefore, does not correspond to that in the original comment document, but the original footnote number is included in the text of the footnote.

Comments on Vol. II: III.D.7.7 Control Strategies, Section 7.7.13.8

GVEA Comment 1: **Page 182, Section 7.7.13.8.2.** Golden Valley Electric Association (GVEA) supports the sulfur dioxide (SO_2) major source precursor demonstration (presented in Vol. II: III.D.7.8.18). GVEA appreciates the ADEC effort in preparing this analysis to demonstrate that SO_2 emissions from existing major stationary sources in the nonattainment area do not significantly contribute to ambient $PM_{2.5}$ concentrations that exceed the $PM_{2.5}$ 24-hour average ambient standard.

Response: DEC appreciates GVEA's support on this undertaking.

Revisions based on response: None.

GVEA Comment 2: **Page 182, Section 7.7.13.8.2.1.** GVEA notes the difficult effort that may be needed to revise a permit condition that is based on specific SIP language. GVEA encourages ADEC to ensure that all Best Available Control (BACT) limits and compliance assurance requirements provided in the State Implementation Plan (SIP) are clearly and consistently stated and are fully attainable to avoid the need for future SIP and permit condition revisions.

Response: Comment acknowledged.

Revisions based on response: See responses to the more specific related comments below.

GVEA Comment 3: **Page 184, Section 7.7.13.8.5, Table 7.7-45.** Please revise Table 7.7-45 to ensure consistency with the BACT determination and GVEA comments on the BACT determination. Please revise the entry for "BACT Control Device or Operational Limitation" for Emissions Units (EUs) 10 and 11 to remove the phrase "and 40 CFR 63 Subpart JJJJJJ." As presented in Section 4.3 of the BACT determination and further addressed in comments below, the requirement to comply with 40 Code of Federal Regulations (CFR) 63 Subpart JJJJJJ is the monitoring, recordkeeping, and reporting (MR&R) requirement to demonstrate compliance with the numerical BACT emission limit. The requirement to comply with 40 CFR 63 Subpart JJJJJJ is not a BACT control or operational limitation.

Response: DEC removed the phrase because compliance with 40 C.F.R. 63 Subpart JJJJJJ is not a BACT control or operational limit.

Revisions based on response: Page 184, Section 7.7.13.8.5, Table 7.7-45 was revised as requested in the comment.

GVEA Comment 4: **Page 185, Section 7.7.13.8.6, Table 7.7-46.** Please ensure the final version of this table is ultimately consistent with the BACT determination and GVEA comments on the BACT determination.

Response: Comment noted. DEC has verified that the final version Table 7.7-46 is consistent with the BACT determination and DEC's responses to specific comments on the BACT determination.

Revisions based on response: None.

GVEA Comment 5: **Volume II, Section III.D.7.7.** ADEC's proposed revisions will, if enacted, codify the $PM_{2.5}$ BACT determinations for GVEA's North Pole Power Plant's and Zehnder Facility's fuel-oil fired turbines. The emission limit of 0.012 lb $PM_{2.5}$/MMBtu on a 3-hour average basis was derived using AP-42 emission factors without the benefit of actual emissions data from these units.[13] GVEA and ADEC in good faith concluded that the AP-42 emission factor was an appropriate approximation of $PM_{2.5}$ emissions in the absence of actual emissions data with the understanding that it would be used for general emissions modeling and estimating. Over time, the emissions factor has evolved inappropriately into a permit limit. GVEA notes several instances in the SIP in which similar applications of AP-42 emission factors have evolved into inappropriate permit limits lacking an empirical, site-specific basis for achievability.

Revision of the Zehnder permits to codify the $PM_{2.5}$ limit includes, for the first time, a requirement to perform a $PM_{2.5}$ source test. GVEA is in the midst of performing that source testing, and preliminary results indicate Zehnder will fail to achieve the $PM_{2.5}$ emission limit. ADEC has indicated the source testing requirement will also appear in a revision of the North Pole Power Plant permit. GVEA has conducted no PM emission testing at the North Pole Power Plant and has no indication of whether emissions from the plant can meet the proposed limit. ADEC should recognize the possibility that one or more of the Zehnder and North Pole turbines will not demonstrate compliance with the currently adopted $PM_{2.5}$ BACT limit.

EPA develops AP-42 emission factors to facilitate emissions estimation and modeling exercises, and generally assumes the factors are "representative of long-term averages for all facilities in the source category." (EPA AP-42, Introduction, p. 1) In the introduction to the AP-42, EPA emphasizes:

> "Emissions factors in AP-42 are **neither** EPA-recommended emission limits (e.g., best available control technology or BACT, or lowest achievable emission rate or LAER), **nor** standards… Use of these factors as source-specific permit limits and/or as emission

[13] 1. See Amendments to State Air Quality Control Plan Vol. II: III.D.7.7 Control Strategies Public Notice Draft August 19, 2024, Section 7.7.8.4.2, PM2.5 Control Analysis for Zehnder Facility, Footnote 5 referencing Table 3.1-2a of US EPA's AP-42 Emission Factors, https://www3.epa.gov/ttnchie1/ap42/ch03/final/c03s01.pdf.

regulation compliance determinations is **NOT** recommended by EPA." (EPA AP-42, p. 2)

The AP-42 emission factor adopted as a 3-hour $PM_{2.5}$ limit for the Zehnder and North Pole power plant permits is derived from gas turbines operating under high load conditions (greater than or equal to 80%). (EPA AP-42, Chapter 3.1, p. 3.1-10) In contrast, the Zehnder permit requires testing at three loads representative of normal operations. EU 1 at Zehnder normally operates from about 25% to above 100% of rated capacity. Because the AP-42 emission factors are only applicable under high load conditions, ADEC should not assume the limit based on those factors is applicable at low and mid-load operations. Further, AP-42 emission factors represent long-term, steady-state average emissions, and are not representative of short-term emissions. (EPA AP-42, p. 4) Indeed, as EPA vigorously emphasizes, the emissions factors are not appropriate for use as source-specific permit limits at all. (EPA AP-42, p. 2)

By definition, BACT can only be established with limits that are "achievable." (40 C.F.R. 52.21(b)(12), adopted by reference in 18 AAC 50.040) Longstanding EPA guidance dictates that no BACT limit can be imposed unless it is confirmed that the limit is achievable. (EPA 1990 Draft New Source Review Manual, Chapter B; NSR Manual). Each control technology must be rejected under the top-down procedure if "the permitting authority in its informed judgment agrees, that technical considerations, or energy, environmental, or economic impacts justify a conclusion that the most stringent technology is not "achievable" in that case." (NSR Manual at B.2)

EPA expressly provides that the achievability of a SIP limitation should be carefully studied before it is used as the basis of a Lowest Achievable Emission Rate (LAER) determination, and by analogy this applies to the currently proposed SIP's reliance on BACT emission limits even if they are not a LAER determination. (NSR Manual at G.2, "The specific reasons for noncompliance must be determined, and the ability of the source to comply assessed.") This analogy is appropriate because LAER determinations are by definition more stringent than BACT determinations even if they result in the same limit. (NSR Manual at G.3, "the LAER requirement does not consider economic, energy, or other environmental factors.") Even in the context of a more stringent LAER determination, EPA expressly allows for revisiting emissions limits including those already codified in a SIP. (NSR Manual at G.2)

If it is discovered that the BACT limits proposed in the SIP are not achievable, GVEA expects that ADEC will perform new BACT analyses based on representative, site-specific emissions rates, and reopen and revise the permit limits accordingly. To the degree that ADEC and EPA are relying on those limits to support the plans to address the FNSB $PM_{2.5}$ nonattainment designation and time to attainment, ADEC should include a contingency in the Plan to accommodate revised limits that represent a valid BACT determination.

Response: In August 2017, GVEA proposed a $PM_{2.5}$ BACT emission limit of 0.012 lb $PM_{2.5}$/MMBtu (Table 1-4 of August 2017 Voluntary PM2.5 Serious Nonattainment Area BACT Analysis for the Zehnder Facility) for EUs 1 and 2 at the Zehnder Facility, with good combustion practices as the control technology. Likewise, for GVEA's North Pole facility, GVEA listed the same 0.012 lb/MMBtu as the potential $PM_{2.5}$ emissions for EUs

1, 2 5 and 6 (Table 1-4 of August 2017 Voluntary $PM_{2.5}$ Serious Nonattainment Area BACT Analysis for the North Pole Facility). DEC conducted additional research and did not find a more suitable alternative BACT limit and carried the proposed limit through its analysis and ultimate determination.

Around July 2024 and then again in September of 2024, GVEA conducted a source test for $PM_{2.5}$ to ascertain the level of $PM_{2.5}$ emissions from one of the turbines at Zehnder. As of October 18, 2024, a final Source Test Report has not yet been submitted to DEC. Without source test data to inform DEC's decisions, DEC must move BACT forward as proposed.

While emissions factors derived from AP-42 are not the only source of information for establishing BACT emission limits, AP-42 is an acceptable reference when no other information is available. EPA has not rejected the use of the AP-42 derived emission factor of 0.012 lb $PM_{2.5}$/MMBtu for EU 1 and 2. While DEC acknowledges that BACT limits have to be achievable and that BACT levels do not necessarily have to reflect the highest possible control efficiencies, DEC has not yet received an official source test report from GVEA that shows that the turbines are not currently meeting the E.F. derived from AP-42.

DEC acknowledges that the AP-42 E.F. used was derived from source tests on turbines operating at or above 80% load. This is in contrast to Zehnder's EU 1 normally operating at loads as low as 25%, which may result in an E.F. that is not fully representative. However, DEC's standard practice is to require source tests on turbines at three different loads that represent the normal operating range of the EU, as was done in Condition 5.1a(i). Additionally, the BACT limit selected must apply at all times and GVEA's initial proposal did not differentiate different BACT limits for different operating loads.

BACT limits in the final rule have to be permanent and enforceable. The Clean Air Act does not allow DEC the ability to include a contingency in the event that a BACT limit is not achieved. However, in the event that GVEA source test results show non-compliance with the established BACT limits, DEC will work with GVEA to make efforts to bring the affected units into compliance. GVEA will need to exhaust all possible and reasonable options to improve the emissions performance of EU 1 and 2, including but not limited to carefully reviewing the implementation of the emission control technology proposed to achieve the limit. BACT limits may not necessarily be site-specific but represent best available emission controls for a given source type given its design and operational characteristics. A BACT determination includes the review of available retrofit technology to improve emissions performance and is not intended to solely match the emissions performance of existing equipment. Permittees of stationary sources subject to BACT limits are expected to operate and maintain equipment to control air pollutants using best available control technology conducting necessary maintenance and equipment upgrades over the years to maintain or even improve emissions level performance.

It is possible to amend an established BACT limit after the SIP amendments have been

approved. If the BACT limit is proposed to be relaxed, then DEC would need to demonstrate that the proposed change does not interfere with any applicable requirement concerning attainment and reasonable further progress as required under CAA 110(*l*). This 110(*l*) demonstration would likely include new attainment modeling, a new attainment demonstration, a new emission inventory, and other updates to the SIP. DEC notes that this is a lengthy process, without a guaranteed outcome, that will only occur after all other options have been exhausted.

Revisions based on response: None.

Comments on Part 4 of Appendix III.D.7.7 in 2024 Proposed Amendments to the Fairbanks $PM_{2.5}$ Serious SIP: Best Available Control Technology Determination Addendum for Golden Valley Electric Association North Pole Power Plant

GVEA Comment 6: **Appendix III.D.7.7-1127, Section 1, third paragraph.** The paragraph states that this BACT addendum provides BACT analyses for $PM_{2.5}$ and SO_2 emissions but does not provide an explanation or reference to the SO_2 major source precursor demonstration in Vol. II: III.D.7.8.18. Please add language to this paragraph to ensure that this BACT determination includes the statement that BACT for SO_2 is not required based on the results of the SO_2 precursor demonstration. GVEA notes that similar discussions were included in BACT addenda for other major stationary sources and suggests the following language.

> Since preparing the SIP amendments adopted on November 18, 2020, the Department conducted extensive modeling and found that SO_2 emissions from stationary sources do not significantly contribute to ground level $PM_{2.5}$ concentrations, and that SO_2 BACT emission limits are therefore not required for major stationary sources in the Fairbanks North Star Borough. SO_2 BACT determinations have, however, been included in in this BACT Determination Addendum because the SO_2 major source precursor demonstration has not yet been approved by EPA.

Response: For clarity and consistency, DEC has added the paragraph pertaining to BACT for SO_2 as not required based on the results of the SO_2 precursor demonstration.

Revisions based on response: Added the paragraph in Appendix III.D.7.7-1127, as requested. In addition, DEC also made the same revision in the North Pole Power Plant section found in Appendix III.D.7.7-1151. (See related response to Comment 42).

GVEA Comment 7: **Appendix III.D.7.7-1128, Section 2, Table A.** Please revise the installation date for EU ID 6 from "Est. 2015" to "Not installed" or "TBD."

Response: DEC changed the installation date for EU ID 6.

Revisions based on response: The installation date for EU ID 6 has been revised to "TBD" in Appendix III.D.7.7-1128, Section 2, Table A.

GVEA Comment 8: **Appendix III.D.7.7-1130, Section 4.1, RACT/BACT/LAER Clearinghouse (RBLC) Review paragraph.** Please revise the first sentence of this paragraph as follows.

> A review of similar units in the RBLC indicates restrictions on fuel sulfur contents and good combustion practices are the ~~principle~~ **principal** PM control technologies installed on simple cycle gas turbines.
>
> Response: DEC corrected the typographical error.
>
> Revisions based on response: Appendix III.D.7.7-1130, Section 4.1, RACT/BACT/LAER Clearinghouse (RBLC) Review paragraph was revised as shown above.

GVEA Comment 9: **Appendix III.D.7.7-1132, Section 4.1, Step 5, paragraph (a).** Please revise paragraph (a) for clarity as follows. Note that these requirements are incorporated into the federally enforceable Title V permit AQ0110TVP04 Revision 1.

> $PM_{2.5}$ emissions from EU 1 shall be limited by complying with the combined annual NOx **emissions** limit for EUs 1, 5, and 6, listed in Condition 16.1a **of Construction Permit AQ0110CPT01 Rev. 1**, and the MR&R listed in Conditions 16.1 through 16.4 of Construction Permit AQ0110CPT01 Rev. 1;
>
> Response: DEC agrees that MR&R requirements are better suited in the $PM_{2.5}$ MSS permit which is being incorporated into the SIP.
>
> Revisions based on response: Appendix III.D.7.7-1132, Section 4.1, Step 5, paragraph (a) is revised by deleting the phrase ", and the MR&R listed in Conditions 16.1 through 16.4".

GVEA Comment 10: **Appendix III.D.7.7-1132, Section 4.1, Step 5, paragraph (b).** Please revise paragraph (b) for clarity as follows. The current permit is AQ0110TVP04 Revision 1. The MR&R requirements are provided in Conditions 19.1 through 19.3. (In Permit AQ0110TVP04, these requirements were given in Conditions 18.1 through 18.3.)

> $PM_{2.5}$ emissions from EU 2 shall be limited by complying with the 7,992 **operating** hour ~~NOx~~ limit **to reduce NOx emissions** listed in Condition 16.1 of Construction Permit AQ0110CPT01 Rev. 1 and the MR&R listed in Conditions 19.1 through **19.3** ~~19.4~~ of Operating Permit AQ0110TVP04 **Rev. 1**;
>
> Response: DEC deems that MR&R requirements for compliance with the $PM_{2.5}$ BACT are better suited in the concurrent Minor Permit AQ0110MSS01 Revision 1, which is being incorporated into the SIP (see related response to GVEA Comment 9).

Revisions based on response: Appendix III.D.7.7-1132, Section 4.1, Step 5, paragraph (b) is revised, as follows:

"$PM_{2.5}$ emissions from EU 2 shall be limited by complying with the 7,992 **operating** hour ~~NOx~~ limit **to reduce NOx emissions** listed in Condition 16.1 of Construction Permit AQ0110CPT01 Rev. 1~~ and the MR&R listed in Conditions 19.1 through **19.3** 19.4 of Operating Permit AQ0110TVP04~~;"

GVEA Comment 11: **Appendix III.D.7.7-1132, Section 4.1, Step 5, item (f).** Please revise the list of the selected BACT requirements to remove item (f). This performance test requirement is the MR&R to demonstrate compliance with the BACT emission limit. This requirement should not be presented as a separate BACT limit. This BACT determination does not identify this requirement as an available control technology or carry the requirement through the BACT analysis. This report does not provide a rationale for including this requirement as a BACT limit. Note that this requirement is incorporated as a MR&R requirement included in the MR&R addendum tables that follow the BACT determination on page Appendix III.D.7.7-1155.

Response: DEC agrees that MR&R requirements for compliance with the $PM_{2.5}$ BACT are better suited in the concurrent Minor Permit AQ0110MSS01 Revision 1, which is being incorporated into the SIP, rather than in the BACT determination.

Revisions based on response: DEC has removed Step 5, item (f) from this document. All of the MR&R requirements associated with these EUs from Step 5, item (f) are now contained in Minor Permit AQ0110MSS01 Rev. 1.

GVEA Comment 12: **Appendix III.D.7.7-1132, Section 4.1, Table 4-2.** Please revise Table 4-2 for consistency with the BACT determinations as follows.

Table 4-2. Comparison of $PM_{2.5}$ BACT for Simple Cycle Gas Turbines at Nearby Power Plants

Facility	Process Description	Capacity	Limitation	Control Method
GVEA – North Pole	Two Fuel Oil-Fired Simple Cycle Gas Turbines	1,344 MMBtu/hr	0.012 lb/MMBtu (3-hour averaging period)	**Limited Operation** **Low Ash Fuel** Good Combustion Practices
GVEA – Zehnder	Two Fuel Oil-Fired Simple Cycle Gas Turbines	536 MMBtu/hr	0.012 lb/MMBtu (3-hour averaging period)	**Low Ash Fuel** Good Combustion Practices

Response: DEC added control methods to be consistent with the BACT determinations.

Revisions based on response: Appendix III.D.7.7-1132, Section 4.1, Table 4-2 is revised as shown above.

GVEA Comment 13: **Appendix III.D.7.7-1134, Section 4.2, Step 5, paragraph (a).** Please revise paragraph (a) for clarity as follows. Note that these requirements are incorporated into the federally enforceable Title V permit AQ0110TVP04 Revision 1.

> $PM_{2.5}$ emissions from EUs 5 and 6 shall be limited by complying with the combined annual NOx **emissions** limit listed in Condition 16.1a **of Construction Permit AQ0110CPT01 Rev. 1**, and the MR&R listed in Conditions 16.1 through 16.4 of Construction Permit AQ0110CPT01 **Rev. 1**;
>
> Response: DEC deems that MR&R requirements for compliance with the $PM_{2.5}$ BACT are better suited in the concurrent Minor Permit AQ0110MSS01 Revision 1, which is being incorporated into the SIP (see related response to GVEA Comment 9).
>
> Revisions based on response: Appendix III.D.7.7-1134, Section 4.2, Step 5, paragraph (a) is revised as follows:
>
> > "$PM_{2.5}$ emissions from EUs 5 and 6 shall be limited by complying with the combined annual NOx **emissions** limit listed in Condition 16.1a of Construction Permit AQ0110CPT01 Rev. 1~~ and the MR&R listed in Conditions 16.1 through 16.4 of Operating Permit AQ0110TVP04~~;"

GVEA Comment 14: **Appendix III.D.7.7-1134, Section 4.2, Step 5, item (c).** Please revise the list of the selected BACT requirements to remove item (c). This performance test requirement is the MR&R to demonstrate compliance with the BACT emission limit. This requirement should not be presented as a separate BACT limit. This BACT determination does not identify this requirement as an available control technology or carry the requirement through the BACT analysis. This report does not provide a rationale for including this requirement as a BACT limit. Note that this requirement is incorporated as a MR&R requirement included in the MR&R addendum tables that follow the BACT determination on page Appendix III.D.7.7-1155.

> Response: DEC agrees that MR&R requirements for compliance with the $PM_{2.5}$ BACT are better suited in the concurrent Minor Permit AQ0110MSS01 Revision 1, which is being incorporated into the SIP, rather than in the BACT requirements.
>
> Revisions based on response: DEC has removed Step 5, item (c) from this document. All of the MR&R requirements associated with these EUs from Step 5, (c) are now contained in the concurrent Minor Permit AQ0110MSS01 Rev. 1.

GVEA Comment 15: **Appendix III.D.7.7-1136, Section 4.3, Step 1, item (f).** The statement in item (f) of this section is imprecise and unclear. The RACT/BACT/LAER Clearinghouse (RBLC) is an information source to consider when identifying available control technologies. Listings in the RBLC do not impose requirements, but, instead, provide information about BACT determinations made by air quality permitting agencies. Per EPA guidance, a New Source

Performance Standard (NSPS) defines the minimal level of control to be considered in the BACT analysis. Please revise the language in (f) as follows to improve the accuracy of this statement.

> ~~RBLC determinations for federal emission standards require the engines meet the requirements of 40 C.F.R. 60 NSPS Subpart IIII, 40 C.F.R. 63 Subpart ZZZZ, non-road engines (NREs), or EPA tier certificates.~~ NSPS Subpart IIII applies to stationary compression ignition internal combustion engines that are manufactured or reconstructed after July 11, 2005. Due to EU 7 not being subject to either 40 C.F.R. 60 Subpart IIII or 40 C.F.R. 63 Subpart ZZZZ **emission standards**, the Department does not consider federal emission standards a technically feasible control technology for the large diesel-fired engine.
>
> Response: The proposed edits improve the readability of Step 1, item (f).
>
> Revisions based on response: Appendix III.D.7.7-1136, Section 4.3, Step 1, item (f) is revised as shown above.

GVEA Comment 16: **Appendix III.D.7.7-1138, Section 4.3, Step 5, item (e).** The requirement to comply with 40 CFR 63 Subpart ZZZZ is the MR&R requirement to demonstrate compliance with the numerical BACT emission limit. This requirement should not be presented as a separate BACT limit. This BACT determination does not identify this requirement as an available control technology or carry it through the BACT analysis. This report does not provide a rationale for including this requirement as a BACT limit. Note that this requirement is incorporated as a MR&R requirement included in the MR&R addendum tables that follow the BACT determination on page Appendix III.D.7.7-1155.

> Response: DEC agrees with the comment. See response to Comment 11 above.
>
> Revisions based on response: DEC removed item (e) from the BACT Determination. All of the MR&R requirements associated with these EUs from Step 5, item (e) are now contained in Construction Permit AQ0110CPT01 Rev. 1.

GVEA Comment 17: **Appendix III.D.7.7-1138, Section 4.3, Table 4-7.** Please revise the Limitation entries in this table to include the averaging periods for the emission limits.

> Response: DEC agrees that the inclusion of averaging periods is appropriate.
>
> Revisions based on response: Appendix III.D.7.7-1138, Section 4.3, Table 4-7 was revised to include the 3-hour averaging period for the emission limits.

GVEA Comment 18: **Appendix III.D.7.7-1140, Section 4.5, Step 4, item (c).** Please delete item (c) from the list of GVEA-proposed BACT requirements. GVEA did not propose maintenance records and periodic measurements of O_2 balance as a BACT control.

Response: DEC agrees with the comment.

Revisions based on response: Step 4, item (c) has been removed.

GVEA Comment 19: **Appendix III.D.7.7-1141, Section 4.5, Step 5, item (d).** The requirement to keep maintenance records is the MR&R requirement to demonstrate compliance with the BACT emission limit. This requirement should not be presented as a separate BACT limit. This BACT determination does not identify this requirement as an available control technology or carry it through the BACT analysis. This report does not provide a rationale for including this requirement as a BACT limit. Note that this requirement is incorporated as a MR&R requirement included in the MR&R addendum tables that follow the BACT determination on page Appendix III.D.7.7-1155.

Response: See response to Comment 11 above.

Revisions based on response: DEC has removed Step 5, item (d) from this document. All of the MR&R requirements associated with these EUs from Step 5, item (d) are now contained in Construction Permit AQ0110CPT01 Rev. 1.

GVEA Comment 20: **Appendix III.D.7.7-1144-1152, Section 5, BACT Determination for SO_2.** As previously noted, GVEA supports the SO_2 major source precursor demonstration (presented in Vol. II: III.D.7.8.18). Should that precursor demonstration be unapproved GVEA does not believe the SO_2 BACT as found is technically or economically feasible. At every opportunity GVEA wishes to reinforce and ask ADEC to be aware of the limitations of the in-state refining both in total capacity and capacity per grade of fuel. In addition, there are seasonal pressures (low temperatures, North Slope winter activities, and military activities) that put extreme competitive pressure on certain fuel grades. There are also constraints on the movement of fuel within the State, limits to rail capacity and truck capacity. There are step thresholds that consumption above will require the import of fuel from the lower 48 where the refining of arctic grade fuel (fuel that does not gel in cold temperatures) is not prevalent.

Response: DEC acknowledges the potential difficulty in securing uninterrupted fuel supply that may arise from a sudden increase in demand of ULSD in the interior of Alaska due to BACT requirements.

Revisions based on response: None.

GVEA Comment 21: **Appendix III.D.7.7-1142, Section 5.1, Step 1, paragraph (b).** Please revise the first sentence of this paragraph to correct a typographical error as follows.

No. 1 fuel oil ~~fuel~~ has a sulfur content of approximately 0.1 percent sulfur by weight.

Response: DEC corrected the typographical error, as requested.

Revisions based on response: Paragraph (b) of Appendix III.D.7.7-1142, Section 5.1, Step 1 amended, as shown above.

GVEA Comment 22: **Appendix III.D.7.7-1144, Section 5.1, Step 5, item (c).** Please delete item (c) from the list of selected BACT requirements. The requirement to document the sulfur content of fuel shipments is the MR&R requirement to demonstrate compliance with the BACT fuel sulfur content limit. This requirement should not be presented as a separate BACT limit. This BACT determination does not identify this requirement as an available control technology or carry the requirement through the BACT analysis. This report does not provide a rationale for including this requirement as a BACT limit. Note that this requirement is incorporated as a MR&R requirement included in the MR&R addendum tables that follow the BACT determination on page Appendix III.D.7.7-1158.

Response: DEC agrees that MR&R requirements are better suited in the SO_2 MR&R document, which is being incorporated into the SIP, rather than in the BACT determination.

Revisions based on response: DEC has removed Step 5, item (c) from this document. All of the MR&R requirements associated with these EUs from Step 5, item (c) are now contained in the GVEA SO_2 MR&R document.

GVEA Comment 23: **Appendix III.D.7.7-1144, Section 5.1, Table 5-6.** Please revise Table 5-6 to be consistent with the BACT determinations as follows

Table 5-6. Comparison of SO_2 BACT for Simple Cycle Gas Turbines at Nearby Power Plants

Facility	Process Description	Capacity	Limitation	Control Method
GVEA – North Pole	Two Fuel Oil-Fired Simple Cycle Gas Turbines	1,344 MMBtu/hr	0.0015 % S wt.	ULSD **Good Combustion Practices**
GVEA – Zehnder	Two Fuel Oil-Fired Simple Cycle Gas Turbines	536 MMBtu/hr	0.0015 % S wt.	ULSD **Good Combustion Practices**

Response: DEC made the revisions to be consisted with the BACT determinations, as requested.

Revisions based on response: Table 5-6 in Appendix III.D.7.7-1144, Section 5.1 amended, as shown above.

GVEA Comment 24: **Appendix III.D.7.7-1148, Section 5.2, Step 5, item (d).** Please delete item (d) from the list of selected BACT requirements. The requirement to document the sulfur

content of fuel shipments is the MR&R requirement to demonstrate compliance with the BACT fuel sulfur content limit. This requirement should not be presented as a separate BACT limit. This BACT determination does not identify this requirement as an available control technology or carry the requirement through the BACT analysis. This report does not provide a rationale for including this requirement as a BACT limit. Note that this requirement is incorporated as a MR&R requirement included in the MR&R addendum tables that follow the BACT determination on page Appendix III.D.7.7-1158.

Response: See response to GVEA Comment 22 above.

Revisions based on response: DEC has removed Step 5, item (d) from this document. All of the MR&R requirements associated with these EUs from Step 5, item (d) are now contained in the GVEA SO_2 MR&R document.

GVEA Comment 25: **Appendix III.D.7.7-1150, Section 5.3, Step 5, item (c).** Please delete item (c) from the list of selected BACT requirements. The requirement to document the sulfur content of fuel shipments is the MR&R requirement to demonstrate compliance with the BACT fuel sulfur content limit. This requirement should not be presented as a separate BACT limit. This BACT determination does not identify this requirement as an available control technology or carry the requirement through the BACT analysis. This report does not provide a rationale for including this requirement as a BACT limit. Note that this requirement is incorporated as a MR&R requirement included in the MR&R addendum tables that follow the BACT determination on page Appendix III.D.7.7-1158

Response: See response to Comment 22 above.

Revisions based on response: DEC has removed Step 5, item (c) from this document. All of the MR&R requirements associated with these EUs from Step 5, item (c) are now contained in the GVEA SO_2 MR&R document.

GVEA Comment 26: **Appendix III.D.7.7-1151, Section 5.3, Table 5-13.** Please revise the Control Method for the GVEA Zehnder engines to include "Limited Non-Emergency Operation," consistent with the BACT determination.

Response: DEC made the revisions as requested. EU IDs 3 and 4 for GVEA's Zehnder Facility is limited to 100 hours of non-emergency operations per year, each.

Revisions based on response: Table 5-3 of Appendix III amended according to requested addition above.

GVEA Comment 27: **Appendix III.D.7.7-1152, Section 5.4, Step 5, item (c).** Please delete item (c) from the list of selected BACT requirements. The requirement to document the sulfur content of fuel shipments is the MR&R requirement to demonstrate compliance with the BACT

fuel sulfur content limit. This requirement should not be presented as a separate BACT limit. This BACT determination does not identify this requirement as an available control technology or carry the requirement through the BACT analysis. This report does not provide a rationale for including this requirement as a BACT limit. Note that this requirement is incorporated as a MR&R requirement included in the MR&R addendum tables that follow the BACT determination on page Appendix III.D.7.7-1158.

Response: See response to GVEA Comment 22 above.

Revisions based on response: DEC has removed Step 5, item (d) from this document. All of the MR&R requirements associated with these EUs from Step 5, item (c) are now contained in the GVEA SO_2 MR&R document.

GVEA Comment 28: **Appendix III.D.7.7-1153, Tables 6-1 through 6-3.** These tables are presented as a "BACT determination summary," and are provided without explanatory text or other context.

Response: See response to UAF Comment 5.

Revisions based on response: None.

GVEA Comment 29: **Appendix III.D.7.7-1153, Section 6, Table 6-2.** Please revise the entries in the Proposed BACT Limit fields in this table to include the three-hour averaging period for each of the emission limits, per the BACT determinations in Section 4. As a general comment, GVEA is concerned that any numerical BACT emission limit listed in this table or any another table for any sized emission unit, will become a federally enforceable limit with compliance only truly demonstrated through source testing. Previous comments on the $PM_{2.5}$ emission limit for North Pole and Zehnder gas turbines have addressed GVEA's concern with the practice of applying an AP-42 emission factor as an enforceable limit for all conditions and all times of unit operation. There is no basis that these are technically achievable. For a numerical emission rate limit, as opposed to an operational limit "good combustion practices") the only way to determine compliance is through a source performance test. Sources cannot determine compliance with the limit through non-testing means and should not be placed in the position of certifying that they are in compliance with a numerical limit based on non-testing means. GVEA anticipates testing requirements for EUs 1 and 2, and perhaps 5 and 6, with no indication that they will pass. There is no assurance that testing requirements for EU's 7, 11, and 12 will not be required in the future after a numerical limit has become enforceable. GVEA encourages ADEC to carefully consider where numerical limits are utilized whether they are technically feasible, and to apply operational limitations where appropriate and without setting sources up with unachievable permit limits.

Response: DEC agrees that the inclusion of an averaging period is appropriate.

Revisions based on response: Table 6-2 was amended to include a 3-hr averaging period.

GVEA Comment 30: **Appendix III.D.7.7-1154, Section 6, Table 6-3.** Please revise the table to ensure consistency with the BACT determination and previous GVEA comments. Please ensure that all requirements are clearly and specifically stated. GVEA is providing specific edits in the table below that may not capture all the changes ADEC must make to ensure consistency with the BACT determinations and previous GVEA comments. Please note that the SO_2 BACT determinations for EUs 1, 2, and 5 do not include "limited operation."

Table 6-3. SO_2 BACT Limits

EU ID	Description	Capacity	BACT Limit	BACT Control
1	Fuel Oil-Fired Simple Cycle Gas Turbine	672 MMBtu/hr	15 ppmw S in fuel	~~Limited Operation~~ Ultra-Low Sulfur Diesel Good Combustion Practices
2	Fuel Oil-Fired Simple Cycle Gas Turbine	672 MMBtu/hr	15 ppmw S in fuel	
5	Fuel Oil-Fired Combined Cycle Gas Turbine	455 MMBtu/hr	50 ppmw S in fuel (Normal Ops)	~~Limited Operation~~ Light Straight Run Turbine Fuel **for Normal Operations** ~~(Normal Operations)~~ ULSD **for Start-Up** ~~(Start-~~
			15 ppmw S in fuel (Start-Up)	
6	Fuel Oil-Fired Combined Cycle Gas Turbine	455 MMBtu/hr	50 ppmw S in fuel (Normal Ops)	
			15 ppmw S in fuel (Start-Up)	
7	Large Diesel-Fired Engine	619 hp	500 ppmw S in fuel	Limited Operation Good Combustion Practices Low Sulfur Fuel
11	Propane-Fired Boiler	5.0 MMBtu/hr	120 ppmv S in fuel	Propane as Fuel
12	Propane-Fired Boiler	5.0 MMBtu/hr	120 ppmv S in fuel	Good Combustion Practices

Response: DEC revised Table 6-3 to be consistent with the SO_2 BACT determinations.

Revisions based on response: Table 6-3 of Appendix III.D.7.7-1154 Section 6 amended according to suggested revisions above.

Comments on Part 4 of Appendix III.D.7.7 in 2024 Proposed Amendments to the Fairbanks $PM_{2.5}$ Serious SIP: Golden Valley Electric Association North Pole Power Plant $PM_{2.5}$ BACT Monitoring, Recordkeeping, and Reporting (MR&R) Requirements Tables

GVEA Comment 31: **Appendix III.D.7.7-1155 through 1157.** These tables, presenting the $PM_{2.5}$ BACT MR&R requirements, are provided without explanatory text or other context. As a general comment, these tables should be consistent with the BACT determination presented in this appendix. BACT is a federally enforceable emission limit based on technology that is most cost effective. The U.S. Environmental Protection Agency (EPA) has provided copious guidance

documents which prescribe specific steps and methods to prepare a BACT analysis. The MR&R requirements that accompany any selected BACT limit are to ensure that the BACT limit is federally enforceable and that the owner/operator is demonstrating compliance with the BACT limit. The BACT determination should be very clear as to the BACT limit, averaging period, and initial and ongoing MR&R requirements, and provide the appropriate supporting rationale for each limit and the MR&R. The MR&R requirements should be clear and specifically tied to a particular BACT limit. GVEA requests that, when finalizing the BACT determination, ADEC clearly address MR&R requirements separately from BACT limits, tie each MR&R requirement to a particular BACT limit, and provide appropriate rationale for the selected MR&R requirements.

> Response: The $PM_{2.5}$ MR&R document that was included in the control strategies appendix of the SIP has been replaced with Minor Permit AQ0110MSS01 Rev. 1 in the final SIP submittal.
>
> Revisions based on response: $PM_{2.5}$ MR&R replaced by Minor Permit AQ0110MSS01 Rev. 1.

GVEA Comment 32: **Appendix III.D.7.7-1155, $PM_{2.5}$ BACT MR&R for the Simple Cycle Turbines.** Please revise the table to ensure consistency with the BACT determination and previous GVEA comments. Please ensure that all requirements are clearly and specifically stated. GVEA is providing specific edits in the table below that may not capture all the changes ADEC must make to ensure consistency with the BACT determinations and previous GVEA comments. There is no basis for obtaining CO and O2 concentrations with a handheld analyzer, what correlation exists with "good combustion practices", what variation is allowable, or what corrective action thresholds might apply.

Emission Units: EU IDs 1 and 2 (672 MMBtu/hr (60.5 MW) Simple Cycle Turbines)

Pollutant of Concern: $PM_{2.5}$	
BACT Measure	**Monitoring, Recordkeeping and Reporting Requirements**
0.012 lb/MMBtu (3-hr avg);	• In each Annual Compliance Certification required by the Operating Permit, report the compliance status for this requirement. • Conduct a one-time performance test using **procedures specified in 40 CFR 60, Appendix A-3, Method 5 and 50 CFR 51, Appendix M, Methods 201 or 201A** ~~Method 201A and 202~~ at maximum achievable load to demonstrate compliance and submit results to the Department.
Combust Only Low Ash (Distillate) Fuel	• For each shipment of fuel combusted, keep receipts that specify fuel grade and **date** ~~quantity of fuel received~~. • Include a statement in each operating report required by the Operating Permit, affirming that the fuel delivered was a low ash (distillate) fuel.
Good Combustion Practices	• Keep records of maintenance conducted on emission units ~~to comply with this BACT measure~~. • Keep a copy of the manufacturer's ~~and~~ **or** the operator's recommended maintenance procedures. • ~~If manufacturer specifications provide specific recommended combustion settings for CO and O_2 concentrations in the flue gas, at least once during each quarter that the emission unit operates, measure CO and O_2 in the exhaust stream using a portable handheld combustion analyzer and report these values in the following semi-annual operating report required by the Operating Permit.~~
Limited Operation	• **Include a statement in each operating report required by the Operating Permit, affirming that the Permittee complied** ~~EU 1 shall comply~~ with the combined annual NOx **emissions** limit for EUs 1, 5, and 6, listed in Condition 16.1a **of Construction Permit AQ0110CPT01 Rev. 1.** • **Perform** ~~and~~ the MR&R listed in Conditions 16.1 through 16.4 of Construction Permit AQ0110CPT01 Rev. 1. • EU 2 shall comply with the 7,992 **operating** hour **limit to reduce** NOx **emissions** ~~limit~~ listed in Condition 16.1 of Construction Permit AQ0110CPT01 Rev. 1 and the MR&R listed in Conditions 19.1 through **19.3** ~~19.4~~ of Operating Permit AQ0110TVP04 **Rev. 1**.

Response: The $PM_{2.5}$ MR&R document that was included in the control strategies appendix of the SIP has been replaced with Minor Permit AQ0110MSS01 Rev. 1 in the final SIP submittal.

Revisions based on response: $PM_{2.5}$ MR&R replaced by Minor Permit AQ0110MSS01 Rev. 1.

GVEA Comment 33: **Appendix III.D.7.7-1155, $PM_{2.5}$ BACT MR&R for the Combined Cycle Turbines.** Please revise the table to ensure consistency with the BACT determination and previous GVEA comments. Please ensure that all requirements are clearly and specifically stated. GVEA is providing specific edits in the table below that may not capture all the changes ADEC must make to ensure consistency with the BACT determinations and previous GVEA comments. There is no basis for obtaining CO and O_2 with a handheld analyzer, what correlation exists with "good combustion practices", what variation is allowable, or what corrective action

thresholds might apply. EU 5 and EU 6 if/when it is constructed are subject to Conditions 33, 29, and 30 in AQ0110TVP04 Rev 1. GVEA is already required to report malfunctions (for both the operations of the unit and the continuous emission monitoring systems) and EEMSPRs under the federal regulations. These units are subject to the NSPS emission standards and complying with those standards inherently require the operator to follow good combustion practices.

Emissions Units: EU IDs 5 and 6 (455 MMBtu/hr (43 MW) Combined Cycle Turbines)

Pollutant of Concern: $PM_{2.5}$	
BACT Measure	**Monitoring, Recordkeeping and Reporting Requirements**
0.012 lb/MMBtu (3-hr avg)	• In each Annual Compliance Certification required by the Operating Permit, report the compliance status for this requirement. • Conduct a one-time performance test at maximum achievable load using **procedures specified in 40 CFR 60, Appendix A-3, Method 5 and 50 CFR 51, Appendix M, Methods 201 or 201A** ~~EPA Method 201A and 202~~ to demonstrate compliance and submit results to the Department.
Comply with 1,600 TPY combined NOx limit for EUs 1, 5, and 6, listed in Condition 16.1a of Construction Permit AQ0110CPT01 Rev. 1	• Include a statement in each operating report required by the Operating Permit, affirming that the Permittee complied with the combined NOx **emissions** limit for EUs 1, 5, and 6 found in Condition 16.1a of Construction Permit AQ0110CPT01 Rev. 1. • Perform the MR&R required by Conditions 16.1 through 16.4 of Construction Permit AQ0110CPT01 Rev. 1.
Good Combustion Practices	• Keep records of maintenance conducted on emission units ~~to comply with this BACT measure.~~ • Keep a copy of the manufacturer's ~~and~~ **or** the operator's recommended maintenance procedures. • ~~If manufacturer specifications provide specific recommended combustion settings for CO and O_2 concentrations in the flue gas, at least once during each quarter that the emission unit operates, measure CO and O_2 in the exhaust stream using a portable handheld combustion analyzer and report these values in the following semi-annual operating report required by the Operating Permit~~.

Response: The $PM_{2.5}$ MR&R document that was included in the control strategies appendix of the SIP has been replaced with Minor Permit AQ0110MSS01 Rev. 1 in the final SIP submittal.

Revisions based on response: $PM_{2.5}$ MR&R replaced by Minor Permit AQ0110MSS01 Rev. 1.

GVEA Comment 34: **Appendix III.D.7.7-1156, $PM_{2.5}$ BACT MR&R for the Emergency Diesel Engine.** Please revise this table to ensure that all requirements are clearly and specifically

stated. GVEA is providing specific edits in the table below that may not capture all the changes ADEC must make to ensure consistency with the BACT determinations. If recordkeeping and reporting requirements should also be included for the emission limit of 0.32 g/hp-hr and the BACT requirement for good combustion practices, GVEA suggests that complying with Conditions 40.12 through 40.18 of AQ0110TVP04 Revision 1 would be appropriate. This unit does not currently have a PVC system installed. It is only operated for monthly readiness checks and in case of emergencies. The installation of a PVC system is not warranted for so little operation.

Emissions Units: EU IDs 7 (400 kW Emergency Diesel Engine)

Pollutant of Concern: $PM_{2.5}$	
BACT Measure	**Monitoring, Recordkeeping and Reporting Requirements**
Limit Operation to 52 hours per 12-month rolling period	• Demonstrate compliance by complying with Conditions 6 through 6.2 of Construction Permit AQ0110CPT01 Rev. 1.
~~Installation of positive crankcase ventilation (PVC)~~	• ~~Submit initial certification in Facility Operating Report that a positive crankcase ventilation system has been installed or is an inherent design.~~ • ~~Operate, maintain, and inspect according to the manufacturer's instructions and recommendations.~~
0.32 g/hp-hr (3-hr avg)	• Demonstrate compliance by complying with the NESHAP **40 CFR 63** Subpart ZZZZ general requirements listed in 40 CFR 63.6605 and the monitoring, installation, collection, operation, and maintenance requirements listed in 63.6625(e).
Good Combustion Practices	• Demonstrate compliance by complying with the NESHAP **40 CFR 63** Subpart ZZZZ general requirements listed in 40 CFR 63.6605 and the monitoring, installation, collection, operation, and maintenance requirements listed in 63.6625(e).

Response: The $PM_{2.5}$ MR&R document that was included in the control strategies appendix of the SIP has been replaced with Minor Permit AQ0110MSS01 Rev. 1 in the final SIP submittal.

Revisions based on response: $PM_{2.5}$ MR&R replaced by Minor Permit AQ0110MSS01 Rev. 1. Federal requirements in AQ0110MSS01 Rev. 1 are replaced by good combustion practices requirements.

GVEA Comment 35: **Appendix III.D.7.7-1156, $PM_{2.5}$ BACT MR&R for the Boilers.** Please revise the table to ensure consistency with the BACT determination and previous GVEA comments. Please ensure that all requirements are clearly and specifically stated. GVEA is providing specific edits in the table below that may not capture all the changes ADEC must make to ensure consistency with the BACT determinations and previous GVEA comments. These boilers are only used to heat the plant when the generator unit is offline, this occurs 2 to 4 times

per year and total annual runtime is under 200 hours. GVEA proposes to maintain maintenance and tune up records when they occur. GVEA proposes the ongoing CO and O_2 monitoring unnecessary and onerous for these units.

Emissions Units: EU IDs 11 and 12 (5.0 MMBtu/hr Boilers)

Pollutant of Concern: $PM_{2.5}$	
BACT Measure	**Monitoring, Recordkeeping and Reporting Requirements**
0.008 lb/MMBtu (3-hr avg)	• In each Annual Compliance Certification required by the Operating Permit, report the compliance status for this requirement.
Combust Only Propane as Fuel	• Demonstrate compliance by complying with Conditions 7 through 7.3 of Construction Permit AQ0110CPT01 Rev. 1.
Good Combustion Practices ~~and Periodic O_2 Monitoring~~	• Keep records of maintenance conducted on emission units ~~to comply with this BACT measure.~~ • Keep a copy of the manufacturer's ~~and~~ **or** the operator's recommended maintenance procedures. • **Keep records of maintenance conducted on emission units**
	• ~~If manufacturer specifications provide specific recommended combustion settings for CO and O_2 concentrations in the flue gas, at least once during each quarter that the emission unit operates, measure CO and O_2 in the exhaust stream using a portable handheld combustion analyzer and report these values in the following semi-annual operating report required by the Operating Permit.~~

Response: The $PM_{2.5}$ MR&R document that was included in the control strategies appendix of the SIP has been replaced with Minor Permit AQ0110MSS01 Rev. 1 in the final SIP submittal.

Revisions based on response: $PM_{2.5}$ MR&R replaced by Minor Permit AQ0110MSS01 Rev. 1.

Comments on Part 4 of Appendix III.D.7.7 in 2024 Proposed Amendments to the Fairbanks $PM_{2.5}$ Serious SIP: Golden Valley Electric Association North Pole Power Plant SO_2 BACT Monitoring, Recordkeeping, and Reporting (MR&R) Requirements Tables

GVEA Comment 36: **Appendix III.D.7.7-1158 and 1159.** These tables, presenting the SO_2 BACT MR&R requirements, are provided without explanatory text or other context. As a general comment, these tables should be consistent with the BACT determination presented in this appendix.

Response: DEC acknowledges the comment and the detailed revisions requested in each table in the following related comments.

Revisions based on response: See responses to GVEA Comments 37 through 40.

GVEA Comment 37: **Appendix III.D.7.7-1158.** SO_2 BACT MR&R for the Simple Cycle Turbines. Please revise this table to ensure that all requirements are clearly and specifically stated. GVEA is providing specific edits in the table below that may not capture all the changes ADEC must make to ensure consistency with the BACT determinations.

Emission Units: EU IDs 1 and 2 (672 MMBtu/hr (60.5 MW) Simple Cycle Turbines)

Pollutant of Concern: SO_2	
BACT Measure	**Monitoring, Recordkeeping and Reporting Requirements**
Combust Only Ultra Low Sulfur fuel at no more than 0.0015 percent sulfur by weight	• For each shipment of fuel, test sulfur content or keep receipts that specify fuel grade **and** date ~~and time, and quantity of fuel received~~. Keep records of the results of sulfur content tests and receipts for fuel shipments. • Include in each semi-annual operating report **required by the Operating Permit**, a summary of fuel test results or **fuel grades received during** ~~shipping receipts from~~ the reporting period.
Good Combustion Practices	• Keep records of maintenance conducted on emission units ~~to comply with this BACT measure~~. • Keep a copy of the manufacturer's **or** ~~and~~ the operator's recommended maintenance procedures.

Response: For clarity, DEC made the following revisions.

Revisions based on response: The table has been amended according to requested revisions, with exception to the quantity of fuel received and shipping receipts. DEC retained the quantity of fuel received and shipping receipts requirements out of consistency with the revised NAA minor permits and because EPA requested a level of MR&R to make these permits enforceable. DEC revised the summary included in each semi-annual operating report to require a summary of the fuel grade shipping receipts to be consistent with SIP requirements. DEC also revised the MR&R requirements for Good Combustion Practices to match the requirements listed in Minor Permit AQ0110MSS01 Rev. 1.

GVEA Comment 38: **Appendix III.D.7.7-1158. SO_2 BACT MR&R for the Combined Cycle Turbines.** Please revise this table to ensure that all requirements are clearly and specifically stated. GVEA is providing specific edits in the table below that may not capture all the changes ADEC must make to ensure consistency with the BACT determinations.

Emissions Units: EU IDs 5 and 6 (455 MMBtu/hr (43 MW) Combined Cycle Turbines)

Pollutant of Concern: SO_2	
BACT Measure	**Monitoring, Recordkeeping and Reporting Requirements**
Combust Only Ultra Low Sulfur fuel during startup	• For each shipment of fuel, test the sulfur content or keep receipts that specify fuel grade **and** date ~~and time, and quantity of fuel received~~. Keep records of the results of sulfur content tests and receipts for fuel shipments. • Include in each semi-annual operating report **required by the Operating Permit**, a summary of fuel test results or **fuel grades received during** ~~shipping receipts from~~ the reporting period.
Except during startup, limit sulfur content in fuel to 50 ppmw	• For each shipment of fuel, test the sulfur content or keep receipts that specify fuel grade **and** date ~~and time, and quantity of fuel received~~. Keep records of the results of sulfur content tests and receipts for fuel shipments. • Include in each semi-annual operating report, a summary of fuel test results or **fuel grades received during** ~~shipping receipts from~~ the reporting period.
Good Combustion Practices	• Keep records of maintenance conducted on emission units to comply with this BACT measure. • Keep a copy of the manufacturer's **or** ~~and~~ the operator's recommended maintenance procedures.

Response: For accuracy and clarity, DEC made several of the revisions, as requested.

Revisions based on response: The tables have been amended according to requested revisions, with exception of the quantity of fuel and shipping receipts. DEC retained the quantity of fuel received and shipping receipts requirements out of consistency with the revised NAA minor permits and because EPA requested a level of MR&R to make these permits enforceable. DEC revised the summary included in each semi-annual operating report to require a summary of the fuel grade shipping receipts to be consistent with SIP requirements. DEC also revised the MR&R requirements for Good Combustion Practices to match the requirements listed in Minor Permit AQ0110MSS01 Rev. 1.

GVEA Comment 39: **Appendix III.D.7.7-1158, SO_2 BACT MR&R for the Emergency Diesel Engine.** Please revise this table to ensure that all requirements are clearly and specifically stated. GVEA is providing specific edits in the table below that may not capture all the changes ADEC must make to ensure consistency with the BACT determinations. If recordkeeping and reporting requirements should also be included for the BACT requirement for good combustion practices, GVEA suggests that complying with Conditions 40.12 through 40.18 of AQ0110TVP04 Revision 1 would be appropriate.

Emissions Unit: EU ID 7 (400 kW Emergency Diesel Engine)

Pollutant of Concern: SO_2	
BACT Measure	**Monitoring, Recordkeeping and Reporting Requirements**
Limit the sulfur content of the fuel combusted to 0.05 weight percent	• For each shipment of fuel combusted in EU ID 7, keep receipts that specify fuel grade **and date** ~~and quantity of fuel received~~. • Include in each semi-annual operating report **required by the Operating Permit** a summary of the **fuel grades received during the reporting period** ~~record listed above~~.
Good Combustion Practices	• Demonstrate compliance by complying with the NESHAP **40 CFR 63** Subpart ZZZZ general requirements listed in 40 CFR 63.6605 and the monitoring, installation, collection, operation, and maintenance requirements listed in 63.6625(e).
Limit operation to no more than 52 hours per 12 month rolling period	• Demonstrate compliance by complying with Conditions 6 through 6.2 of Construction Permit AQ0110CPT01 Rev. 1.

Response: For accuracy and clarity, DEC made several of the revisions, as requested. DEC needed to include new good combustion practices in the minor permit to be incorporated in the SIP outside of the existing requirements in the operating permit. Therefore, all references to NESHAP Subpart ZZZZ have been removed from the SO_2 MR&R document.

Revisions based on response: The tables have been amended according to requested revisions, with exception of the quantity of fuel and shipping receipts and NESHAP Subpart ZZZZ. DEC retained the quantity of fuel received and shipping receipts requirements out of consistency with the revised NAA minor permits and because EPA requested a level of MR&R to make these permits enforceable. DEC revised the summary included in each semi-annual operating report to require a summary of the fuel grade shipping receipts to be consistent with SIP requirements. DEC also removed references to NESHAP Subpart ZZZZ and replaced them with the good combustion practices requirements for the emergency engine contained in Minor Permits AQ0110MSS01 Rev. 1. The MR&R requirement for the limited operation was revised from Conditions 6 through 6.2 of Construction Permit AQ0110CPT01 Rev. 1 to Condition 7.1.b of Minor Permit AQ0110MSS01 Rev. 1.

GVEA Comment 40: **Appendix III.D.7.7-1159. SO_2 BACT MR&R for the Boilers**. Please revise the table to ensure consistency with the BACT determination and previous GVEA comments. Please ensure that all requirements are clearly and specifically stated. GVEA is providing specific edits in the table below that may not capture all the changes ADEC must make to ensure consistency with the BACT determinations and previous GVEA comments. GVEA is unsure of the origin of the 120 ppmv sulfur limit for propane. HD 5 or "consumer grade" propane is the most common and highest-grade propane commonly available for use with specifications defined by the Gas Processors Association and has a sulfur content specification of not more than 165 ppmv.

Emissions Units: EU IDs 11 and 12 (5.0 MMBtu/hr Boilers)

Pollutant of Concern: SO_2	
BACT Measure	**Monitoring, Recordkeeping and Reporting Requirements**
Combust only propane with a total sulfur content of no more than 120 ppmv, or direct emissions of 0.75 lb/1,000 gal;	• For each shipment of fuel, ~~test the sulfur content or~~ keep receipts that specify **the date and type of fuel received** ~~fuel grade, date and time, and quantity of fuel received~~. Keep records of the results of sulfur content tests and receipts for fuel shipments. • Alternatively, conduct a stack test to directly measure SO_2 emissions and report results in lb/1,000 gal of fuel combusted. • Include in each semi-annual operating report **required by the Operating Permit,** a summary of ~~fuel test results or~~ **the types of fuel received during** ~~shipping receipts from~~ the reporting period.
Good Combustion Practices	• Keep records of maintenance conducted on emission units ~~to comply with this BACT measure~~. • Keep a copy of the manufacturer's **or** ~~and~~ the operator's recommended maintenance procedures.

Response: For accuracy and clarity, DEC made several of the revisions, as requested. The 120 ppmv sulfur limit originated in Condition 7 of Construction Permit AQ0110CPT01 Rev. 1 and was cited in the GVEA North Pole Power Plant BACT proposal.

Revisions based on response: The tables have been amended according to requested revisions, with exception of the quantity of fuel received and shipping receipts. DEC retained the quantity of fuel received and shipping receipts requirements out of consistency with the revised NAA minor permits and because EPA requested a level of MR&R to make these permits enforceable. DEC revised the summary included in each semi-annual operating report to require a summary of the fuel grade shipping receipts to be consistent with SIP requirements. DEC revised the MR&R requirements for the Good Combustion Practices to match those listed in Minor Permit AQ0110MSS01 Rev. 1.

Comments on Part 4 of Appendix III.D.7.7 in 2024 Proposed Amendments to the Fairbanks $PM_{2.5}$ Serious SIP: Best Available Control Technology Determination Addendum for Golden Valley Electric Association Zehnder Facility

GVEA Comment 41: **Appendix III.D.7.7-1451, Section 1, third paragraph.** Please revise the third sentence in this paragraph as follows.

> This BACT addendum addresses the EPA's disapproval of the significant emissions units (EUs) listed in the Zehnder ~~f~~**F**acility's operating permit AQ0109TVP04 **Revision 1**.

Response: DEC made the revisions as requested.

Revisions based on response: Third paragraph revised, as given in the comment.

GVEA Comment 42: **Appendix III.D.7.7-1451, Section 1, third paragraph.** The paragraph states that this BACT addendum provides BACT analyses for $PM_{2.5}$ and SO_2 emissions but does not provide an explanation or reference to the SO_2 major source precursor demonstration in Vol. II: III.D.7.8.18. Please add language to this paragraph to ensure that this BACT determination includes the statement that BACT for SO_2 is not required based on the results of the SO_2 precursor demonstration. GVEA notes that similar discussions were included in BACT addenda for other major stationary sources and suggests the following language.

> Since preparing the SIP amendments adopted on November 18, 2020, the Department conducted extensive modeling and found that SO_2 emissions from stationary sources do not significantly contribute to ground level $PM_{2.5}$ concentrations, and that SO_2 BACT emission limits are therefore not required for major stationary sources in the Fairbanks North Star Borough. SO_2 BACT determinations have, however, been included in in this BACT Determination Addendum because the SO_2 major source precursor demonstration has not yet been approved by EPA.
>
> Response: For clarity and consistency, DEC has added the paragraph pertaining to BACT for SO_2 as not required based on the results of the SO_2 precursor demonstration.
>
> Revisions based on response: Added the paragraph, as requested.

GVEA Comment 43: **Appendix III.D.7.7-1454, Section 4.1, RACT/BACT/LAER Clearinghouse (RBLC) Review paragraph.** Please revise the first sentence of this paragraph as follows.

> A review of similar units in the RBLC indicates restrictions on fuel sulfur contents and good combustion practices are the ~~principle~~ **principal** PM control technologies installed on simple cycle gas turbines.
>
> Response: DEC made the revision as requested.
>
> Revisions based on response: RBLC Review paragraph revised, as given in the comment.

GVEA Comment 44: **Appendix III.D.7.7-1456, Section 4.1, Step 5, Selection of $PM_{2.5}$ BACT for the Simple Cycle Gas Turbines, item (c).** Please revise the list of the selected BACT requirements to remove item (c). This performance test requirement is the MR&R to demonstrate compliance with the BACT emission limit. This requirement should not be presented as a separate BACT limit. This BACT determination does not identify this requirement as an available control technology or carry the requirement through the BACT analysis. This report does not provide a rationale for including this requirement as a BACT limit. Note that this requirement is incorporated as a MR&R requirement included in the MR&R addendum tables that follow the BACT determination on page Appendix III.D.7.7-1471.

Response: DEC agrees that MR&R requirements are better suited in Minor Permit AQ0109MSS01 Rev. 2, which is being incorporated into the SIP, rather than in the BACT determination.

Revisions based on response: DEC has removed Step 5, item (c) from this document. All of the MR&R requirements associated with these EUs from Step 5, item (c) are now contained in Minor Permit AQ0109MSS01 Rev. 2.

GVEA Comment 45: **Appendix III.D.7.7-1456, Section 4.1, Table 4-2.** Please revise the control methods in Table 4-2 to capture the BACT selections as follows.

Table 4-2. Comparison of $PM_{2.5}$ BACT for Simple Cycle Gas Turbines at Nearby Power Plants

Facility	Process Description	Capacity	Limitation	Control Method
GVEA – North Pole	Two Fuel Oil-Fired Simple Cycle Gas Turbines	1,344 MMBtu/hr	0.012 lb/MMBtu Error! Bookmark not defined. (3-hour averaging period)	**Limited Operation** **Low Ash Fuel** Good Combustion Practices
GVEA – Zehnder	Two Fuel Oil-Fired Simple Cycle Gas Turbines	536 MMBtu/hr	0.012 lb/MMBtu Error! Bookmark not defined. (3-hour averaging period)	**Low Ash Fuel** Good Combustion Practices

Response: DEC added control methods to be consistent with the BACT determinations.

Revisions based on response: Appendix III.D.7.7-1456, Section 4.1, Table 4-2 was revised as shown above.

GVEA Comment 46: **Appendix III.D.7.7-1458, Section 4.2, Step 1, item (f).** The statement in item (f) of this section is imprecise and unclear. The RACT/BACT/LAER Clearinghouse (RBLC) is an information source to consider when identifying available control technologies. Listings in the RBLC do not impose requirements, but, instead, provide information about BACT determinations made by air quality permitting agencies. Per EPA guidance, a New Source Performance Standard (NSPS) defines the minimal level of control to be considered in the BACT analysis. GVEA is providing proposed language consistent with the BACT analysis for EU 7 at the GVEA North Pole Power Plant. Zehnder EUs 3 and 4 are subject to certain requirements under 40 CFR 63 Subpart ZZZZ, a regulation under the National Emission Standard for Hazardous Air Pollutants (NESHAP) but are not subject to emission standards in Subpart ZZZZ. Zehnder EUs 3 and 4 are not subject to the NSPS in 40 CFR 60 Subpart IIII. Please revise the language in (f) as follows to improve the accuracy of this statement.

~~RBLC NOx determinations for federal emission standards require the engines meet the requirements of 40 C.F.R. 60 NSPS Subpart IIII, 40 C.F.R. 63 Subpart ZZZZ, non-road engines (NREs), or EPA tier certifications.~~ NSPS Subpart IIII applies to stationary compression ignition internal combustion engines that are manufactured or reconstructed

after July 11, 2005. ~~The Department considers meeting the technology based New Source Performance Standards (NSPS) as a technically feasible control technology for the large diesel fired engines.~~ Due to EUs 3 and 4 not being subject to either 40 C.F.R. 60 Subpart IIII or 40 C.F.R. 63 Subpart ZZZZ emission standards, the Department does not consider federal emission standards a technically feasible control technology for the large diesel-fired engines.

Response: The proposed edits more succinctly describes the applicability of the federal rules to EUs 3 and 4.

Revisions based on response: Appendix III.D.7.7-1458, Section 4.2, Step 1, item (f) was revised as commented.

GVEA Comment 47: **Appendix III.D.7.7-1459, Section 4.2, Step 5 – Selection of $PM_{2.5}$ BACT for the Large Diesel-Fired Engines, item (d).** The requirement to comply with 40 CFR 63 Subpart ZZZZ is the MR&R requirement to demonstrate compliance with the numerical BACT emission limit. This requirement should not be presented as a separate BACT limit. This BACT determination does not identify this requirement as an available control technology or carry it through the BACT analysis. This report does not provide a rationale for including this requirement as a BACT limit. Note that this requirement is incorporated as a MR&R requirement included in the MR&R addendum tables that follow the BACT determination on page Appendix III.D.7.7-1471.

Response: DEC agrees with the comment.

Revisions based on response: DEC removed item (d) from Section 4.2, Step 5 as requested. All of the MR&R requirements associated with these EUs from Step 5, item (d) are now contained in Minor Permit AQ0109MSS01 Rev. 2.

GVEA Comment 48: **Appendix III.D.7.7-1459, Section 4.2, Table 4-4.** Please revise the Limitation entries in this table to include the averaging periods for the emission limits. Please revise the Control Methods entry for the GVEA North Pole engines to include "limited operation," consistent with the BACT determination for North Pole.

Response: DEC agrees that the inclusion of averaging periods is appropriate.

Revisions based on response: Table 4-4 revised, as commented to include 3-hour averaging periods for the emission rates.

GVEA Comment 49: **Appendix III.D.7.7-1461, Section 4.3, Step 5, Selection of $PM_{2.5}$ BACT for the Diesel-Fired Boilers, item (b).** Please revise the list of the selected BACT requirements to remove item (b). The requirement to comply with 40 CFR 63 Subpart JJJJJJ is the MR&R requirement to demonstrate compliance with the numerical BACT emission limit. This

requirement should not be presented as a separate BACT limit. This BACT determination does not identify this requirement as an available control technology or carry it through the BACT analysis. This report does not provide a rationale for including this requirement as a BACT limit. Note that this requirement is incorporated as a MR&R requirement included in the MR&R addendum tables that follow the BACT determination on page Appendix III.D.7.7-1472.

Response: DEC agrees with the comment.

Revisions based on response: DEC removed item (b) of Section 4.3, Step 5. All of the MR&R requirements associated with these EUs from Step 5, item (b) are now contained in Minor Permit AQ0109MSS01 Rev. 2.

GVEA Comment 50: **Appendix III.D.7.7-1461, Section 4.3, Table 4-6.** Please revise the Limitation entries in this table to include the averaging period for the emission limits.

Response: DEC agrees that the inclusion of an averaging period is appropriate.

Revisions based on response: Table 4-6 was revised to include a 3-hr averaging period for the emissions limits.

GVEA Comment 51: **Appendix III.D.7.7-1461-1469, Section 5, BACT Determination for SO_2.** As previously noted, GVEA supports the SO_2 major source precursor demonstration (presented in Vol. II: III.D.7.8.18). Should that precursor demonstration be unapproved GVEA does not believe the SO_2 BACT as found is technically or economically feasible. At every opportunity GVEA wishes to reinforce and ask ADEC to be aware of the limitations of the in-state refining both in total capacity and capacity per grade of fuel. In addition, there are seasonal pressures (low temperatures, North Slope winter activities, and military activities) that put extreme competitive pressure on certain fuel grades. There are also constraints on the movement of fuel within the State, limits to rail capacity and truck capacity. There are step thresholds that consumption above will require the import of fuel from the lower 48 where the refining of arctic grade fuel (fuel that does not gel in cold temperatures) is not prevalent.

Response: DEC acknowledges the potential difficulty in securing uninterrupted fuel supply that may arise from a sudden increase in demand of ULSD in the interior of Alaska due to BACT requirements.

Revisions based on response: None.

GVEA Comment 52: **Appendix III.D.7.7-1464, Section 5.1, Step 4, Department Evaluation of BACT for SO_2 Emissions from the Simple Cycle Gas Turbines.** Please revise the reference to a "sulfur limit" in this paragraph to "SO_2 emission limit" for accuracy and clarity.

Response: DEC made the revisions as requested for accuracy and clarity.

Revisions based on response: Reference revised, as given in the comment.

GVEA Comment 53: **Appendix III.D.7.7-1464, Section 5.1, Step 5, Selection of BACT for the Simple Cycle Gas Turbines, item (c).** Please delete item (c) from the list of selected BACT requirements. The requirement to document the sulfur content of fuel shipments is the MR&R requirement to demonstrate compliance with the BACT fuel sulfur content limit. This requirement should not be presented as a separate BACT limit. This BACT determination does not identify this requirement as an available control technology or carry it through the BACT analysis. This report does not provide a rationale for including this requirement as a BACT limit. Note that this requirement is incorporated as a MR&R requirement included in the MR&R addendum tables that follow the BACT determination on page Appendix III.D.7.7-1473.

Response: DEC agrees that MR&R requirements are better suited in the SO_2 MR&R document which is being incorporated into the SIP rather than the BACT determination.

Revisions based on response: DEC has removed Step 5, item (c) from this document. All of the MR&R requirements associated with these EUs from Step 5, item (c) are now contained in the GVEA SO_2 MR&R document.

GVEA Comment 54: **Appendix III.D.7.7-1464, Section 5.1, Table 5-4.** Please revise the Control Method entries in Table 5-4 to include the requirement for "Good Combustion Practices" for both North Pole and Zehnder.

Response: DEC made the revisions as requested.

Revisions based on response: Table 5-4 revised, as given in the comment.

GVEA Comment 55: **Appendix III.D.7.7-1465, Section 5.2, Step 1, item (b).** The statement in item (b) of this section is imprecise and unclear. Federal emissions standards are applicable to certain emissions units that are subject to federal regulations. Zehnder EUs 3 and 4 are subject to certain requirements under 40 CFR 63 Subpart ZZZZ, a regulation under the NESHAP but are not subject to emission standards in Subpart ZZZZ. Zehnder EUs 3 and 4 are not subject to the NSPS requirements in 40 CFR 60 Subpart IIII. GVEA is providing proposed language similar to the ADEC BACT determination for EU 7 at the GVEA North Pole Power Plant. Please revise the language in item (b) as follows to improve the accuracy of this statement.

~~The federal emission standards require the engines meet the requirements of 40 C.F.R. 60 NSPS Subpart IIII, 40 C.F.R 63 Subpart ZZZZ, non-road engines (NREs), or EPA tier certifications.~~ NSPS Subpart IIII applies to stationary compression ignition internal combustion engines that are manufactured or reconstructed after July 11, 2005. ~~The Department considers meeting the technology based New Source Performance Standards (NSPS) of Subpart IIII as a technically feasible control technology for the large diesel-fired engines.~~ Due to EUs 3 and 4 not being subject to either 40 C.F.R. 60 Subpart IIII or 40 C.F.R. 63 Subpart ZZZZ emission standards, the

Department does not consider federal emission standards a technically feasible control technology for the large diesel-fired engines.

Response: DEC changed the language to improve the accuracy of the statement. EU IDs 3 and 4 are subject to 40 C.F.R. 63 Subpart ZZZZ.

Revisions based on response: Appendix III.D.7.7-1465, Section 5.2, Step 1, item (b) was revised to clarify EU IDs 3 and 4 are not subject to 40 C.F.R. 60 Subpart IIII, and 40 C.F.R. 63 Subpart ZZZZ does not include emission standards for SO_2.

GVEA Comment 56: **Appendix III.D.7.7-1467, Section 5.2, Step 5, Selection of SO_2 BACT for the Large Diesel-Fired Engines, item (d).** Please delete item (d) from the list of selected BACT requirements. The requirement to document the sulfur content of fuel shipments is the MR&R requirement to demonstrate compliance with the BACT fuel sulfur content limit. This requirement should not be presented as a separate BACT limit. This BACT determination does not identify this requirement as an available control technology or carry the requirement through the BACT analysis. This report does not provide a rationale for including this requirement as a BACT limit. Note that this requirement is incorporated as a MR&R requirement included in the MR&R addendum tables that follow the BACT determination on page Appendix III.D.7.7-1473.

Response: See the response to GVEA Comment 53 above.

Revisions based on response: DEC has removed Step 5, item (d) from this document. All of the MR&R requirements associated with these EUs from Step 5, item (d) are now contained in the GVEA SO_2 MR&R document.

GVEA Comment 57: **Appendix III.D.7.7-1467, Section 5.2, Table 5-7.** Please revise Table 5-7 as follows to correctly reflect the control methods and BACT limits for the GVEA North Pole and Zehnder engines.

Table 5-7. Comparison of SO_2 BACT for Large Diesel-Fired Engines at Nearby Power Plants

Facility	Process Description	Capacity	Limitation	Control Method
Fort Wainwright	8 Large Diesel-Fired Engines	> 500 hp	15 ppmw S in fuel	Limited Operation Good Combustion Practices Ultra-Low Sulfur Diesel
UAF	Large Diesel-Fired Engine	13,266 hp	15 ppmw S in fuel	Limited Operation Good Combustion Practices Ultra-Low Sulfur Diesel
GVEA North Pole	Large Diesel-Fired Engine	600 hp	~~15~~ **500** ppmw S in fuel	Limited Operation **Low Sulfur Diesel** Good Combustion Practices
GVEA Zehnder	2 Large Diesel-Fired Engines	11,000 hp	15 ppmw S in fuel	Good Combustion Practices

Facility	Process Description	Capacity	Limitation	Control Method
				Limited Non-emergency Operation Ultra-Low Sulfur Diesel

Response: DEC acknowledges the typographical error.

Revisions based on response: Table 5-7 has been amended to correct the fuel sulfur requirement to 500 ppmw.

GVEA Comment 58: **Appendix III.D.7.7-1469, Section 5.3, Step 5, Selection of SO_2 BACT for the Diesel-Fired Boilers, item (c).** Please delete item (c) from the list of selected BACT requirements. The requirement to document the sulfur content of fuel shipments is the MR&R requirement to demonstrate compliance with the BACT fuel sulfur content limit. This requirement should not be presented as a separate BACT limit. This BACT determination does not identify this requirement as an available control technology or carry the requirement through the BACT analysis. This report does not provide a rationale for including this requirement as a BACT limit. Note that this requirement is incorporated as a MR&R requirement included in the MR&R addendum tables that follow the BACT determination on page Appendix III.D.7.7-1473.

Response: See the response to GVEA Comment 53 above.

Revisions based on response: DEC has removed Step 5, item (c) from this document. All of the MR&R requirements associated with these EUs from Step 5, item (c) are now contained in the GVEA SO_2 MR&R document.

GVEA Comment 59: **Appendix III.D.7.7-1470, Tables 6-1 through 6-3.** These tables are presented as a "BACT determination summary," and are provided without explanatory text or other context.

Response: See response to UAF Comment 5.

Revisions based on response: None.

GVEA Comment 60: **Appendix III.D.7.7-1470, Section 6, Table 6-2.** Please revise the entries in the Proposed BACT Limit fields in this table to include the three-hour averaging period for each of the emission limits, per the BACT determinations in Section 4. As a general comment, GVEA is concerned that any numerical BACT emission limit listed in this table or any another table for any sized emission unit, will become a federally enforceable limit with compliance only truly demonstrated through source testing. Previous comments on the $PM_{2.5}$ emission limit for North Pole and Zehnder gas turbines have addressed GVEA's concern with the practice of applying an AP-42 emission factor as an enforceable limit for all conditions and all times of unit operation. There is no basis that these are technically achievable. For a numerical emission rate limit, as opposed to an operational limit "good combustion practices") the only way to determine compliance is through a source performance test. Sources cannot determine compliance with the limit through non-testing means and should not be placed in the position of certifying that they are in compliance with a numerical limit based on non-testing means. Preliminary testing of the Zehnder gas turbines indicates they will not meet the proposed emission limit. There is no assurance that testing requirements for EUs 3, 4 , 10 and 11 will not be required in the future after a numerical limit has become enforceable. Where numerical limits are utilized, GVEA encourages ADEC to carefully consider whether they are technically feasible, and to apply operational limitations where appropriate and without setting sources up with unachievable permit limits.

Response: DEC agrees that the inclusion of averaging periods is appropriate.

Revisions based on response: Tables 6.2 for the North Pole and Zehnder Power Plants corresponding BACT determination have been amended to indicate that the limits listed are on a 3-hr averaging period.

GVEA Comment 61: **Appendix III.D.7.7-1470, Section 6, Table 6-3.** Please revise the Proposed BACT Control entry for EUs 1 and 2 in this table to include "Good Combustion Practices," per item (b) of the BACT determination in Section 5.1.

Response: DEC added a proposed BACT control to be consisted with the BACT determinations.

Revisions based on response: Appendix III.D.7.7-1470, Section 6, Table 6-3 was revised to include "Good Combustion Practices" as a Proposed BACT Control for EU IDs 1 and 2.

Comments on Part 4 of Appendix III.D.7.7 in 2024 Proposed Amendments to the Fairbanks $PM_{2.5}$ Serious SIP: Golden Valley Electric Association Zehnder Facility $PM_{2.5}$ BACT Monitoring, Recordkeeping, and Reporting (MR&R) Requirements Tables

GVEA Comment 62: **Appendix III.D.7.7-1471 and 1472.** These tables, presenting the $PM_{2.5}$ BACT MR&R requirements, are provided without explanatory text or other context. As a general comment, these tables should be consistent with the BACT determination presented in this appendix.

Response: DEC acknowledges the comment and the detailed revisions requested in each table in the following related comments.

Revisions based on response: See responses to GVEA Comments 63 through 65.

GVEA Comment 63: **Appendix III.D.7.7-1471, $PM_{2.5}$ BACT MR&R for the Simple Cycle Turbines.** Please revise the table to ensure consistency with the BACT determination and previous GVEA comments. Please ensure that all requirements are clearly and specifically stated. GVEA is providing specific edits in the table below that may not capture all the changes ADEC must make to ensure consistency with the BACT determinations and previous GVEA comments. The existing permit (AQ0109MSS01 Rev 1) requires testing at three loads, as does the draft permit AQ0109MSS01 Rev 2. The permits are not consistent with the requirement proposed here. The proposed emission limit is derived from an AP-42 emission factor which specifically states an applicability to gas turbines operating under high load (> 80%), thus this limit should not be applicable to testing conducted at low and mid loads, please see the general comments for **Volume II, Section III.D.7.7.** for more detail. There is no basis for obtaining CO and O2 concentrations with a handheld analyzer, what correlation exists with "good combustion practices", what variation is allowable, or what corrective action thresholds might apply.

Emission Units: EU IDs 1 and 2 (268 MMBtu/hr (18.4 MW) Simple Cycle Turbines)

Pollutant of Concern: $PM_{2.5}$	
BACT Measure	**Monitoring, Recordkeeping and Reporting Requirements**
0.012 lb/MMBtu (3-hr avg);	• In each Annual Compliance Certification required by the Operating Permit, report the compliance status for this requirement. • Conduct a one-time performance test at the maximum achievable load to demonstrate compliance and submit results to the Department.
Combust Only Low Ash (Distillate) Fuel	• For each shipment of fuel combusted, keep receipts that specify fuel grade ~~and quantity of fuel received~~ **and date**. • Include a statement in each operating report required by the Operating Permit, affirming that the fuel delivered was a low ash (distillate) fuel.
Good Combustion Practices	• Keep records of maintenance conducted on emission units ~~to comply with this BACT measure~~. • Keep a copy of the manufacturer's or ~~and~~ the operator's recommended maintenance procedures. • ~~If manufacturer specifications provide specific recommended combustion settings for CO and O_2 concentrations in the flue gas, at least once during each quarter that the emission unit operates, measure CO and O_2 in the exhaust stream using a portable handheld combustion analyzer and report these values in the following semi-annual operating report required by the Operating Permit.~~

Response: The $PM_{2.5}$ MR&R document that was included in the control strategies appendix of the SIP has been replaced with Minor Permit AQ0109MSS01 Rev. 2 in the final SIP submittal.

Revisions based on response: $PM_{2.5}$ MR&R replaced by Minor Permit AQ0109MSS01 Rev. 2.

GVEA Comment 64: **Appendix III.D.7.7-1471, $PM_{2.5}$ BACT MR&R for the Emergency Diesel Engines.**

a) Please revise the MR&R requirement for the BACT requirement of limited operation to remove the phrase "emission limitations." These engines are not subject to any emission limits in 40 CFR 63 Subpart ZZZZ.
b) If recordkeeping and reporting requirements should also be included for the emission limit of 0.32 g/hp-hr and the BACT requirement for good combustion practices, GVEA suggests that complying with Conditions 23 and 24 of Permit AQ0109TVP04 Revision 1 would be appropriate.

Response: The $PM_{2.5}$ MR&R document that was included in the control strategies appendix of the SIP has been replaced with Minor Permit AQ0109MSS01 Rev. 2 in the final SIP submittal.

Revisions based on response: $PM_{2.5}$ MR&R replaced by Minor Permit AQ0109MSS01 Rev. 2.

GVEA Comment 65: **Appendix III.D.7.7-1472, $PM_{2.5}$ BACT MR&R for the Boilers.**

a) Please revise the BACT emission limit from "0.16 lb/MMBtu/hr" to reflect the correct BACT limit of "0.016 lb/MMBtu," per the BACT determination in Section 4.3.
b) If recordkeeping and reporting requirements should also be included for the emission limit of 0.016 lb/MMBtu and the BACT requirement for good combustion practices, GVEA suggests that complying with Conditions 28 and 29 of Permit AQ0109TVP04 Revision 1 would be appropriate.

Response: The $PM_{2.5}$ MR&R document that was included in the control strategies appendix of the SIP has been replaced with Minor Permit AQ0109MSS01 Rev. 2 in the final SIP submittal.

Revisions based on response: $PM_{2.5}$ MR&R replaced by Minor Permit AQ0109MSS01 Rev. 2.

Comments on Part 4 of Appendix III.D.7.7 in 2024 Proposed Amendments to the Fairbanks $PM_{2.5}$ Serious SIP: Golden Valley Electric Association Zehnder Facility SO_2 BACT Monitoring, Recordkeeping, and Reporting (MR&R) Requirements Tables

GVEA Comment 66: **Appendix III.D.7.7-1471 and 1472.** These tables, presenting the SO_2 BACT MR&R requirements, are provided without explanatory text or other context. As a general comment, these tables should be consistent with the BACT determination presented in this appendix.

Response: DEC acknowledges the comment and the detailed revisions requested in each table in the following related comments.

Revisions based on response: See responses to GVEA Comments 67 through 69.

GVEA Comment 67: **Appendix III.D.7.7-1473.** SO_2 BACT MR&R for the Simple Cycle Turbines. Please revise this table to ensure that all requirements are clearly and specifically stated. GVEA is providing specific edits in the table below that may not capture all the changes ADEC must make to ensure consistency with the BACT determinations.

Emission Units: EU IDs 1 and 2 (268 MMBtu/hr (18.4 MW) Simple Cycle Turbines)

Pollutant of Concern: SO_2	
BACT Measure	**Monitoring, Recordkeeping and Reporting Requirements**
Combust Only Ultra Low Sulfur fuel at no more than 0.0015 percent sulfur by weight	• For each shipment of fuel, test the sulfur content or keep receipts that specify fuel grade **and** date ~~and time, and quantity of fuel received~~. Keep records of the results of sulfur content tests and receipts for fuel shipments. • Include in each semi-annual operating **report required by the Operating Permit**, a summary of fuel test results or **fuel grades received during** ~~shipping receipts from~~ the reporting period.
Good Combustion Practices	• Keep records of maintenance conducted on emission units ~~to comply with this BACT measure~~. • Keep a copy of the manufacturer's **or** ~~and~~ the operator's recommended maintenance procedures.

Response: For accuracy and clarity, DEC made several of the revisions, as requested.

Revisions based on response: The tables have been amended according to requested revisions, with exception of the quantity of fuel and shipping receipts received. DEC retained the quantity of fuel received and shipping receipts requirements out of consistency with the NAA minor permits and because EPA requested a level of MR&R to make these permits enforceable. DEC revised the summary included in each semi-annual operating report to require a summary of the fuel grade shipping receipts to be consistent with SIP requirements. DEC revised the MR&R requirements for Good Combustion Practices to those listed in AQ0109MSS01 Rev. 2.

GVEA Comment 68: **Appendix III.D.7.7-1473.** SO_2 BACT MR&R for the Emergency Diesel Engines. Please revise this table to ensure that all requirements are clearly and specifically stated. GVEA is providing specific edits in the table below that may not capture all the changes ADEC must make to ensure consistency with the BACT determinations. As explained in previous comments, the emergency engines are not subject to emission limits under 40 CFR 63. If recordkeeping and reporting requirements should be included for the BACT measure of Good Combustion Practices, GVEA suggests that complying with Conditions 23 and 24 of AQ0109TVP04 Revision 1 would be appropriate.

Emission Units: EU IDs 3 and 4 (28.5 MMBtu/hr (2.75 MW) Emergency Diesel Engines)

Pollutant of Concern: SO_2	
BACT Measure	**Monitoring, Recordkeeping and Reporting Requirements**
Combust Only Ultra Low Sulfur fuel at no more than 0.0015 percent sulfur by weight	• For each shipment of fuel, test the sulfur content or keep receipts that specify fuel grade **and** date ~~and time, and quantity of fuel received~~. Keep records of the results of sulfur content tests and receipts for fuel shipments. • Include in each semi-annual operating report **required by the Operating Permit**, a summary of fuel test results or **fuel grades received during** ~~shipping receipts from~~ the reporting period.
Limited Operation (100 hours of non-emergency operation per year)	• Demonstrate compliance by complying with the NESHAP Subpart ZZZZ ~~emissions limitations,~~ operating limitations, and other requirements listed in 40 CFR 63.6640(f).
Good Combustion Practices	• Demonstrate compliance by complying with the NESHAP Subpart ZZZZ general requirements listed in 40 CFR 63.6605 and the monitoring, installation, collection, operation, and maintenance requirements listed in 63.6625(e).

Response: For accuracy and clarity, DEC made several of the revisions, as requested. DEC needed to include new good combustion practices in the minor permit to be incorporated in the SIP outside of the existing requirements in the operating permit. Therefore, all references to NESHAP Subpart ZZZZ have been removed from the SO_2 MR&R document.

Revisions based on response: The tables have been amended according to requested revisions, with exception of the quantity of fuel received and the shipping receipts and reference to NESHAP Subpart ZZZZ. DEC retained the quantity of fuel received and shipping receipts requirements out of consistency with the NAA minor permits and because EPA requested a level of MR&R to make these permits enforceable. DEC revised the summary included in each semi-annual operating report to require a summary of the fuel grade shipping receipts to be consistent with SIP requirements. DEC also removed references to NESHAP Subpart ZZZZ and replaced them with the good combustion practices requirements for the engines contained in Minor Permits AQ0109MSS01 Rev. 2. DEC revised the MR&R requirements for the limited operation from referencing NESHAP Subpart ZZZZ to itemizing the requirements.

GVEA Comment 69: **Appendix III.D.7.7-1473. SO_2 BACT MR&R for the Boilers.** Please revise this table to ensure that all requirements are clearly and specifically stated. GVEA is providing specific edits in the table below that may not capture all the changes ADEC must make to ensure consistency with the BACT determinations. If recordkeeping and reporting requirements should be included for the BACT measure of Good Combustion Practices, GVEA

suggests that complying with Conditions 28 and 29 of AQ0109TVP04 Revision 1 would be appropriate.

Emission Units: EU IDs 10 and 11 (1.7 MMBtu/hr Boilers)

Pollutant of Concern: SO_2	
BACT Measure	**Monitoring, Recordkeeping and Reporting Requirements**
Combust Only Ultra Low Sulfur fuel at no more than 0.0015 percent sulfur by weight	• For each shipment of fuel, test the sulfur content or keep receipts that specify fuel grade **and** date ~~and time, and quantity of fuel received~~. Keep records of the results of sulfur content tests and receipts for fuel shipments. • Include in each semi-annual operating report **required by the Operating Permit**, a summary of fuel test results or **fuel grades received during** ~~shipping receipts from~~ the reporting period.
Good Combustion Practices	• Demonstrate compliance by complying with the NESHAP Subpart JJJJJJ general requirements listed in 40 CFR 63.11205(a) and the work practice and management practice standards listed in 40 CFR 63.11223 and Item 12 of Table 2 to NESHAP Subpart JJJJJJ.

Response: For accuracy and clarity, DEC made several of the revisions, as requested. DEC needed to include new good combustion practices in the minor permit to be incorporated in the SIP outside of the existing requirements in the operating permit. Therefore, all references to NESHAP Subpart JJJJJJ have been removed from the SO_2 MR&R document.

Revisions based on response: The tables have been amended according to requested revisions, with exception of the quantity of fuel received and shipping receipts and reference to NESHAP Subpart JJJJJJ. DEC retained the quantity of fuel received and shipping receipts requirements out of consistency with the NAA minor permits and because EPA requested a level of MR&R to make these permits enforceable. DEC revised the summary included in each semi-annual operating report to require a summary of the fuel grade shipping receipts to be consistent with SIP requirements. DEC also removed references to NESHAP Subpart JJJJJJ and replaced them with the good combustion practices requirements for the boilers contained in Minor Permits AQ0109MSS01 Rev. 2.

Citizens for Clean Air (CCA) Comments

Summary of Comments: Citizens for Clean Air (CCA) and many others are concerned that wind energy is not being used or included in current plans. CCA remains concerned about the state's refusal to subsidize electricity for use in home heating during bad air quality or alert days. CCA is concerned that monitoring of emissions from mobile sources (trucks) traveling through the nonattainment area is insufficient. They would like to know how DEC monitors emissions and tire pollution from these trucks. CCA wonders how modeling will be useful if inputs are not accurate. They believe that contacting truck companies and DOT&PF would help with the number of trucks and their sizes. CCA stated that continued increase in electric rates will likely increase more space heating, and thus calls for increase in effective, fair, and lawful enforcement. They mentioned that enforcement of control measures related to burning in the nonattainment area is seriously lacking. CCA noted that many foreign companies like Kinross and Contango operate within the FNSB nonattainment area and that all mining sources only contributed about 0.04 to the state coffers in 2021 towards enforcement enhancement. CCA believes that Alaska citizens and FNSB residents should have priority over foreign companies. They mentioned that the state claims it cannot afford the cost of BACT for the existing point sources in the nonattainment area, yet some federal highway dollars are used to maintain roads along the ore haul route. CCA stated that SO_2 from coal burning combines with formaldehyde from wood burning to form hydroxymethanesulfonate (HMS) in high percentages. Hence, they would like to know why SO_2 is being re-permitted in a minor permit process to previous higher concentrations at all the point sources. Also, they wanted to why SO_2 is not getting the same scrutiny as $PM_{2.5}$. CCA stated that another 10-year contract signed by GVEA to purchase coal from Usibelli Coal Mine indicates that majority of the base-load power will be generated for at least 10 more years. They are worried how this will help with cleaner air by 2027. They also wanted to know what clean source of power and home heating will alleviate the continued seriously bad air quality. Given the several health risks associated with bad air quality, CCA believes that SIP should be protective of human health, as breathing is not optional.

> Response: DEC appreciates the comments and agrees that particulate pollution has serious public health impacts. The regulation of $PM_{2.5}$ and other pollutants by the EPA and DEC in the state seeks to address public health issues including breathing disorders, exacerbated heart conditions, pre-term birth, premature mortality, and other illnesses, which may arise from the inhalation of $PM_{2.5}$ pollutants. The SIP itself is meant to reduce air pollution to healthy levels and gain health benefits for individuals in the community.
>
> DEC understands CCA's concerns about increased electric rates. However, electricity subsidies are at the discretion of the state legislature. DEC monitors emissions from mobile sources by setting motor vehicle emission budgets (MVEBs) in the SIP. MVEBs are tied to the attainment demonstration in the SIP and its underlying emissions inventory and essentially cap the amount of future year on-road vehicle emissions growth that can occur under subsequently developed long-range transportation plans developed for Fairbanks by the Metropolitan Planning Organization, for Fairbanks Area Surface Transportation (FAST) Planning. MVEBs are developed from on-road motor vehicle

activity inputs (e.g., VMT by vehicle type, speed distributions, and road type VMT distributions), vehicle populations, and temporal profiles using EPA's Emissions Model (MOVES). Specifically, DEC developed the vehicle activity inputs for the 2024 Amendment Serious SIP's MVEBs from travel demand model outputs used in the FAST Planning Final 2045 Metropolitan Transportation Plan (MTP) update. The travel demand model accounted for all vehicle travels, including the Kinross ore hauling activities. Also, the 2023 FAST transportation conformity analysis of the 2045 MTP update accounted for the 2024-2028 planned Kinross ore hauling truck activity and captured the impacts. The update included the number of roundtrips, truck configuration, and weight. As shown in Table 5-1, the $PM_{2.5}$ and NOx emissions without and with Kinross heavy-duty diesel truck activity were below the calculated MVEBs.[14]

Table 5-1
$PM_{2.5}$ Conformity Test Results

Analysis Year	$PM_{2.5}$ (tons per day)	$PM_{2.5}$ Emissions ≤ Budget?	NOx (tons per day)	NOx Emissions ≤ Budget?
Budget	**0.33**		**2.13**	
2022	0.0558	**Yes**	0.794	**Yes**
2024, No Kinross	0.0534	**Yes**	0.698	**Yes**
2024, With Kinross	0.0547	**Yes**	0.755	**Yes**
2028, No Kinross	0.0554	**Yes**	0.629	**Yes**
2028 With Kinross	0.0563	**Yes**	0.677	**Yes**
2035	0.0566	**Yes**	0.536	**Yes**
2045	0.0596	**Yes**	0.529	**Yes**

The comment that enforcement of control measures related to burning in the nonattainment area is seriously lacking is unsupported. DEC staff start the compliance process by using compliance assistance activities to help individuals and businesses understand the regulatory requirements and how they can comply. When compliance assistance is not successful in resolving a compliance issue, department staff have a variety of administrative enforcement tools they can use such as written notices of violation, compliance agreements, nuisance abatement orders, inspection warrants, injunctive remedies, and civil and criminal enforcement actions. DEC's current approach is to follow compliance assistance with notices of violation and expedited settlement agreements to resolve curtailment non-compliance.

It is true that SO_2 combines with formaldehyde to form HMS, one of the pathways to secondary sulfate production. Notably, this pathway is different for different locations within the nonattainment area and change under different meteorological conditions.[15] Since SO_2 is a $PM_{2.5}$ precursor, it receives the same scrutiny as $PM_{2.5}$. The SO_2 precursor for major stationary source sector demonstration by DEC, however, reveals that SO_2 emissions from all the major sources within the FNSB nonattainment area do not contribute significantly to $PM_{2.5}$ levels.[16] The largest source of SO_2 emissions near the

[14] https://fastplanning.us/wp-content/uploads/2023/03/2045_MTP_Update_Air_Quality_Conformity_Final_Report.pdf
[15] https://egusphere.copernicus.org/preprints/2024/egusphere-2024-1550/egusphere-2024-1550.pdf

[16] https://dec.alaska.gov/air/anpms/communities/fbks-pm2-5-2024-proposed-amendment-serious-sip/

surface are from space heating (residential and business buildings) and the SO_2 emissions were decreased by implementing a control measure that all space heating must use fuel oil number 1 (lower sulfur content) instead of 2. The only SO_2 sector not subject to controls is the major stationary source sector, the SO_2 emissions are emitted at higher stack level and are found not to produce a significant amount of secondary sulfate, part of $PM_{2.5}$

Funding through Targeted Airshed Grants (TAGs) from EPA provide resources to DEC and FNSB to assist the nonattainment area with conversion of solid fuel heating devices and oil heating appliances to clean fuel source (natural gas/propane), thus assisting with mitigating the bad air quality. DEC is partnering with the Interior Gas Utility (IGU) using FY-2022 TAG to extend gas mainlines and availability of natural gas in FNSB nonattainment area, especially to underserved communities. Depending on availability of more TAG funding, DEC intends to continue the partnership with IGU to extend the distribution of gas mainlines in the area.

Revisions based on response: None

AirVitalize Comments

Summary of Comments: Commenter requested use of existing funding to test and develop new innovations that could lead to the reduction of outdoor air pollution. The commenter requested Section 7.7.10.1 RCD - retrofit control devices be amended to allow for DEC and FNSB to use existing appropriated funding to test any technologies that could reduce outdoor particulate pollution.

Response: The SIP does not explicitly endorse or prohibit funding to testing new control technologies. DEC does not have the power to change the use of appropriated funding, and the SIP is not the appropriate document to do so. The Alaska Legislature has the power to appropriate state funds, and the FNSB Assembly has the power to appropriate Borough funds.

DEC only considers proven control technologies for implementation in the nonattainment area. Development of new innovative control technologies is not required under the CAA or the Final $PM_{2.5}$ implementation rule.

Revisions based on response: None.

Hearth, Patio, and Barbeque Association Comments

Summary of Comments: Commenter concerned about the provisions that call for a rolling retirement of EPA certified wood stoves that are 25 years old and have a certification emission rating of 2.0 grams per hour (g/hr) or greater. Commenter cites a perceived lack of data to justify the provisions.

> Response: The provisions the commenter is concerned about were not out for public comment. Those provisions were established in 18 AAC 50.077(n) as a contingency measure for the Serious SIP submission in 2019. The public comment period for that contingency measure ended on July 26, 2019. The SIP was adopted by the State of Alaska on November 19, 2019. The contingency measure was triggered on October 2, 2020, by EPA's finding that the area failed to attain the standard by the outermost serious area attainment date of December 31, 2019.
>
> Revisions based on response: None.

Appendix A – GVEA, Zehnder Facility RTC

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Response To Comments on Preliminary Minor Permit AQ0109MSS01 Rev. 2
Golden Valley Electric Association, Zehnder Facility
Public Comment Closing Date: October 22, 2024

Prepared by Dave Jones on October 28, 2024

This document provides the Alaska Department of Environmental Conservation's (Department's) responses to all public comments on the preliminary decision to issue Air Quality Control Minor Permit No. AQ0109MSS01 Rev. 2 for the Golden Valley Electric Association's Zehnder Facility at 64º 51′ 15" North; 147º 43′ 30" West (758 Illinois St, Fairbanks, AK). The Department provided an opportunity for public comment beginning September 20, 2024 and ending October 22, 2024. Comments were received via email from the Golden Valley Electric Association on October 22, 2024. These comments appear exactly as submitted.

In quoting text from the preliminary permit and Technical Analysis Report (TAR) as part of response or comment, the following text formatting are used to indicate how revisions are made: <u>underlined</u> text means text to be added while ~~strike-through~~ text means text to be deleted.

A. Comments from Golden Valley Electric Association

<u>Permit:</u>

1. **General comment:** This permit incorporates the $PM_{2.5}$ Best Available Control Technology (BACT) requirements identified in the proposed amendments to the $PM_{2.5}$ Serious State Implementation Plan (SIP). Golden Valley Electric Association (GVEA) submitted comments on the proposed SIP amendments on October 7, 2024, which are incorporated herein by this reference. The GVEA comments specifically address the BACT determinations for the emissions units at the North Pole Power Plant and the Zehnder Facility. Please ensure that revisions to the SIP based on those comments are also addressed when preparing the final version of this minor air quality permit.

Response: *Comment noted. The Department has verified that revisions to the SIP based on SIP Response to Comments are consistent with the revisions to the minor permit AQ0109MSS01 Revision 2.*

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2. **General Comment:** The proposed permit does not indicate the effective date of certain emissions limits, which should be no sooner than the date that those limits become effective in the SIP. Vol. II: III.D.7.7.13.8.5 (page 184, Table 7.7-45) of the proposed SIP amendments indicates that the effective date is "no later than December 31, 2024." As a result, certain permit emissions limits should not take effect any sooner than the date that the limit becomes effective in the SIP. In addition, Section 7 of the Technical Analysis Report (TAR) to preliminary permit AQ0109MSS01 Revision 2 states that GVEA may not operate under this minor permit until the permit is incorporated into Permit AQ0109TVP04 Revision 2 and that

Title V permit becomes effective. The timelines for effective dates of limits and initial compliance demonstrations should be consistent with the Title V revision process.

Response: *The Permit becomes effective upon issuance. The Department has removed the Effective Date Column from Table 7.7-45 of Chapter 7 that previously stated, "no later than December 31, 2024." This was done because the minor permits are being incorporated into the SIP and there is no longer a need to address a future effective date of when the limits will take effect. Additionally, the Department has re-evaluated the differences between the requirements in the SIP section of Minor Permit AQ0109MSS01 Rev. 2 to the MR&R requirements contained in the SIP section of Operating Permit AQ0109TVP04 Rev. 1, and found that they are complimentary and not contradictory. The newly revised minor permits have the same emission limits as are contained in the existing operating permit. The only difference is that the newly revised minor permits have self-contained MR&R which mirrors the same requirements contained in the existing operating permit for good combustion practices (GCPs) in NESHAP Subparts ZZZZ and JJJJJJ on the engines and boilers and limited operation for the engines contained in NESHAP Subpart ZZZZ. Therefore, the Department changed the wording in the TAR for Minor Permit AQ0109MSS01 Rev. 2 to state that the Permittee may operate under the terms and conditions of the minor permit revision upon issuance. Additionally, the Department will incorporate AQ0109MSS01 Rev. 2 into the operating permit as soon as practicable.*

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3. **Condition 5, Table 2:** ADEC's proposed revisions will, if enacted, codify the $PM_{2.5}$ BACT determinations for GVEA's North Pole Power Plant's and Zehnder Facility's fuel-oil fired turbines. The SIP BACT emission limit of 0.012 lb $PM_{2.5}$/MMBtu on a 3-hour average basis was derived using AP-42 emission factors without the benefit of actual emissions data from these units.[1][2] GVEA and ADEC in good faith concluded that the AP-42 emission factor was an appropriate approximation of $PM_{2.5}$ emissions in the absence of actual emissions data with the understanding that it would be used for general emissions modeling and estimating. Over time, the emissions factor has evolved inappropriately into a permit limit. GVEA notes several instances in the SIP in which similar applications of AP-42 emission factors have evolved into inappropriate permit limits lacking an empirical, site-specific basis for achievability.

   Revision of the North Pole Power Plant and Zehnder Facility minor permit to codify the $PM_{2.5}$ limit includes a requirement to perform a $PM_{2.5}$ source test. The same requirement appeared for the first time in the recent revision of the Zehnder Facility operating permit. GVEA is in the midst of performing the source testing at the Zehnder Facility, and preliminary results indicate Zehnder will fail to achieve the $PM_{2.5}$ emission limit. GVEA has conducted no PM emission testing at the North Pole Power Plant and has no indication of whether emissions from the plant can meet the proposed limit. ADEC should recognize the

[1] See Amendments to State Air Quality Control Plan Vol. II: III.D.7.7 Control Strategies Public Notice Draft August 19, 2024, Section 7.7.8.4.2, PM2.5 Control Analysis for Zehnder Facility, Footnote 5 referencing Table 3.1-2a of US EPA's AP-42 Emission Factors, https://www3.epa.gov/ttnchie1/ap42/ch03/final/c03s01.pdf.
[2] GVEA notes that the BACT Emission Limit provided for EU IDs 1 and 2 in Table 2 is 0.016 lb/MMBtu, instead of 0.012 lb/MMBtu. The limit of 0.012 lb/MMBtu is specified in the SIP and in the preliminary Technical Analysis Report (TAR) to permit AQ0109MSS01 Revision 2, so the limit of 0.016 lb/MMBtu appears to be a typographical error.

possibility that one or more of the Zehnder and North Pole turbines will not demonstrate compliance with the currently-adopted $PM_{2.5}$ BACT limit.

EPA develops AP-42 emission factors to facilitate emissions estimation and modeling exercises, and generally assumes the factors are "representative of long-term averages for all facilities in the source category." (EPA AP-42, Introduction, p. 1) In the introduction to the AP-42, EPA emphasizes:

> "Emissions factors in AP-42 are **neither** EPA-recommended emission limits (e.g., best available control technology or BACT, or lowest achievable emission rate or LAER), **nor** standards… Use of these factors as source-specific permit limits and/or as emission regulation compliance determinations is **NOT** recommended by EPA."
> (EPA AP-42, p. 2)

The AP-42 emission factor adopted as a 3-hour $PM_{2.5}$ limit for the Zehnder and North Pole power plant permits is derived from gas turbines operating under high load conditions (greater than or equal to 80%). (EPA AP-42, Chapter 3.1, p. 3.1-10) In contrast, the Zehnder permit requires testing at three loads representative of normal operations. EU 1 at Zehnder normally operates from about 25% to above 100% of rated capacity. Because the AP-42 emission factors are only applicable under high load conditions, ADEC should not assume the limit based on those factors is applicable at low and mid-load operations. Further, AP42 emission factors represent long-term, steady-state average emissions, and are not representative of short-term emissions. (EPA AP-42, p. 4) Indeed, as EPA vigorously emphasizes, the emissions factors are not appropriate for use as source-specific permit limits at all. (EPA AP-42, p. 2)

ADEC, with full review and approval of EPA, has repeatedly issued permits with BACT limits established using AP-42 values as applicable only at "full load." The basis for this qualification is that when the BACT emissions limits are based on AP-42 emission factors, which represent full load conditions, there is no documentation or rationale that the source can meet these limits at other than full load conditions. The "full load" qualification simply reflects the method by which EPA and ADEC established the limits. Further, both ADEC and EPA have codified into permits these "full load" BACT limits to reflect the limited means of determining compliance--use of the specified fuel and good combustion practices without imposing numerical emission limits. EPA has expressly ratified this approach:

> "Because the emission limitations are based on AP-42 emission factors and the use of pipeline quality natural gas and good combustion practice (which was determined to be BACT for these units) rather than a specific control technology, [the permittees] expressed a concern regarding how to demonstrate compliance within the context of Title V operating permits and the Credible Evidence rulemaking. For Title V purposes, compliance with the emission limitations can be demonstrated, and certified, based on the use of pipeline quality natural gas and good combustion practices. There is no need to directly measure emission to demonstrate compliance unless the units are not using pipeline quality natural gas or fail to use good combustion practice. Please keep in mind that the ADEC may still request a source test to determine good combustion practice

and/or determine compliance with the NSPS requirements." (EPA letter from Bonnie Thie, March 28, 1997 at 2)

While the GVEA turbines use distillate fuel, the letter applies by analogy because in both circumstances the underlying technology—good combustion practices—is independent of fuel specification. EPA's interpretation is consistent with and ratifies how ADEC has historically established BACT limits based on AP-42 factors. Therefore, ADEC should conduct a fresh BACT determination removing the numerical limits and imposing use of low ash distillate fuel and good combustion practices as the BACT emission limitation. Any sources testing would be solely to assess the performance of good combustion practices.

By definition, BACT can only be established with limits that are "achievable." (40 C.F.R. 52.21(b)(12), adopted by reference in 18 AAC 50.040) Longstanding EPA guidance dictates that no BACT limit can be imposed unless it is confirmed that the limit is achievable. (EPA 1990 Draft New Source Review Manual, Chapter B; NSR Manual). Each control technology must be rejected under the top-down procedure if "the permitting authority in its informed judgment agrees, that technical considerations, or energy, environmental, or economic impacts justify a conclusion that the most stringent technology is not "achievable" in that case." (NSR Manual at B.2)

EPA expressly provides that the achievability of a SIP limitation should be carefully studied before it is used as the basis of a Lowest Achievable Emission Rate (LAER) determination, and by analogy this applies to the currently proposed SIP's reliance on BACT emission limits even if they are not a LAER determination. (NSR Manual at G.2, "The specific reasons for noncompliance must be determined, and the ability of the source to comply assessed.") This analogy is appropriate because LAER determinations are by definition more stringent than BACT determinations even if they result in the same limit. (NSR Manual at G.3, "the LAER requirement does not consider economic, energy, or other environmental factors.") Even in the context of a more stringent LAER determination, EPA expressly allows for revisiting emissions limits including those already codified in a SIP. (NSR Manual at G.2)

Moreover, there is abundant case law and EPA Appeals Board decisions dictating that BACT levels do not necessarily reflect the highest possible control efficiencies but, rather, must allow permittees to achieve compliance on a consistent basis. In *re Vulcan Constr. Materials, L.P.*, PSD Appeal No. 10-11, 15 E.A.D. 163 (E.P.A.), 2011 WL 776140 (EAB Mar. 2, 2011); see also, *Chipperfield v. Missouri Air Conservation Comm'n*, 229 S.W.3d 226, 248 (Mo. Ct. App. 2007) (appropriate to set BACT at a limit the facility can meet over the life of the operation, including a "safety factor" to allow for operational variability). See Also, *In re Knauf Fiber Glass*, 9 E.A.D. 1, 15, 2000 WL 291422 (E.P.A.EAB) ("There is nothing inherently wrong with setting an emission limitation that takes into account a reasonable safety factor").

If it is discovered that the BACT limits proposed in the SIP are not achievable, GVEA expects that ADEC will perform new BACT analyses based on representative, site-specific emissions rates, and reopen and revise the permit limits accordingly. To the degree that ADEC and EPA are relying on those limits to support the plans to address the FNSB $PM_{2.5}$ nonattainment designation and time to attainment, ADEC should include a contingency in the

Plan to accommodate revised limits that represent a valid BACT determination. GVEA submitted a similar comment on the proposed SIP amendment addressing this issue.

Response: *The Department left the existing $PM_{2.5}$ BACT limit of 0.012 lb/MMBtu unchanged. In August 2017, GVEA proposed a $PM_{2.5}$ BACT emission limit of 0.012 lb $PM_{2.5}$/MMBtu (Table 1-4 of August 2017 Voluntary $PM_{2.5}$ Serious Nonattainment Area BACT Analysis for the Zehnder Facility) for EUs 1 and 2 at the Zehnder Facility, with good combustion practices as the control technology. Likewise, for GVEA's North Pole facility, GVEA listed the same 0.012 lb/MMBtu as the potential $PM_{2.5}$ emissions for EUs 1, 2 5 and 6 (Table 1-4 of August 2017 Voluntary $PM_{2.5}$ Serious Nonattainment Area BACT Analysis for the North Pole Facility). The Department conducted additional research and did not find a more suitable alternative BACT limit and carried the proposed limit through its analysis and ultimate determination.*

Around July 2024 and then again in September of 2024, GVEA conducted a source test for $PM_{2.5}$ to ascertain the level of $PM_{2.5}$ emissions from one of the turbines at Zehnder. As of October 18, 2024, a final Source Test Report has not yet been submitted to the Department. Unfortunately, the timeline to avoid a Federal Implementation Plan (FIP) on this current SIP requirement, requires the Department to finalize these minor permits for incorporation into the SIP submittal for timely EPA approval. Therefore, the Department cannot wait until the final and verified results of the source test are submitted for review.

While emissions factors derived from AP-42 are not the only source of information for establishing BACT emission limits, AP-42 is an acceptable reference when no other information is available. EPA has not rejected the use of the AP-42 derived emission factor of 0.012 lb $PM_{2.5}$/MMBtu for EU 1 and 2. While the Department acknowledges that BACT limits have to be achievable and that BACT levels do not necessarily have to reflect the highest possible control efficiencies, the Department has not yet received an official source test report from GVEA that shows that the turbines are not currently meeting the emission factor (E.F.) derived from AP-42.

The Department acknowledges that the AP-42 E.F. used was derived from source tests on turbines operating at or above 80% load. This is in contrast to Zehnder's EU ID 1 normally operating at loads as low as 25%, which may result in an E.F. that is not fully representative. However, the Department's standard practice is to require source tests on turbines at three different loads that represent the normal operating range of the EU, as stated in Condition 5.1a(i). Additionally, the BACT limit selected must apply at all times and GVEA's initial proposal did not demonstrate different BACT limits for different operating loads.

BACT limits in the final rule have to be permanent and enforceable. The Clean Air Act does not allow the Department the ability to include a contingency in the event that a BACT limit is not achieved. However, in the event that GVEA source test results show non-compliance with the established BACT limits, the Department will work with GVEA to help bring the affected units into compliance. GVEA will need to exhaust all possible and reasonable options to improve the emissions performance of EU IDs 1 and 2 including but not limited to carefully reviewing the implementation of the emission control technology proposed to achieve the limit. BACT limits may not necessarily be site-specific but represent best available emission controls for a given source type given its design and operational characteristics. A BACT determination includes the review of available retrofit technology to improve emissions performance and is not intended to solely match the emissions performance of existing equipment. Permittees of stationary sources subject to BACT limits are expected to operate and maintain equipment to control air pollutants

using best available control technology conducting necessary maintenance and equipment upgrades over the years to maintain or even improve emissions level performance.

While it is possible to amend an established BACT limit after the SIP amendments have been approved, it is a lengthy process that will only occur after all other options have been exhausted, as there is no straightforward contingency process to amend BACT emission limits.

The Department notes that the $PM_{2.5}$ emissions limit was inadvertently changed to 0.016 lb/MMBtu in Preliminary Minor Permit AQ0109MSS01 Rev. 2. This has been changed back to the correct value of 0.012 lb/MMBtu in the final permit.

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4. **Condition 5.1a:** This proposed permit does not indicate the effective date of the limit, which should not be any sooner than the date that the limit becomes effective in the SIP. Vol. II: III.D.7.7.13.8.5 (page 184, Table 7.7-45) of the proposed SIP amendments indicates that the effective date is "no later than December 31, 2024." As a result, this limit in the permit should not take effect any sooner than the date that the limit is effective in the SIP. In addition, Section 7 of the Technical Analysis Report (TAR) to preliminary permit AQ0109MSS01 Revision 2 states that GVEA may not operate under this minor permit until the permit is incorporated into Permit AQ0109TVP04 Revision 2 and that Title V permit becomes effective. The timelines for effective dates of limits and initial compliance demonstrations should be consistent with the Title V revision process. Please revise this condition to provide an initial source test deadline that is no sooner than at least 180 days after the limit is effective in the SIP and at least 180 days after the Title V permit becomes effective.

Response: *The timeline requirement of "no later than December 31, 2024." has been removed from Vol. II: III.D.7.7.13.8.5 given that Minor Permit No. AQ0109MSS01 Rev. 2 has been incorporated into the SIP in its entirety. The Minor Permit specifies compliance deadlines as appropriate. The deadline to comply with required source testing has been extended to 12 months from permit issuance to provide stationary sources the flexibility to test within any season during the year. The Department also deleted the text that stated "unless a source test has been approved by the Department within 180 days prior to permit issuance" because this testing never occurred. The Permit becomes effective upon issuance as described in the response to Comment 2.*

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5. **Condition 5.1a(i):** This requirement differs from the MR&R requirement presented on page Appendix III.D.7.7-1471, which requires a one-time performance test at maximum achievable load. Please revise this requirement to be consistent with the SIP.

Response: *The Department retained the requirement in Condition 5.1a(i) to test at three different loads. The table listing $PM_{2.5}$ MR&R requirements has been eliminated from the final SIP submission given that EPA required the development and incorporation of Minor Permits. In Minor Permit No. AQ0109MSS01 Rev. 2, the Department determined that source tests at multiple loads is a more complete requirement to determine compliance with the BACT emission limits from turbines, which must be applicable at all times.*

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6. **Condition 5.1a(iv)(B):** As stated in GVEA comments on the proposed SIP amendments, there is no basis for obtaining CO and O_2 concentrations with a handheld analyzer, what correlation exists with "good combustion practices", what variation is allowable, or what correction action thresholds might apply. GVEA submitted a similar comment on the proposed SIP amendment addressing this issue.

   (B) relevant combustion settings ~~(including but not limited to average CO and O2 concentrations in the flue gas)~~ established during the source test that demonstrates compliance with the BACT $PM_{2.5}$ emissions limit in Table 2.

Response: *The Department has not removed the requirement to periodically analyze CO and O_2 in the exhaust of the turbines. A handheld analyzer can be used to effectively verify that combustion equipment is well-tuned by periodically measuring CO and O_2 concentrations and comparing them with reference values. Deviations from ideal fuel and combustion air ratios can be detected using a portable combustion analyzer. For example, on August 23, 2024, GVEA submitted an excess emissions report for an event where a "cracked atomizing air pipe" was causing Zehnder Unit 1 to run rich. As GVEA indicated, the duration of high opacity is unknown. Especially for conditions where equipment deterioration result in gradual deviation of normal CO and O_2 levels, periodic measurement of the concentration of these pollutants may provide additional insight of the combustion parameters at different loads before malfunctions are severe enough to result in significant visible opacity increases. Portable analyzers are commonly ubiquitously used devices to verify proper combustion settings in industrial fuel burning equipment.*

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7. **Condition 5.1c(i):** Please revise this condition as follows. The amount of fuel delivered is not relevant. This comment is consistent with GVEA comments on the proposed SIP amendments.

   c. Combust only low ash (distillate) fuel.

      (i) For each shipment of fuel, keep receipts that specify the fuel grade and ~~amount~~ **date**.

Response: *The Department did not remove the requirement to keep receipts that specify the amount of fuel delivered. This condition is partially based off Condition 2.1a(i) in Standard Permit Condition XI - SO_2 Emissions from Liquid Fuel-Burning Equipment, which states: "If the fuel grade requires a sulfur content 0.5 percent by weight ($wt\%S_{fuel}$) or less, keep receipts that specify fuel grade and amount."*

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8. **Condition 5.1d(v)(A):** Please delete Condition 5.1d(v)(A). There is no basis for obtaining CO and O_2 concentrations with a handheld analyzer, what correlation exists with "good combustion practices," what variations is allowable, or what corrective action thresholds might apply. GVEA submitted a similar comment on the proposed SIP amendment addressing this issue.

Response: *This requirement to periodically analyze CO and O_2 concentrations in the exhaust was not removed for the reasons stated in response to Comment 6.*

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9. **Condition 6.1a(i) through (iii):** These requirements differ from the MR&R for good combustion practices presented on page Appendix III.D.7.7-1471 of the proposed SIP, which states, "Demonstrate compliance by complying with the NESHAP Subpart ZZZZ general requirements listed in 40 CFR 63.6605 and the monitoring, installation, collection, operation, and maintenance requirements listed in 63.6625(e)." GVEA agreed with the MR&R requirements to comply with the 40 CFR 63 Subpart ZZZZ requirements. Please revise this condition to be consistent with the MR&R requirement in the SIP. The language from the applicable provisions in 40 CFR 63 Subpart ZZZZ can be incorporated by reference or included verbatim in this permit. Two sets of similar but not identical applicable requirements is inefficient and can result in a lack of clarity.

Response: *The Department has not changed the requirements in the minor permit back to referencing NESHAP Subpart ZZZZ. The Department acknowledges the similarity between some of the GCPs and associated MR&R requirements listed in AQ0109MSS01 Rev. 2 and that of 40 CFR 63 Subpart ZZZZ. The MR&R listed in AQ0109MSS01 Rev. 2 was tailored to support demonstration of continuous compliance with the GCPs to minimize $PM_{2.5}$ emissions. Regarding similarity between permit conditions, Condition 6.1a(i) of AQ0109MSS01 Rev. 2 requires the Permittee to perform regular maintenance according to the manufacturer's and the operator's maintenance requirements. These are essentially the same requirements as those contained in 40 CFR 63.6605(b) and 63.6625(e), and the Department does not believe that they would require the Permittee to change the current maintenance procedures that are being conducted on the engines. On the other hand, 40 CFR 63 Subpart ZZZZ contains additional GCPs requirements not listed in AQ0109MSS01 Rev. 2.*

One of the main differences in the Department's MR&R requirements in Minor Permit AQ0109MSS01 Rev. 2 and the NESHAP Subpart ZZZZ requirements is Condition 6.1c(i), i.e., the obligation to report a summary of the maintenance records that would have a significant effect on emissions required under Condition 6.1a(ii). This was included in the minor permit to satisfy additional reporting requirements requested by EPA Region 10 in order to make the BACT limits in the SIP more enforceable. For similar reporting requirements, GVEA may streamline reporting by including a single set of data indicating that such information satisfies both federal and SIP reporting requirements.

The Department generally agrees with the GVEA's comment that it is not ideal to have similar sets of conditions for the same EU. The timeline to avoid a FIP on this current SIP requirement, requires the Department to finalize these minor permits for incorporation into the SIP submittal for timely EPA approval. Pending final approval of the SIP submittal, the Department will invite a permit modification application to replace the current conditions with the equivalent GCP requirements in NESHAP Subpart ZZZZ. Therefore, should GVEA wish to request a change in these requirements at a later date, GVEA may submit a permit modification application under State regulations proposing the desired change and the Department will work with GVEA to have them amended in the minor permit as well as the SIP.

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10. **Condition 6.1b(i) through 6.1b(i)(B)(2):** These requirements are similar but differ from the MR&R for limited operation presented on page Appendix III.D.7.7-1471 of the proposed SIP, which states, "Demonstrate compliance by complying with the NESHAP Subpart ZZZZ emissions limitations, operating limitations, and other requirements listed in 40 CFR

63.6640(f).” GVEA agreed with the MR&R requirements to comply with the 40 CFR 63 Subpart ZZZZ requirements. Please revise this condition to be consistent with the MR&R requirement in the SIP. The language from the applicable provisions in 40 CFR 63 Subpart ZZZZ can be incorporated by reference or included verbatim in this permit. Two sets of similar but not identical applicable requirements is inefficient and can result in a lack of clarity.

Response: *The Department has not changed the requirements in the minor permit back to referencing NESHAP Subpart ZZZZ for the reasons stated in response to Comment 9.*

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11. Condition 7.1a(i) through (iii): These requirements differ from the MR&R for good combustion practices presented on page Appendix III.D.7.7-1472 of the proposed SIP, which states, “Demonstrate compliance by complying with the NESHAP Subpart JJJJJJ general requirements listed in 40 CFR 63.11205(a) and the work practice and management practice standards listed in 40 CFR 63.11223 and Item 12 of Table 2 to NESHAP Subpart JJJJJJ.” GVEA agreed with the MR&R requirements to comply with the 40 CFR 63 Subpart JJJJJJ requirements. Please revise this condition to be consistent with the MR&R requirement in the SIP. The language from the applicable provisions in 40 CFR 63 Subpart JJJJJJ can be incorporated by reference or included verbatim in this permit. Two sets of similar but not identical applicable requirements is inefficient and can result in a lack of clarity.

Response: *The Department has not changed the MR&R requirements in the minor permit back to referencing NESHAP Subpart JJJJJJ. The Department acknowledges the similarity between the MR&R listed in AQ0109MSS01 Rev. 2 and that of 40 CFR 63 Subpart JJJJJJ. The MR&R listed in AQ0109MSS01 Rev. 2 was tailored to specifically developed to better support demonstration of continuous compliance with the GCPs to minimize $PM_{2.5}$ emissions. For similar reporting requirements, GVEA may streamline reporting by including a single set of data indicating that such information satisfies both federal and SIP reporting requirements.*

One of the main differences in the Department’s MR&R requirements in Minor Permit AQ0109MSS01 Rev. 2 and the NESHAP Subpart JJJJJJ requirements is Condition 7.1b, i.e., the obligation to report a summary of the maintenance records that would have a significant effect on emissions required under Condition 7.1a(ii). This was included in the minor permit to satisfy additional reporting requirements requested by EPA Region 10 in order to make the BACT limits in the SIP more enforceable. Should GVEA wish to request a change in the requirements language, GVEA may submit a permit modification application under State regulations proposing the desired change and the Department will work with GVEA to have them amended in the minor permit as well as the SIP.

The Department generally agrees with the GVEA’s comment that it is not ideal to have somewhat duplicative sets of conditions for the same EU. The timeline to avoid a FIP on this current SIP requirement, requires the Department to finalize these minor permits for incorporation into the SIP submittal for timely EPA approval. Pending final approval of the SIP submittal, the Department will invite a permit modification application to replace the current conditions with the equivalent GCP requirements in NESHAP Subpart JJJJJJ. Therefore, should GVEA wish to request a change in these requirements at a later date, GVEA may submit a permit modification application under State regulations proposing the desired change and the Department will work with GVEA to have them amended in the minor permit as well as the SIP.

12. Condition 11: Please delete the phrase "for the life of this permit" because the phrase is only relevant in a Title V permit. The associated footnote addresses permit effective dates and permit expiration. Title I permits, such as this minor permit, do not expire.

Response: *The Department did not delete the phrase "for the life of the permit" from the TAR. The phrase "for the life of this permit" corresponds to the standard permit condition (SPC) derived for Operating Reports required by Operating Permits. Since EPA requested that the Minor Permit be self-contained, the Department brought in the exact SPC, which contains the phrase. While the phrase may be considered irrelevant since Minor Permits typically do not have expiration dates, it is not considered factually incorrect for the purpose of incorporating this minor permit into the SIP.*

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13. Condition 12 and Conditions 5.1b, 6.1d, and 7.1c: GVEA disagrees that an annual compliance certification should be prepared for a minor permit. GVEA also disagrees that an annual compliance certification for a minor permit should be submitted to EPA per Condition 12.2. The discussion of this permit condition on page 9 of the draft Technical Analysis Report (TAR) states that the basis for this requirement is a letter from EPA dated Aug 23, 2024. However, the TAR does not provide a specific rationale or explanation as to the reason an annual compliance certification is required for a minor permit. The language in the TAR is confusing and unclear because the language refers to two effective permits, expiration of an old permit, and a renewal permit. This language appears to be specific to Title V permits and does not explain or clarify the reason for Condition 12 in this minor permit. Please delete or revise Condition 12 to address these concerns. If Condition 12 is retained in any form in the final permit, please ensure that the TAR provides sufficient rationale for imposing this requirement.

Response: *The Department did not delete the Annual Compliance Certification (ACC) or the requirement to submit ACC's to EPA. An Annual Compliance Certification (ACC) is a type of reporting of compliance status with permit conditions including, but not limited to, those related MR&R. Since EPA requested that the Minor Permit be self-contained and specifically identified the ACC as an item needed to accomplish such, the Department brought in the requirement for submitting an ACC for the conditions listed in the Minor Permit. The Department did remove from TAR the confusing language related to effective permits and renewal permits that are specific to Title V permits. The updated language in the TAR reads as follows.*

Condition 12, Annual Compliance Certification

This condition specifies the periodic compliance certification requirements and specifies a due date for the annual compliance certification. No format is specified. ~~The Permittee may provide one report certifying compliance with each permit term or condition for each of the effective permits during the certification period, or may choose to provide two reports: one certifying compliance with permit terms and conditions from January 1 until the date of expiration of the old permit, and a second report certifying compliance with terms and conditions in effect from the effective date of the renewal permit until December 31.~~

The Permittee is required to submit to the Department an annual compliance certification report. The Permittee may submit the required report electronically at their discretion.

The Department included Condition 12 in order to add reporting requirements into the minor permit to satisfy additional SIP inclusion conditions that were recommended by EPA Region 10 in a letter dated August 23, 2024. In the letter, EPA expressed that including the ACC in the minor permit would ensure that the permit's MR&R would be "self-contained." This would allow the minor permits, rather than the TV Permits which require renewal every five years, to be incorporated in the NAA SIP.

TAR:

14. Page 3, TAR Section 1, second complete paragraph on page 3: GVEA requests that ADEC provide a detailed rationale to explain the reasons the increase in SO_2 emissions is not a potential or actual emissions increase under 18 AAC 50.502(c)(3) or a potential or net emissions increase under 40 CFR 52.21(b). The rationale should also explain that any increase in SO_2 emissions that result from returning to the combustion of a fuel, the combustion of which was allowed before the BACT SO_2 limits were imposed, is not an increase in actual emissions for permit applicability determination purposes.

Response: *Additional text was added to Paragraph 7 of TAR Section 1 to clarify that there is no increase in actual emissions for permit applicability determination purposes. Paragraph 7 now reads as follows:*

With the issuance of Minor Permit AQ0109MSS01 Rev. 1, the Zehnder Facility's potential SO_2 emissions reverted to the levels in place before the issuance of Minor Permit AQ0109MSS01, which imposed fuel sulfur restrictions on the source's EUs. The Department did not consider this change to be a potential or actual emissions increase under 18 AAC 50.502(c)(3), or a potential or net emissions increase under 40 C.F.R. 52.21(b). This is because the Department originally issued AQ0109MSS01 for the sole purpose of limiting the potential-to-emit of the Zehnder Facility to avoid classification as a major source of SO_2 emissions in a NAA under 40 C.F.R. 51.165 and 18 AAC 50.311, hence, avoiding a corresponding SO_2 BACT determination. However, the Department later found no underlying basis for issuing such permit.

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15. Page 4, TAR Section 5, Table 6: When finalizing the TAR, please ensure that the PTE and assessable emission calculations are accurate and incorporate any relevant revisions based on other GVEA comments. Please address the following specific concerns.

- Please see GVEA comments addressing the calculation of PM, PM_{10}, and $PM_{2.5}$ emissions in Table A-1 in Appendix A to the TAR and adjust this table as needed.
- The VOC emission reference note 3, however no note 3 to this table exists.

Response: *The Department updated the PTE in Table 5 based on the response to Comment 18. Additionally, the Department removed Table Note 3 from the VOC column and included a new Note 3 to Table 5 to explain the 0.1 TPY increase in PM emissions.*

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16. Pages 7 and 8, TAR Section 8, discussion of Section 3 SIP Requirements: The first paragraph of this section cites the 2019 Serious SIP instead of the 2024 SIP amendments as the basis for the permit requirements. The entire section addressing Section 3 of the permit

summarizes the conditions in Section 3 of the permit but provides minimal discussion of the regulatory and/or legal basis for the requirements. Please ensure that revisions to the SIP and permit AQ0109MSS01 Revision 2 are also addressed in this section when preparing the final version of this TAR. Those revisions should include, but are not limited to, applicable BACT requirements and applicable MR&R requirements. Please ensure that this portion of the final TAR addresses the following specific concerns.

- Please address the above GVEA comments regarding the $PM_{2.5}$ emission limits for the turbines.
- Please remove discussion of requirements for CO and O_2 concentration monitoring for EUs 1 and 2. In the above comments, GVEA has requested that ADEC delete the corresponding conditions from AQ0109MSS01 Revision 2. No basis exists for obtaining CO and O_2 concentrations with a handheld analyzer, what correlation exists with "good combustion practices," what variation is allowable, or what corrective action thresholds might apply.

Response: *A note indicating a forthcoming adoption of new SIP amendments has been added. The Department also included a note to reference Section 1 of the TAR for a more detailed explanation of why the Zehnder Facility is needing to implement BACT controls. The Department did not change the $PM_{2.5}$ emissions limits of the turbines for the reasons stated in response to Comment 3 or remove the requirements for conducting periodic CO and O_2 concentration checks with a handheld analyzer as discussed in response to Comment 6. Therefore, these discussions of the emission limits for the turbines, and the requirement for measuring CO and O_2 concentrations with a handheld analyzer have been left in the TAR unchanged.*

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17. Page 9, TAR Section 8, discussion of Condition 12: The discussion of Condition 12 states that the basis for this requirement is a letter from EPA dated Aug 23, 2024. As stated in the comment above addressing Condition 12 in the permit, the TAR does not provide a specific rationale or explanation as to why an annual compliance certification is required for a minor permit. The language in the TAR is confusing and unclear because it refers to two effective permits, expiration of an old permit, and a renewal permit. This language appears to be specific to Title V permits and does not explain or clarify the reason for Condition 12 in this minor permit. If Condition 12 is retained in any form in the final permit, please ensure that the TAR provides sufficient rationale for imposing this requirement.

Response: *See response to Comment 13 above for changes that were made in this section of the TAR.*

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18. Page 14, Appendix A, Table A-1: In the final TAR, please ensure that the PTE calculations are accurate and incorporate any relevant revisions based on other GVEA comments. Please address the following specific concern.

- The PM, PM_{10}, and $PM_{2.5}$ emission calculations and notes are not internally consistent. The inconsistencies do not result in a significant difference in the emission totals, but GVEA requests that ADEC revise the table and notes for clarity. Table A-1 uses the PM_{10} emission factor to calculate potential emissions for each of these pollutants, which is inaccurate. The emission factors for these pollutants are not

identical. Footnote 3 states that total PM is assumed to equal both $PM_{2.5}$ and PM_{10}, which conflicts with the emission factors in AP-42. Footnote 10 states that emission factors from AP-42 Tables 1.3-1 and 1.3-2 are used for these boilers (those < 100 MMBtu/hr), while the PM_{10} emission factor used to calculate emissions in this table is based on Tables 1.3-2 and 1.3-7. The $PM_{2.5}$ BACT emission limit in the proposed permit is based on the $PM_{2.5}$ emission factor calculated from factors in Tables 1.3-2 and 1.3-7. The various PM emission factors for EUs 10 and 11 are as follows.

Pollutant	Filterable Fraction		Condensable Fraction		Total
	Emission Factor	Source	Emission Factor	Source	
Total PM	2 lb/kgal	AP-42 1.3-1	1.3 lb/kgal	AP-42 1.3-2	3.3 lb/kgal
PM_{10}	1.08 lb/kgal	AP-42 1.3-7	1.3 lb/kgal	AP-42 1.3-2	2.38 lb/kgal
$PM_{2.5}$	0.83 lb/kgal	AP-42 1.3-7	1.3 lb/kgal	AP-42 1.3-2	2.13 lb/kgal

Response: *The Department corrected the E.F. used for boiler EU IDs 10 and 11 in the PTE table (Table A-1, Appendix A) to 3.3 lb/Kgal (0.0033 lb/gal) to account for total PM emissions, as this is the conservative estimation as stated in Table Note 3. The Department notes that this is separate from the $PM_{2.5}$ specific BACT limit of 0.016 lb/MMBtu found in Table 4 of the permit. The Department also updated Table Note 10 to remove references to AP-42 factors for boilers larger than 100 MMBtu/hr. The Department notes that this change resulted in a 0.1 TPY increase in assessable PM for the stationary source from 30.4 TPY to 30.5 TPY in Table 5 of the TAR as well as an increase of total assessable emissions from 2,748.9 TPY to 2,749.0 TPY.*

Appendix B – GVEA, North Pole Power Plant RTC

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Response To Comments on Preliminary Minor Permit AQ0110MSS01 Rev 1
Golden Valley Electric Association, North Pole Power Plant
Public Comment Closing Date: October 22, 2024

Prepared by Adam Leibert on October 30, 2024

This document provides the Alaska Department of Environmental Conservation's (Department's) responses to all public comments on the preliminary decision to issue Air Quality Control Minor Permit No. AQ0110MSS01 Rev 1 for the Golden Valley Electric Association's (GVEA's) North Pole Power Plant (NPPP) at Latitude: 64.7344° North; Longitude: 147.3453° West (or North Pole, AK). The Department provided an opportunity for public comment beginning September 20, 2024 and ending October 22, 2024. Comments were received via email from the Golden Valley Electric Association on October 22, 2024. These comments appear exactly as submitted.

In quoting text from the preliminary permit and Technical Analysis Report (TAR) as part of response or comment, the following text formatting are used to indicate how revisions are made: underlined text means text to be added while ~~strike-through~~ text means text to be deleted.

A. Comments from Golden Valley Electric Association

Comments on Preliminary Air Quality Control Minor Permit No. AQ0110MSS01 Revision 1:

1. **General Comment –** This permit incorporates the $PM_{2.5}$ Best Available Control Technology (BACT) requirements identified in the proposed amendments to the $PM_{2.5}$ Serious State Implementation Plan (SIP). Golden Valley Electric Association (GVEA) submitted comments on the proposed SIP amendments on October 7, 2024, which are incorporated herein by this reference. The GVEA comments specifically address the BACT determinations for the emissions units at the North Pole Power Plant and the Zehnder Facility. Please ensure that revisions to the SIP based on those comments are also addressed when preparing the final version of this minor air quality permit

Response: *The Departments notes the comment. The Department has verified that revisions to the SIP based on SIP Response to Comments are consistent with the revisions to the minor permit AQ0110MSS01 Revision 1.*

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2. **General Comment –** The proposed permit does not indicate the effective date of certain emissions limits, which should be no sooner than the date that those limits become effective in the SIP. Vol. II: III.D.7.7.13.8.6 (page 185, Table 7.7-46) of the proposed SIP amendments indicates that the effective date is "no later than December 31, 2024." As a result, certain permit emissions limits should not take effect any sooner than the date that the limit becomes effective in the SIP. In addition, Section 7 of the Technical Analysis Report (TAR) to preliminary permit AQ0110MSS01 Revision 1 states that GVEA may not operate under this minor permit until the permit is incorporated into Permit AQ0110TVP04 Revision 2 and that Title V permit becomes effective. The timelines for effective dates of limits and initial compliance demonstrations should be consistent with the Title V revision process.

Response: *The Permit becomes effective upon issuance. The Department notes that we have removed the Effective Date Column from Table 7.7-46 of Chapter 7 that previously stated, "no later than December 31, 2024." This was done because the minor permits are being incorporated into the SIP and there is no longer a need to address a future effective date of when the limits will take effect. Additionally, the Department has re-evaluated the differences between the $PM_{2.5}$ requirements in the SIP section of Minor Permit AQ0110MSS01 Rev. 1 to the SO_2 requirements contained in the SIP section of Operating Permit AQ0110TVP04 Rev. 1 and found that while the SO_2 requirements have been rescinded, there is no contradictory language regarding the new $PM_{2.5}$ requirements. Therefore, the Department changed the wording in the TAR for Minor Permit AQ0110MSS01 Rev. 1 to state that the Permittee may operate under the terms and conditions of the minor permit revision upon issuance. Additionally, the Department will incorporate AQ0110MSS01 Rev. 1 into the operating permit as soon as practicable.*

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3. **Condition 3.1.** Please see GVEA's comments on the preliminary Technical Analysis Report (TAR) to this permit (below) and ensure the assessable PTE value in this condition is accurate in the final permit.

Response: *The Department updated the source's assessable PTE to 6,664.4 TPY based on Comment 31.*

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4. **Condition 5, Table 2 and Condition 6, Table 3.** ADEC's proposed revisions will, if enacted, codify the $PM_{2.5}$ BACT determinations for GVEA's North Pole Power Plant's and Zehnder Facility's fuel-oil fired turbines. The SIP BACT emission limit of 0.012 lb $PM_{2.5}$/MMBtu on a 3- hour average basis was derived using AP-42 emission factors without the benefit of actual emissions data from these units.[1] GVEA and ADEC in good faith concluded that the AP-42 emission factor was an appropriate approximation of $PM_{2.5}$ emissions in the absence of actual emissions data with the understanding that it would be used for general emissions modeling and estimating. Over time, the emissions factor has evolved inappropriately into a permit limit. GVEA notes several instances in the SIP in which similar applications of AP-42 emission factors have evolved into inappropriate permit limits lacking an empirical, site-specific basis for achievability.

   Revision of the North Pole Power Plant permit to codify the $PM_{2.5}$ limit includes, for the first time, a requirement to perform a $PM_{2.5}$ source test. The same requirement appears in the reissue of the Zehnder Facility permit. GVEA is in the midst of performing the source testing at the Zehnder Facility, and preliminary results indicate Zehnder will fail to achieve the $PM_{2.5}$ emission limit. GVEA has conducted no PM emission testing at the North Pole Power Plant and has no indication of whether emissions from the plant can meet the proposed limit. ADEC should recognize the possibility that one or more of the Zehnder and North Pole turbines will not demonstrate compliance with the currently-adopted $PM_{2.5}$ BACT limit.

   EPA develops AP-42 emission factors to facilitate emissions estimation and modeling exercises, and generally assumes the factors are "representative of long-term averages for all facilities in the source category." (EPA AP-42, Introduction, p. 1) In the introduction to the AP-42, EPA emphasizes:

   > "Emissions factors in AP-42 are **neither** EPA-recommended emission limits (e.g., best available control technology or BACT, or lowest achievable emission rate or LAER), **nor**

> standards… Use of these factors as source-specific permit limits and/or as emission regulation compliance determinations is **NOT** recommended by EPA." (EPA AP-42, p. 2)

The AP-42 emission factor adopted as a 3-hour $PM_{2.5}$ limit for the Zehnder and North Pole power plant permits is derived from gas turbines operating under high load conditions (greater than or equal to 80%). (EPA AP-42, Chapter 3.1, p. 3.1-10) In contrast, the Zehnder permit requires testing at three loads representative of normal operations. EU 1 at Zehnder normally operates from about 25% to above 100% of rated capacity. Because the AP-42 emission factors are only applicable under high load conditions, ADEC should not assume the limit based on those factors is applicable at low and mid-load operations. Further, AP42 emission factors represent long-term, steady-state average emissions, and are not representative of short-term emissions. (EPA AP-42, p. 4) Indeed, as EPA vigorously emphasizes, the emissions factors are not appropriate for use as source-specific permit limits at all. (EPA AP-42, p. 2)

ADEC, with full review and approval of EPA, has repeatedly issued permits with BACT limits established using AP-42 values as applicable only at "full load." The basis for this qualification is that when the BACT emissions limits are based on AP-42 emission factors, which represent full load conditions, there is no documentation or rationale that the source can meet these limits at other than full load conditions. The "full load" qualification simply reflects the method by which EPA and ADEC established the limits. Further, both ADEC and EPA have codified into permits these "full load" BACT limits to reflect the limited means of determining compliance--use of the specified fuel and good combustion practices without imposing numerical emission limits. EPA has expressly ratified this approach:

> "Because the emission limitations are based on AP-42 emission factors and the use of pipeline quality natural gas and good combustion practice (which was determined to be BACT for these units) rather than a specific control technology, [the permittees] expressed a concern regarding how to demonstrate compliance within the context of Title V operating permits and the Credible Evidence rulemaking. For Title V purposes, compliance with the emission limitations can be demonstrated, and certified, based on the use of pipeline quality natural gas and good combustion practices. There is no need to directly measure emission to demonstrate compliance unless the units are not using pipeline quality natural gas or fail to use good combustion practice. Please keep in mind that the ADEC may still request a source test to determine good combustion practice and/or determine compliance with the NSPS requirements." (EPA letter from Bonnie Thie, March 28, 1997 at 2)

While the GVEA turbines use distillate fuel, the letter applies by analogy because in both circumstances the underlying technology—good combustion practices—is independent of fuel specification. EPA's interpretation is consistent with and ratifies how ADEC has historically established BACT limits based on AP-42 factors. Therefore, ADEC should conduct a fresh BACT determination removing the numerical limits and imposing use of low

ash distillate fuel and good combustion practices as the BACT emission limitation. Any sources testing would be solely to assess the performance of good combustion practices.

By definition, BACT can only be established with limits that are "achievable." (40 C.F.R. 52.21(b)(12), adopted by reference in 18 AAC 50.040) Longstanding EPA guidance dictates that no BACT limit can be imposed unless it is confirmed that the limit is achievable. (EPA 1990 Draft New Source Review Manual, Chapter B; NSR Manual). Each control technology must be rejected under the top-down procedure if "the permitting authority in its informed judgment agrees, that technical considerations, or energy, environmental, or economic impacts justify a conclusion that the most stringent technology is not "achievable" in that case." (NSR Manual at B.2)

EPA expressly provides that the achievability of a SIP limitation should be carefully studied before it is used as the basis of a Lowest Achievable Emission Rate (LAER) determination, and by analogy this applies to the currently proposed SIP's reliance on BACT emission limits even if they are not a LAER determination. (NSR Manual at G.2, "The specific reasons for noncompliance must be determined, and the ability of the source to comply assessed.") This analogy is appropriate because LAER determinations are by definition more stringent than BACT determinations even if they result in the same limit. (NSR Manual at G.3, "the LAER requirement does not consider economic, energy, or other environmental factors.") Even in the context of a more stringent LAER determination, EPA expressly allows for revisiting emissions limits including those already codified in a SIP. (NSR Manual at G.2)

Moreover, there is abundant case law and EPA Appeals Board decisions dictating that BACT levels do not necessarily reflect the highest possible control efficiencies but, rather, must allow permittees to achieve compliance on a consistent basis. *In re Vulcan Constr. Materials, L.P.*, PSD Appeal No. 10-11, 15 E.A.D. 163 (E.P.A.), 2011 WL 776140 (EAB Mar. 2, 2011); see also, *Chipperfield v. Missouri Air Conservation Comm'n*, 229 S.W.3d 226, 248 (Mo. Ct. App. 2007) (appropriate to set BACT at a limit the facility can meet over the life of the operation, including a "safety factor" to allow for operational variability). See Also, *In re Knauf Fiber Glass*, 9 E.A.D. 1, 15, 2000 WL 291422 (E.P.A.EAB) ("There is nothing inherently wrong with setting an emission limitation that takes into account a reasonable safety factor").

If it is discovered that the BACT limits proposed in the SIP are not achievable, GVEA expects that ADEC will perform new BACT analyses based on representative, site-specific emissions rates, and reopen and revise the permit limits accordingly. To the degree that ADEC and EPA are relying on those limits to support the plans to address the FNSB $PM_{2.5}$ nonattainment designation and time to attainment, ADEC should include a contingency in the Plan to accommodate revised limits that represent a valid BACT determination. GVEA submitted a similar comment on the proposed SIP amendment addressing this issue.

1. See Amendments to State Air Quality Control Plan Vol. II: III.D.7.7 Control Strategies Public Notice Draft August 19, 2024, Section 7.7.8.4.2, $PM_{2.5}$ Control Analysis for Zehnder Facility, Footnote 5 referencing Table 3.1-2a of US EPA's AP-42 Emission Factors, https://www3.epa.gov/ttnchie1/ap42/ch03/final/c03s01.pdf.

Response: *The Department left the existing $PM_{2.5}$ BACT limit of 0.012 lb/MMBtu unchanged. In August 2017, GVEA proposed a $PM_{2.5}$ BACT emission limit of 0.012 lb $PM_{2.5}$/MMBtu (Table 1-4*

of August 2017 Voluntary $PM_{2.5}$ Serious Nonattainment Area BACT Analysis for the Zehnder Facility) for EU IDs 1 and 2 at the Zehnder Facility, with good combustion practices (GCPs) as the control technology. Likewise, for GVEA's North Pole facility, GVEA listed the same 0.012 lb/MMBtu as the potential $PM_{2.5}$ emissions for EU IDs 1, 2 5 and 6 (Table 1-4 of August 2017 Voluntary $PM_{2.5}$ Serious Nonattainment Area BACT Analysis for the North Pole Facility). The Department conducted additional research and did not find a more suitable alternative BACT limit and carried the proposed limit through its analysis and ultimate determination.

Around July 2024 and then again in September of 2024, GVEA conducted a source test for $PM_{2.5}$ to ascertain the level of $PM_{2.5}$ emissions from one of the turbines at Zehnder. As of October 18, 2024, a final Source Test Report has not yet been submitted to the Department. Unfortunately, the timeline to avoid a Federal Implementation Plan (FIP) on this current SIP requirement, requires the Department to finalize these minor permits for incorporation into the SIP submittal for timely EPA approval. Therefore, the Department cannot wait until the final and verified results of the source test are submitted for review.

While emissions factors derived from AP-42 are not the only source of information for establishing BACT emission limits, AP-42 is an acceptable reference when no other information is available. EPA has not rejected the use of the AP-42 derived emission factor of 0.012 lb $PM_{2.5}$/MMBtu for EU IDs 1, 2, 5, and 6. While the Department acknowledges that BACT limits have to be achievable and that BACT levels do not necessarily have to reflect the highest possible control efficiencies, the Department has not yet received an official source test report from GVEA that shows that the turbines are not currently meeting the emission factor (E.F.) derived from AP-42.

The Department acknowledges that the AP-42 E.F. used was derived from source tests on turbines operating at or above 80% load. This is in contrast to Zehnder's EU ID 1 normally operating at loads as low as 25%, which may result in an E.F. that is not fully representative. However, the Department's standard practice is to require source tests on turbines at three different loads that represent the normal operating range of the EU, as stated in Conditions 5.1a(i) and 6.1a(i). Additionally, the BACT limit selected must apply at all times and GVEA's initial proposal did not demonstrate different BACT limits for different operating loads.

BACT limits in the final rule have to be permanent and enforceable. The Clean Air Act does not allow the Department the ability to include a contingency in the event that a BACT limit is not achieved. However, in the event that GVEA source test results show non-compliance with the established BACT limits, the Department will work with GVEA to help bring the affected units into compliance. GVEA will need to exhaust all possible and reasonable options to improve the emissions performance of EU IDs 1 and 2 including but not limited to carefully reviewing the implementation of the emission control technology proposed to achieve the limit. BACT limits may not necessarily be site-specific but represent best available emission controls for a given source type given its design and operational characteristics. A BACT determination includes the review of available retrofit technology to improve emissions performance and is not intended to solely match the emissions performance of existing equipment. Permittees of stationary sources subject to BACT limits are expected to operate and maintain equipment to control air pollutants using best available control technology conducting necessary maintenance and equipment upgrades over the years to maintain or even improve emissions level performance.

It is possible to amend an established BACT limit after the SIP amendments have been approved. If the BACT limit is proposed to be relaxed, then the Department would need to demonstrate that the proposed change does not interfere with any applicable requirement concerning attainment and reasonable further progress as required under CAA 110(l). This 110(l) demonstration would likely include new attainment modeling, a new attainment demonstration, a new emission inventory, and other updates to the SIP. The Department notes that this is a lengthy process, without a guaranteed outcome, that will only occur after all other options have been exhausted.

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5. **Condition 5.1a(i).** This proposed permit does not indicate the effective date of the limit, which should not be any sooner than the date that the limit becomes effective in the SIP. Vol. II: III.D.7.7.13.8.6 (page 185, Table 7.7-46) of the proposed SIP amendments indicates that the effective date is "no later than December 31, 2024." As a result, this limit in the permit should not take effect any sooner than the date that the limit is effective in the SIP. In addition, Section 7 of the Technical Analysis Report (TAR) to preliminary permit AQ0110MSS01 Revision 1 states that GVEA may not operate under this minor permit until the permit is incorporated into Permit AQ0110TVP04 Revision 2 and that Title V permit becomes effective. The timelines for effective dates of limits and initial compliance demonstrations should be consistent with the Title V revision process. Please revise this condition to provide an initial source test deadline that is no sooner than at least 180 days after the limit is effective in the SIP and at least 180 days after the Title V permit becomes effective.

   Additionally, proposed Condition 5.1a requires that GVEA "Conduct an initial source test on EU IDs 1 and/or 2…" The use of "and/or" obfuscates ADEC's expectations for the initial test. GVEA recommends that the requirement specify that a test on either EU ID 1 or 2 will acceptably represent both units.

Response: *The timeline requirement of "no later than December 31, 2024." has been removed from Vol. II: III.D.7.7.13.8.6 given that Minor Permit No. AQ0110MSS01 Rev. 1 has been incorporated into the SIP in its entirety. See response to Comment 2 for more details regarding that decision. The deadline to comply with required source testing has been extended to 12 months from permit issuance to provide stationary sources the flexibility to test within any season during the year. Additionally, the language of Condition 5.1a has been revised to clarify that a source test on either EU ID 1 or 2 is required to demonstrate compliance.*

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6. **Condition 5.1a(i).** This requirement differs from the MR&R requirement presented on page Appendix III.D.7.7-1155, which requires a one-time performance test at maximum achievable load. Please revise this requirement to be consistent with the SIP. GVEA proposes the following language:

   (i) Conduct the source test ~~for~~ at ~~least three loads representative~~ maximum achievable load ~~of the normal operating range~~ of the EU. ~~The Permittee may perform testing at the highest achievable load point, if at least 75 percent of peak load cannot be achieved in practice.~~

Response: *The Department retained the requirement in Condition 5.1a(i) to test at three different loads. The table listing $PM_{2.5}$ MR&R requirements has been eliminated from the final SIP submission given that EPA required the development and incorporation of Minor Permits. In*

Permit No. AQ0110MSS01 Rev. 1, the Department determined that source tests at multiple loads is a more complete requirement to determine compliance with the BACT emission limits from turbines, which must be applicable at all times.

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7. **Condition 5.1a(ii).** Please revise as follows.

   (ii) Conduct the initial source test using procedures specified in 40 CFR 60, Appendix A-3, Method 5 and 50 CFR 51, Appendix M, Methods 201 or 201A. ~~Emission results shall be reported as the arithmetic 3-hour average of all valid test runs and shall be in units of lb/MMBtu.~~

Response: *The Department agrees to add the reference test methods, consistent with the language in similar conditions for the other SIP-affected sources (e.g., Aurora Energy LLC's Chena Power Plant, Minor Permit AQ0315MSS02 Rev. 1) in Condition 5.1(a)(i). However, the Department does not agree to the deletion requested. The BACT emissions limit is expressed as an arithmetic 3-hours average in units of lb/MMBtu and therefore this condition requires the same be reported.*

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8. **Condition 5.1a(iv).** Please add "initial" to the text where underlined below.

   (iv) Include the following in the next operating report in accordance with Condition 12, that is due after the submittal date of the <u>initial</u> source test report:

Response: *The Department accepts the comment. Condition 5.1a(iv) has been revised as shown above.*

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9. **Condition 5.1a(iv)(B).** Please revise Condition 5.1a.(iv)(B) as follows. As stated in GVEA comments on the proposed SIP amendments, there is no basis for obtaining CO and O_2 concentrations with a handheld analyzer, what correlation exists with "good combustion practices", what variation is allowable, or what corrective action thresholds might apply. GVEA submitted a similar comment on the proposed SIP amendment addressing this issue.

   (B) relevant combustion settings ~~(including but not limited to average CO and O2 concentrations in the flue gas)~~ established during the source test that demonstrates compliance with the BACT $PM_{2.5}$ emissions limit in Table 2.

Response: *The Department does not agree with the comment. A handheld analyzer can be used to effectively verify that combustion equipment is well tuned by periodically measuring CO and O_2 concentrations and comparing them with reference values. Deviations from ideal fuel and combustion air ratios can be detected using a portable combustion analyzer. For example, on August 23, 2024, GVEA submitted an excess emissions report for an event where a "cracked atomizing air pipe" was causing Zehnder Unit 1 to run rich. As GVEA indicated, the duration of high opacity is unknown. Especially for conditions where equipment deterioration result in gradual deviation of normal CO and O2 levels, periodic measurement of the concentration of these pollutants may provide additional insight of the combustion parameters at different loads before malfunctions are severe enough to result in significant visible opacity increases. Portable analyzers are commonly ubiquitously used devices to verify proper combustion settings in industrial fuel burning equipment.*

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10. Condition 5.1c.(i). Please revise this condition as follows. The amount of fuel delivered is not relevant. This comment is consistent with GVEA comments on the proposed SIP amendments. Furthermore, GVEA asks that ADEC assure that fuel and associated requirements are consistent between the Title V operating permit (e.g., condition 10.1a) and any minor permit in effect at a given time.

c. Combust only low ash (distillate) fuel.

(i) For each shipment of fuel, keep receipts that specify the fuel grade and ~~amount~~ **date**.

Response: *The Department does not agree with the comment. The Department did not remove the requirement to keep receipts that specify the amount of fuel delivered. This condition is partially based off Condition 2.1a(i) in Standard Permit Condition XI - SO_2 Emissions from Liquid Fuel-Burning Equipment, which states: "If the fuel grade requires a sulfur content 0.5 percent by weight (wt%Sfuel) or less, keep receipts that specify fuel grade and amount."*

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11. Condition 5.1d(i) – 5.1d(iv). Please amend for consistency with language elsewhere and to clarify applicability to each operating period, as follows.

(i) Perform regular maintenance according to the manufacturer's and the operator's applicable maintenance requirements and procedures.
(ii) Keep records of any maintenance that would have a significant effect on emissions. The records may be kept in electronic format.
(iii) Keep a copy of the manufacturer's ~~and~~ or the operator's applicable maintenance procedures.
(iv) Include a summary of the maintenance records collected under Condition 5.1d(ii) for the reporting period, in each operating report required by Condition 12. ~~Report in accordance with Condition 12, a summary of the maintenance records collected under Condition 5.1d(ii).~~

Response: *The Department does not agree with the comment to amend the language of Conditions 5.1d(i) through 5.1d(iii). The language of these conditions is a slight modification from the Department's SPC VI – Good Air Pollution Control Practice. The Department is maintaining this set of conditions across all the Fairbanks North Star Borough Non-attainment Area SIP Minor Permits. However, the Department accepts the comment to amend the language of Condition 5.1d(iv) for clarity.*

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12. Condition 5.1d(v)(A) and 5.1d(v)(B). Please delete Condition 5.1d(v)(A) and 5.1d(v)(B) and Footnote 2 associated with Condition 5.1d(v)(A). There is no basis for obtaining CO and O_2 concentrations with a handheld analyzer, what correlation exists with "good combustion practices," what variation is allowable, or what corrective action thresholds might apply. GVEA submitted a similar comment on the proposed SIP amendment addressing this issue.

Response: *The Department does not agree with the comment to delete these conditions. See response to Comment 9 for justification.*

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13. Condition 6.1a. This proposed permit does not indicate the effective date of the limit, which should not be any sooner than the date that the limit becomes effective in the SIP. Vol. II:

III.D.7.7.13.8.6 (page 185, Table 7.7-46) of the proposed SIP amendments indicates that the effective date is "no later than December 31, 2024." As a result, this limit in the permit should not take effect any sooner than the date that the limit is effective in the SIP. In addition, Section 7 of the Technical Analysis Report (TAR) to preliminary permit AQ0110MSS01 Revision 1 states that GVEA may not operate under this minor permit until the permit is incorporated into Permit AQ0110TVP04 Revision 2 and that Title V permit becomes effective. The timelines for effective dates of limits and initial compliance demonstrations should be consistent with the Title V revision process. Please revise this condition to provide an initial source test deadline that is no sooner than at least 180 days after the limit is effective in the SIP and at least 180 days after the Title V permit becomes effective.

Additionally, proposed Condition 6.1a requires that GVEA "Conduct an initial source test on EU IDs 5 and/or 6…" The use of "and/or" obfuscates ADEC's expectations for the initial test. GVEA recommends that the requirement specify that a test on either EU ID 5 or 6 will acceptably represent both units. If ADEC opts to retain the "and" in Condition 6.1a, GVEA asks that the text be amended to acknowledge that EU ID 6 is not built and will not meet the deadlines in the condition, such as by adding the following language to the condition:

> "If EU ID 6 has not been built within 180 days of permit issuance or by June of the year following the date of permit issuance, conduct an initial source test within 180 of EU ID 6's start up."

Response: *The condition is effective upon permit issuance. The language of Condition 6.1a has been revised to clarify that a source test on either EU ID 5 or 6 is required to demonstrate compliance and the Permittee has 12 months from permit issuance date to perform the source test. See responses to Comments 2 and 5 for further justification.*

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14. Condition 6.1a(i). This requirement differs from the MR&R requirement presented on page Appendix III.D.7.7-1155, which requires a one-time performance test at maximum achievable load. Please revise this requirement to be consistent with the SIP. GVEA proposes the following language:

> (i) Conduct the source test ~~for~~ at ~~least three loads representative~~ maximum achievable load ~~of the normal operating range~~ of the EU. ~~The Permittee may perform testing at the highest achievable load point, if at least 75 percent of peak load cannot be achieved in practice.~~

Response: *The retained the requirement in Condition 6.1a(i) to test at three different loads. See response to Comment 6 for justification. Also see additional edits made on Condition 6.1a(i), as noted in Section B, item 2 below, for consistency with the Department response to Comment 7.*

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15. Condition 6.1a(ii). Please revise as follows.

> (ii) Conduct the initial source test using procedures specified in 40 CFR 60, Appendix A-3, Method 5 and 50 CFR 51, Appendix M, Methods 201 or 201A. ~~Emission results shall~~

~~be reported as the arithmetic 3-hour average of all valid test runs and shall be in units of lb/MMBtu.~~

Response: *The Department partially agrees with the comment. See response to Comment 7 for justification.*

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16. Condition 6.1a(iv). Please add "initial" to the text where underlined below.

(iv) Include the following in the next operating report in accordance with Condition 12, that is due after the submittal date of the initial source test report:

Response: *The Department accepts the comment. Condition 6.1a(iv) has been revised as shown above.*

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17. Condition 6.1a(iv)(B). Please revise Condition 6.1a.(iv)(B) as follows. As stated in GVEA comments on the proposed SIP amendments, there is no basis for obtaining CO and O2 concentrations with a handheld analyzer, what correlation exists with "good combustion practices", what variation is allowable, or what corrective action thresholds might apply. EU 5, and EU 6 if/when it is constructed, are subject to Conditions 33, 29, and 30 in AQ0110TVP04 Rev 1. GVEA is already required to report malfunctions (for both the operations of the unit and the continuous emission monitoring systems) and EEMSPRs under the federal regulations. These units are subject to the NSPS emission standards and complying with those standards inherently require the operator to follow good combustion practices.

(B) relevant combustion settings ~~(including but not limited to average CO and O2 concentrations in the flue gas)~~ established during the source test that demonstrates compliance with the BACT $PM_{2.5}$ emissions limit in Table 3.

Response: *The Department does not agree with this comment. See response to Comment 9 for justification.*

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18. Condition 6.1c(i) through 6.1c(iv). Please amend for consistency with language elsewhere and to clarify applicability to each operating period, as follows.

(i) Perform regular maintenance according to the manufacturer's and the operator's applicable maintenance requirements and procedures.
(ii) Keep records of any maintenance that would have a significant effect on emissions. The records may be kept in electronic format.
(iii) Keep a copy of the manufacturer's ~~and~~ or the operator's applicable maintenance procedures.
(iv) Include a summary of the maintenance records collected under Condition 6.1c(ii) for the reporting period, in each operating report required by Condition 12. ~~Report in accordance with Condition 12, a summary of the maintenance records collected under Condition 5.1d(ii).~~

Response: *The Department does not agree with the comment to amend the language of Conditions 6.1d(i) through 6.1d(iii). The language of these conditions is a slight modification from the Department's SPC VI – Good Air Pollution Control Practice. The Department is*

maintaining this set of conditions across all the Fairbanks North Star Borough Non-attainment Area SIP Minor Permits. The Department accepts the comment to amend the language of Condition 6.1c(iv) for clarity.

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19. Condition 6.1c(v)(A). Please delete Condition 6.1c(v)(A) and 6.1c(v)(B) and Footnote 3 associated with Condition 6.1c(v)(A). There is no basis for obtaining CO and O_2 concentrations with a handheld analyzer, what correlation exists with "good combustion practices," what variation is allowable, or what corrective action thresholds might apply. EU 5, and EU 6 if/when it is constructed, are subject to Conditions 33, 29, and 30 in AQ0110TVP04 Rev 1. GVEA is already required to report malfunctions (for both the operations of the unit and the continuous emission monitoring systems) and EEMSPRs under the federal regulations. These units are subject to the NSPS emission standards and complying with those standards inherently require the operator to follow good combustion practices. GVEA submitted a similar comment on the proposed SIP amendment addressing this issue.

Response: *The Department does not agree with the comment to delete these conditions. See response to Comment 9 for justification.*

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20. Condition 7, Table 4, and Condition 7.1c. EU 7 is not and never has been equipped with PCV. GVEA inadvertently did not note that the BACT analysis included PCV for this emissions unit. Please remove the requirement for PCV from both the BACT determination in the SIP and in this permit. EU 7 has an operating limit of 52 hours per year. The engine is only operated for monthly readiness checks and in case of emergencies. The installation of a PCV system is not warranted for so little operation. GVEA submitted a similar comment on the proposed SIP amendment addressing this issue. Please make the following specific changes to the permit.

- Please delete "Positive Crankcase Ventilation" (PCV) from the listed BACT Control in Table 4.
- Please delete Condition 7.1c.

Response: *The Department does not agree with the comment. For the $PM_{2.5}$ BACT analysis under the Final $PM_{2.5}$ Rule (which is different than BACT under NSR) all identified $PM_{2.5}$ control measures must be implemented unless a demonstration is provided showing that a measure identified is not technologically or economically feasible. GVEA initially proposed positive crankcase ventilation (PCV) with an emission limit of 0.32 g/hp-hr (3-hour average) on EU ID 7, and the Department accepted this as BACT. The Department cannot make changes to the proposed BACT control technologies or emission limits unless provided with legally defensible information to inform agency decisions. GVEA commented that PCV has never been installed on EU ID 7 and that installation of PCV for such little operation is not warranted. Not being equipped with PCV does not demonstrate technical or economical infeasibility. Low operating hours by themselves do not demonstrate technical or economic infeasibility. GVEA's comment alludes that due to low operating hours PCV may not be economically feasible but does not provide an economic infeasibility analysis. Without an economic analysis the Department does not have legally defensible information to change the proposed BACT control technologies; therefore, the BACT control of PCV is left as previously proposed.*

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21. Condition 7.1a(i) through (iii). These requirements differ from the MR&R for good combustion practices presented on page Appendix III.D.7.7-1156 of the proposed SIP, which states, "Demonstrate compliance by complying with the NESHAP Subpart ZZZZ general requirements listed in 40 CFR 63.6605 and the monitoring, installation, collection, operation, and maintenance requirements listed in 63.6625(e)." GVEA agreed with the MR&R requirements to comply with the 40 CFR 63 Subpart ZZZZ requirements. Please revise this condition to be consistent with the MR&R requirement in the SIP and to assure consistency with the Title V operating permit. The language from the applicable provisions in 40 CFR 63 Subpart ZZZZ can be incorporated by reference or included verbatim in this permit. Two sets of similar but not identical applicable requirements is inefficient and increases the potential for misunderstanding and error.

Response: *The Department does not agree with the comment. The Department has removed the references in the final version of the SIP that previously referenced complying with NESHAP Subpart ZZZZ for GCPs. The Department acknowledges the similarity between some of the GCPs and associated MR&R requirements listed in AQ0110MSS01 Rev. 1 and that of 40 CFR 63 Subpart ZZZZ. The MR&R listed in AQ0110MSS01 Rev. 1 was tailored to support demonstration of continuous compliance with the GCPs to minimize $PM_{2.5}$ emissions. Regarding similarity between permit conditions, Condition 7.1a(i) of AQ0110MSS01 Rev. 1 requires the Permittee to perform regular maintenance according to the manufacturer's and the operator's maintenance requirements. These are essentially the same requirements as those contained in 40 CFR 63.6605(b) and 63.6625(e), and the Department does not believe that they would require the Permittee to change the current maintenance procedures that are being conducted on the engines. On the other hand, 40 CFR 63 Subpart ZZZZ contains additional GCPs requirements not listed in AQ0110MSS01 Rev. 1.*

One of the main differences in the Department's MR&R requirements in Minor Permit AQ0110MSS01 Rev. 1 and the NESHAP Subpart ZZZZ requirements is Condition 7.1d(i), i.e., the obligation to report a summary of the maintenance records that would have a significant effect on emissions required under Condition 7.1a(ii). This was included in the minor permit to satisfy additional reporting requirements requested by EPA Region 10 in order to make the BACT limits in the SIP more enforceable. For similar reporting requirements, GVEA may streamline reporting by including a single set of data indicating that such information satisfies both federal and SIP reporting requirements.

The Department generally agrees with the GVEA's comment that it is not ideal to have somewhat duplicative sets of conditions for the same EU. The timeline to avoid a FIP on this current SIP requirement, requires the Department to finalize these minor permits for incorporation into the SIP submittal for timely EPA approval. Pending final approval of the SIP submittal, the Department will invite a permit modification application to replace the current conditions with the equivalent GCP requirements in NESHAP Subpart ZZZZ. Therefore, should GVEA wish to request a change in these requirements at a later date, GVEA may submit a permit modification application under State regulations proposing the desired change and the Department will work with GVEA to have them amended in the minor permit as well as the SIP.

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22. Condition 7.1b(i) through 7.1b(i)(B)(2). These requirements are similar but differ from the MR&R for limited operation presented on page Appendix III.D.7.7-1156 of the proposed SIP, which states, "Demonstrate compliance by complying with Conditions 6 through 6.2 of

Construction Permit AQ0110CPT01 Rev. 1." GVEA agreed with the MR&R requirements to comply with the AQ0110CPT01 Rev 1 requirements. Please revise this condition to be consistent with the MR&R requirement in the SIP. The language from the requirements in permit AQ0110CPT01 Revision 1 can be included verbatim in this permit. Two sets of similar but not identical requirements in two different Title I permits is inefficient and increases the potential for misunderstanding and error.

Response: *The Department has accepted the comment and modified Condition 7.lb to reference following Conditions 6 through 6.2 of Construction Permit AQ0110CPT01 Rev. 1. A statement is also included on the title page of the permit that notes that these conditions from the construction permit have been adopted into this minor permit. The TAR for Condition 7 was likewise revised to reflect this change.*

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23. Condition 8.1a. Please amend for consistency with language elsewhere and to clarify applicability to each operating period, as follows.

(i) Perform regular maintenance according to the manufacturer's and the operator's applicable maintenance requirements and procedures.
(ii) Keep records of any maintenance that would have a significant effect on emissions. The records may be kept in electronic format.
(iii) Keep a copy of the manufacturer's and or the operator's applicable maintenance procedures.

Response: *The Department does not agree with the comment to amend the language of Condition 8.1a. The language of these conditions is a slight modification from the Department's SPC VI – Good Air Pollution Control Practice. The Department is maintaining this set of conditions across all the Fairbanks North Star Borough Non-attainment Area SIP Minor Permits.*

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24. Condition 8.1b. Please revise this condition to be consistent with the MR&R requirement for combusting propane fuel as presented on page Appendix III.D.7.7-1157 of the proposed SIP table for combusting propane, which requires compliance with Condition 7 through 7.3 of Construction Permit AQ0110CPT01 Rev 1. The language from the requirements in permit AQ0110CPT01 Revision 1 can be included verbatim in this permit. Two sets of similar but not identical requirements in two different Title I permits is inefficient and can result in a lack of clarity. As GVEA commented on the SIP amendment, GVEA is unsure of the origin of the 120ppmv sulfur limit for propane. HD 5 or "consumer grade" propane is the most common and highest-grade propane commonly available for use with specifications defined by the Gas Processors Association and has a sulfur content specification of not more than 165 ppmv. Unlike distillate fuels (like ULS), propane is not delivered with a sulfur content specification. In past years propane was produced in-state and GVEA was able to obtain analysis results for batches produced near times when distributors delivered to the North Pole plant. In-state production has since ceased and linking information from propane distributors to propane producers out of state to obtain a version of supply certification is now impossible, leaving GVEA with no feasible method to demonstrate compliance with 8.1.b.

These boilers are only used to heat the plant when the generating unit is offline, this occurs 2 to 4 times per year and total annual runtime is under 200 hours.

(i) For each shipment of fuel, keep receipts that specify ~~the fuel sulfur concentration in ppm by volume~~. the date and type of fuel received, or obtain a statement from the vendor or supplier indicating sulfur content.

Response: *The Department accepts the request to remove language in Condition 8.1b pertaining to the concentration of sulfur in the propane fuel but has rejected the request to modify this condition to directly reference Conditions 7 through 7.3 of Construction Permit AQ0110CPT01 Rev 1. The Department's BACT determination for $PM_{2.5}$ at Fort Wainwright only specified that propane was used in the boiler, and did not specify the concentration of sulfur in the propane. The 120 ppmv sulfur concentration was mistakenly included under the $PM_{2.5}$ BACT section, but was instead a finding under the SO_2 BACT, which is not being included in this permit for reasons addressed in Section 1 of the TAR. Therefore, this change is considered a correction for implementing the proper BACT finding from the SIP BACT determination document into the source's minor permit.*

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25. Condition 8.1c(ii). Please amend the text as follows.

(ii) ~~copies~~ a summary of the fuel ~~receipts~~ types received or statement collected under Condition 8.1b(i), unless the Permittee chooses to comply with Condition 8.1c.

Response: *The Department does not agree with the comment. The phrase "unless the Permittee chooses to comply with Condition 8.1c" implies that following the reporting requirements under Condition 8.1c are optional. The Department has revised Condition 8.1c(ii) to be consistent with the updated SIP BACT MR&R requirements.*

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26. Condition 12. Please delete the phrase "for the life of this permit" because the phrase is only relevant in a Title V permit. The associated footnote addresses permit effective dates and permit expiration. Title I permits, such as this minor permit, do not expire.

Response: *The Department does not agree with the comment. The phrase "for the life of this permit" corresponds to the standard permit condition (SPC) derived for Operating Reports required by Operating Permits. Since EPA requested that the Minor Permit be self-contained, the Department brought in the exact SPC, which contains the phrase. While the phrase may be considered irrelevant since Minor Permits typically do not have expiration dates, it is not considered factually incorrect for the purpose of incorporating this minor permit into the SIP.*

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27. Condition 13 and Conditions 5.1b, 6.1d, 7.1e, and 8.1d. GVEA disagrees that an annual compliance certification should be prepared for a minor permit. GVEA also disagrees that an annual compliance certification for a minor permit should be submitted to EPA per Condition 13.2. The discussion of this permit condition on page 12 of the draft Technical Analysis Report (TAR) states that the basis for this requirement is a letter from EPA dated Aug 23, 2024. However, the TAR does not provide a specific rationale or explanation as to the reason an annual compliance certification is required for a minor permit. The language in the TAR is confusing and unclear because the language refers to two effective permits, expiration of an old permit, and a renewal permit. This language appears to be specific to Title V permits and

does not explain or clarify the reason for Condition 13 in this minor permit. Please delete or revise Condition 13 to address these concerns. If Condition 13 is retained in any form in the final permit, please ensure that the TAR provides sufficient rationale for imposing this requirement.

Response: *The Department does not agree with the comment. However, the Department did correct the reference to the Submittals Condition 10 from Condition 9.*

The Department did not delete the Annual Compliance Certification (ACC) or the requirement to submit ACC's to EPA. An ACC is a type of reporting of compliance status with permit conditions including but not limited to those related MR&R. Since EPA requested that the minor permit be self-contained and specifically identified the ACC as an item need to accomplish this, the Department brought in the requirement for submitting an ACC for the conditions listed in the Minor Permit. The Department did remove the confusing language related to effective permits and renewal permits that are specific to Title V permits. The updated language in the TAR reads as follows.

Condition 13, Annual Compliance Certification

This condition specifies the periodic compliance certification requirements and specifies a due date for the annual compliance certification. No format is specified. ~~The Permittee may provide one report certifying compliance with each permit term or condition for each of the effective permits during the certification period, or may choose to provide two reports: one certifying compliance with permit terms and conditions from January 1 until the date of expiration of the old permit, and a second report certifying compliance with terms and conditions in effect from the effective date of the renewal permit until December 31.~~

The Permittee is required to submit to the Department an annual compliance certification report. The Permittee may submit the required report electronically at their discretion.

The Department included Condition 13 in order to add reporting requirements into the minor permit to satisfy additional SIP inclusion conditions <u>that were</u> recommended by EPA Region 10 in a letter dated August 23, 2024. <u>In the letter, EPA expressed that including the ACC in the minor permit would ensure that the permit's MR&R would be "self-contained." This would allow the minor permits, rather than the TV Permits which require renewal every five years, to be incorporated in the NAA SIP.</u>

<u>Comments on Preliminary Technical Analysis Report (TAR) for Air Quality Control Minor Permit No. AQ0110MSS01 Revision 1</u>

28. Pages 2 and 3, TAR Section 1, first full paragraph beginning on page 3. This paragraph cites an August 23, 2024 letter from EPA to the Department that recommended "certain requirements be contained in the Department's NAA minor permit for the Zehnder Facility," and states that the EPA recommended certain revisions to Minor Permit AQ0109MSS01 Rev 1. This discussion is unclear as to how the EPA letter addressing a different facility relates to this minor permit for the North Pole Power Plant stationary source. Please revise this discussion to provide the needed clarity.

Response: *A sentence is added to this section of the TAR to note the recommendation applies to all Title I permits being issued for purposes of the Fairbanks North Star Borough Nonattainment*

Area State Implementation Plan. Additionally, the Department added a sentence in this paragraph to note that the $PM_{2.5}$ requirements from this permit are included in Table 7.7-46 of the updated State Air Quality Control Plan Vol II: III.D.7.7 Control Strategies document with forthcoming adoption expected in 2024.

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29. Page 3, TAR Section 1, final paragraph of Section 1. GVEA requests that ADEC provide a detailed rationale to explain the reasons the increase in SO_2 emissions is not a potential or actual emissions increase under 18 AAC 50.502(c)(3) or a potential or net emissions increase under 40 CFR 52.21(b). The rationale should also explain that any increase in SO_2 emissions that result from returning to the combustion of a fuel, the combustion of which was allowed before the BACT SO_2 limits were imposed, is not an increase in actual emissions for permit applicability determination purposes.

Response: *The paragraph clearly states the Department does not consider the apparent increase in SO_2 emissions from the removal of the SO_2 limits in Minor Permit AQ1121MSS04 to be a change in emissions for purposes of minor permit or PSD permit applicability. However, the Department did revise the last sentence of the paragraph to address PSD permit applicability under 40 CFR 52.21(a)(2) and added one additional sentence to further clarify why the issuance of this permit is not considered an emissions increase, as follows:*

> *"…The Department does not consider this change to be a potential or actual emissions increase under 18 AAC 50.502(c)(3), or a ~~potential or actual~~ significant emissions increase under 40 C.F.R. 52.21~~(b)~~(a)(2). This is because the Department originally issued AQ0110MSS01 for the sole purpose of limiting the potential-to-emit of the North Pole Power Plant to avoid classification as a major source of SO_2 emissions in a NAA under 40 C.F.R. 51.165 and 18 AAC 50.311, hence, avoiding a corresponding SO_2 BACT determination. However, the Department later found no underlying basis for issuing such permit.*

The Department notes that any apparent increase in SO_2 emissions from using a fuel previously allowed would only occur due to the removal of the SO_2 limits, which is already addressed in the paragraph.

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30. Page 3, TAR Section 2: Please correct the typographical error in the first sentence by revising "GEVA" to "GVEA."

Response: *The typographical error has been corrected.*

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31. Page 4, TAR Section 5, Table 6. When finalizing the TAR, please ensure that the PTE and assessable emission calculations are accurate and incorporate any relevant revisions based on other GVEA comments. Please address the following specific concerns.

- Note 2 to Table 6 directs the reader to Section 1 of the TAR for more details. However, no additional details on this issue are provided in Section 1.
- Note 5 states that the non-VOC HAPs PTE is 6.7 tpy. The value of 6.7 tpy is the maximum PTE of any individual HAP. GVEA calculates the VOC HAPs PTE at 3.64 tpy and the non-VOC HAPs PTE at 7.32 tpy.

Response: *Comment noted. The Department has included additional language in Section 1 of the TAR regarding Table Note 2. See response to Comment 29 for further details. The Department has corrected the Table Note 5 to reference the 7.32 TPY value of non-VOC HAPs. This change increases the assessable PTE for the source to 6,664.4 TPY, which has been updated in Table 6 as well as Condition 3.1.*

In addition, to further clarify, the Department added the following edits in the notes Table 6:

- *Note 1: Added "PM2.5 and PM10 emissions are part of and conservatively assumed equal to total PM emissions."*
- *Note 2: Revised 2nd sentence, as follows: "The Department does not consider this permitting action to be a potential or actual emissions increase under 18 AAC 50.502(c)(3), or a ~~potential or net~~ significant emissions increase under 40 C.F.R. 52.21(~~b~~a)(2)…"*
- *Note 3: Added "The stationary source is not a major source of fugitives; therefore, fugitives are assumed negligible and not included in the assessable emissions."*

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32. Pages 8 through 10, TAR Section 8, discussion of Section 3 SIP Requirements. The first paragraph of this section cites the 2019 Serious SIP instead of the 2024 SIP amendments as the basis for the permit requirements. The entire section addressing Section 3 of the permit summarizes the conditions in Section 3 of the permit but provides minimal discussion of the regulatory and/or legal basis for the requirements. Please ensure that revisions to the SIP and permit AQ0110MSS01 Revision 1 are also addressed in this section when preparing the final version of this TAR. Those revisions should include, but are not limited to, applicable BACT requirements and applicable MR&R requirements. Please ensure that this portion of the final TAR addresses the following specific concerns.

- Please address the above GVEA comments regarding the $PM_{2.5}$ emission limits for the turbines.
- Please remove discussion of requirements for CO and O_2 concentration monitoring. In the above comments, GVEA has requested that ADEC delete the corresponding conditions from AQ0110MSS01 Revision 1. No basis exists for obtaining CO and O_2 concentrations with a handheld analyzer, what correlation exists with "good combustion practices", what variation is allowable, or what corrective action thresholds might apply.
- Please remove discussion of requirements to construct and maintain a positive crankcase ventilation system. In the above comments, GVEA has requested that ADEC delete the corresponding conditions from AQ0110MSS01 Revision 1. EU 7 is not and never has been equipped with PCV. The engine is only operated for

monthly readiness checks and in case of emergencies. The installation of a PCV system is not warranted for so little operation.

Response: *The Departments notes the comment. A note indicating a forthcoming adoption of new SIP amendments has been added as well as a reference to Section 1 of the TAR for a more detailed explanation on the bases for the SIP requirements. The Department rejected changes to the $PM_{2.5}$ emissions limits for the turbines, to the requirements for CO and O_2 concentration readings with a handheld analyzer in the turbines, and to PCV for EU 7 in responses to Comments 4, 9, and 20, respectively. Therefore, no changes were made to remove discussions of these requirements.*

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33. Page 12, TAR Section 8, discussion of Condition 13. The discussion of Condition 13 states that the basis for this requirement is a letter from EPA dated Aug 23, 2024. As stated in the comment above addressing Condition 13 in the permit, the TAR does not provide a specific rationale or explanation as to why an annual compliance certification is required for a minor permit. The language in the TAR is confusing and unclear because it refers to two effective permits, expiration of an old permit, and a renewal permit. This language appears to be specific to Title V permits and does not explain or clarify the reason for Condition 13 in this minor permit. If Condition 13 is retained in any form in the final permit, please ensure that the TAR provides sufficient rationale for imposing this requirement.

Response: *This issue was addressed in response to Comment 27.*

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34. Page 14, Appendix A, Table A-1. In the final TAR, please ensure that the PTE calculations are accurate and incorporate any relevant revisions based on other GVEA comments. Please address the following specific concerns.

- Please revise the unit of measure for the EU 7 emission factors from "g/hp-hr" to "lb/hp-hr."
- The correct PM_{10} and $PM_{2.5}$ emission factor for EU 7 is 0.0022 lb/hp-hr, per AP-42 Table 3.3-1.
- Please confirm the SO_2 emissions from EUs 11 and 12. GVEA calculates the SO_2 PTE for these emissions units as negligible based on the 120 ppmv propane fuel sulfur content limit.

Response: *The Department notes the comment. The unit of measurement for EU 7 emissions factors has been revised and the PM_{10} and $PM_{2.5}$ emissions factors corrected as requested above. This resulted in an increase in $PM_{10}/PM_{2.5}$ emissions from 0.01 TPY to 0.03 TPY. However, this change did not affect the total $PM_{10}/PM_{2.5}$ emissions for the source which remain unchanged at 102.4 TPY.*

The Department notes that although this permit is not requiring 120 ppmv sulfur in the propane fuel for EUs 11 and 12, that the potential SO_2 emissions are still calculated based on that level of sulfur. This is because of the existing limit in Condition 7 of Construction Permit AQ0110CPT01 Rev. 1, which is incorporated into Operating Permit AQ0110TVP04 Rev. 1 as Condition 17.

B. Editorial Corrections Made by the Department

The Department also made the following minor editorial corrections not mentioned in the

responses to comments:

1. **Condition 5.3:** Added Condition 5.3 to be consistent with the North Pole Power Plant BACT determination document in Section 4.1 with regards to limited operation of EU ID 2.
2. **Condition 6.1a(i):** Added "in accordance with the procedures specified in 40 CFR 51, Appendix M, Method 201A and, if applicable, Method 202 as provided in Method 201A" for consistency with the revision requested for Condition 5.1a(i) in Comment 7.
3. **Table 4:** Corrected spelling from "Ventil***i***ation" to Ventilation."

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Appendix C – Aurora Energy, LLC; Chena Power Plant RTC

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Response To Comments on Preliminary Minor Permit AQ0315MSS02 Rev. 1
Aurora Energy, LLC, Chena Power Plant
Public Comment Closing Date: October 21, 2024

Prepared by Adam Leibert on October 28, 2024

This document provides the Alaska Department of Environmental Conservation's (Department's) responses to all public comments on the preliminary decision to issue Air Quality Control Minor Permit No. AQ0315MSS02 Rev. 1 for the Aurora Energy, LLC's Chena Power Plant at 1206 1st Avenue, Fairbanks, AK, 99701. The Department provided an opportunity for public comment beginning September 20, 2024 and ending October 21, 2024. Comments were received via email from the Aurora Energy, LLC on October 18, 2024. These comments appear exactly as submitted.

In quoting text from the preliminary permit and Technical Analysis Report (TAR) as part of response or comment, the following text formatting are used to indicate how revisions are made: underlined text means text to be added while ~~strike-through~~ text means text to be deleted.

A. Comments from Aurora Energy, LLC

Permit:

1. Condition 5:

Issue: Within Table C under Condition 5, the SIP BACT $PM_{2.5}$ Limit for a 3-hour average is 0.045lb/MMBtu. The $PM_{2.5}$ emission rate was calculated using EPA AP-42 Table 1.1-5 for spreader stoker boilers with a baghouse and Table 1.1-6 for $PM_{2.5}$ sized particles for a boiler with a baghouse. The DEC's justified establishing a $PM_{2.5}$ limit for the Chena Power Plant by referencing the results of a source test for particulate matter which was conducted on November 19, 2011.[1] Based on the states own statistical analysis, the upper confidence value for emissions from the Chena Power Plant exceed the emission limit by 0.003 lb/MMBtu. Since 2011, there have been minor changes to the plant and coal quality variations may have impacted the $PM_{2.5}$ emission rate. Ultimately, the issue lies in the limited empirical data available to establish a definitive BACT standard for the Chena Power Plant boilers.

Based on the EPA's definition for BACT in 40 CFR 51.166(b)(12) an emission limitation based on the maximum degree of reduction for each regulated pollutant needs to be achievable by the facility. The primary issue with imposing a limit derived from AP-42, which has not been thoroughly vetted for this specific application, is that it may not accurately reflect the plant's actual emissions during normal operations. As a result, the plant could inadvertently exceed the limit and fall out of compliance with the established standard, despite operating under typical conditions.

The proposed emission limit is arbitrary and untested with the current operating conditions of the Chena Power Plant. The justification for imposing the current limits is based on a very limited set of empirical data. Aurora faces uncertainty if the limit isn't met.

Request: The compliance method provided by DEC for verifying adherence to the $PM_{2.5}$ standard is a single 3-hour source test, like the testing conducted a decade ago. However, the emission limit and compliance method for $PM_{2.5}$ have not yet received approval from the EPA. The uncertainty Aurora faces stems from the possibility that the compliance test may reveal emissions exceeding the proposed limit, leaving the plant's regulatory status in question. Unlike the University of Alaska Fairbanks, Aurora does not have an emission guarantee from a boiler manufacturer.[2]

It would relieve Aurora's uncertainty if a contingency could be incorporated into the permit in case the limit is not achievable. If there isn't a contingency and Aurora is not able to achieve the emission limit, there must be some defined path forward that would accommodate that potential. If it were spelled out within the context of the permit or in the TAR, that would be recommended.

1. State Air Quality Control Plan Vol.III: Appendix III.D.7.7-179.
2. Ibid.

Response: *The AP-42 is a widely accepted source of information for determining emission limits especially when no other information is available. For the Chena Power Plant BACT determination, the Department used all relevant information at its disposal to establish the limit of 0.045 lb/MMBtu (3-hour average). Besides AP-42, the Department reviewed past source test data conducted at coal fired boilers at UAF and the Chena Power Plant and found the limit derived from AP-42 adequate.*

The average $PM_{2.5}$ emissions from a similar former boiler at UAF was found to be approximately 0.03 lb/MMBtu, whereas the average of three runs from the Combined Boiler (Chena 1, 2, 3 and 5) Baghouse Stack was 0.0272 lb/MMBtu. The BACT limit for the Chena Power Plant of 0.045 lb/MMBtu (3-hour average), calculated from EPA's AP-42 Table 1.1-5 for spreader stoker boilers with a baghouse and Table 1.1-6 for $PM_{2.5}$ sized particles for a boiler with a baghouse was determined to be an appropriate BACT limit.

BACT limits may not necessarily be site-specific but represent best available emission controls for a given source type given its design and operational characteristics. A BACT determination includes the review of available retrofit technology to improve emissions performance and is not intended to solely match the emissions performance of existing equipment. Permittees of stationary sources subject to BACT limits are expected to operate and maintain equipment to control air pollutants using best available control technology conducting necessary maintenance and equipment upgrades over the years to maintain or even improve emissions level performance.

The Clean Air Act does not allow the Department the ability to include a contingency in the event that a BACT limit is not achieved. However, in the event that Aurora's source test results show non-compliance with the established BACT limits, the Department will work with Aurora to make efforts to bring the affected units into compliance. Aurora will need to exhaust all possible and reasonable options to improve the emissions performance of the boilers including but not limited to carefully reviewing the implementation of the emission control technology proposed to achieve the limit. Permittees of stationary sources subject to BACT limits are expected to operate and maintain equipment to control air pollutants using best available control technology, conducting necessary maintenance and equipment upgrades over the years to maintain or even improve emissions level performance.

While it is possible to amend an established BACT limit after the SIP amendments have been approved, it is a lengthy process that will only occur after all other options have been exhausted, as there is no straightforward contingency process to amend BACT emission limits.

The Department notes that we also modified the language in Condition 5.1a(i) for clarity and consistency with the other SIP permits for coal-fired boiler sources. The Condition now reads as follows:

Conduct the source test at the maximum achievable load of EU IDs 4 through 7 ~~using~~ in accordance with the procedures specified in 40 CFR 51, Appendix M, Methods 201A and, if applicable, Method 202 as provided in Method 201A.

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2. Condition 6:

Issue: The label for Table D indicates EU IDs 1, 2, 3, and 8 SIP BACT Limits but illustrates only those of EU ID's 1 and 3.

Request: Modify the label for Table D to reference EU ID's 1 and 3 only.

Issue: The BACT Emission Limit under Table D for EU ID 3 is 0.23 TPY. Recent renewal application for Aurora's TV permit AQ0315TVP04 includes a $PM_{2.5}$ potential controlled emission calculation for EU ID 3 which is 0.24 TPY.

Request: Aurora would like for the PM2.5 BACT Limit within the minor permit to be consistent with the calculation submitted for potential controlled emission from EU ID 3 as referenced within the TV permit application for the Chena Power Plant.

Response: *The Department corrected the label for Table D to include only EU IDs 1 and 3. The BACT emissions limit for EU ID 3 in Table D has been updated to be consistent with the recent Title V permit renewal application for the Chena Power Plant.*

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3. Condition 7:

Issue: Within Condition 7, references are made to EU ID 8 which are inconsistent with the EU ID for the Coal Stockpile which is EU ID 2.

Request: Address the inconsistencies regarding the EU ID within this Condition.

Response: *The Department has corrected Condition 7 to replace references to EU ID 8 with EU ID 2.*

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4. General Comment (Conclusion)

In summary, Aurora appreciates the opportunity to comment on the preliminary Minor Permit AQ0315MSS02 Rev. 1. Aurora's primary concern, as outlined in these comments, is the uncertainty regarding compliance with the $PM_{2.5}$ limit. The preliminary Minor Permit BACT limit for the facility may not accurately represent the emissions from the source since the compliance limit is based on a very limited data set. Aurora recommends including a

contingency in the permit to account for the possibility that current operational conditions may not meet the prescribed standard.

Response: *The Department acknowledges Aurora's concern regarding uncertainty of compliance with the $PM_{2.5}$ limit. See related response to Comment #1.*

Editorial Corrections Made by the Department

The Department also made the following minor editorial corrections not mentioned in the responses to comments:

1. **Condition 5.1a (Source Test due date):** Changed the one-time source test requirement due date from "within 180 days of permit issuance, or by June of the year following the date of permit issuance, whichever comes later," to "within 12 months of permit issuance," consistent with the Department's response to Doyon Comment 4 in the Response to Comment document for the concurrently public noticed 2024 Fairbanks SIP Revisions.
2. **Condition 8 (Truck Bay Ash Loadout):** Corrected Condition 8 to reference EU ID 8.
3. **Condition 15 (Annual Compliance Certification) and TAR:** Corrected the condition to cross-reference Condition 11 (Submittals), instead of Condition 10 (Certification). To avoid confusion, updated the TAR for Condition 15 by deleting the following text related to effective permits and renewal permits that are specific to Title V permits: "The Permittee may provide one report certifying compliance with each permit term or condition for each of the effective permits during the certification period, or may choose to provide two reports: one certifying compliance with permit terms and conditions from January 1 until the date of expiration of the old permit, and a second report certifying compliance with terms and conditions in effect from the effective date of the renewal permit until December 31."

   To further clarify rationale for adding the condition, added the following in the end of the last paragraph: "In the letter, EPA expressed that including the ACC in the minor permit would ensure that the permit's MR&R would be "self-contained." This would allow the minor permits, rather than the TV Permits which require renewal every five years, to be incorporated in the NAA SIP."

Appendix D – UAF, University of Alaska Fairbanks Campus RTC

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Response To Comments on Preliminary Minor Permit AQ0316MSS08 Rev. 1
University of Alaska Fairbanks, University of Alaska Fairbanks Campus
Public Comment Closing Date: October 25, 2024

Prepared by Dave Jones on October 31, 2024

This document provides the Alaska Department of Environmental Conservation's (Department's) responses to all public comments on the preliminary decision to issue Air Quality Control Minor Permit No. AQ0316MSS08 Rev. 1 for the University of Alaska Fairbanks's (UAF's) University of Alaska Fairbanks Campus (UAF Campus) at 802 Alumni Drive, Fairbanks, Alaska 99709. The Department provided an opportunity for public comment beginning September 23, 2024 and ending October 25, 2024. Comments were received via email from Patrice Lee on behalf of Citizens for Clean Air on October 21, 2024, and via email from the University of Alaska Fairbanks on October 23, 2024. These comments appear exactly as submitted.

In quoting text from the preliminary permit and Technical Analysis Report (TAR) as part of response or comment, the following text formatting are used to indicate how revisions are made: underlined text means text to be added while ~~strike-through~~ text means text to be deleted.

The Department has identified comments below that were not addressed in this document because they were outside the scope of the permitting action.

A. Comments from Patrice Lee on behalf of Citizens for Clean Air

Permit:

1. **General Comment:** Air pollution is not limited to PM 2.5. We know from the ALPACA research of 2019 and subsequent reports that Hydroxymethanesulfonate (HMS) is formed from the precursor molecule SO2 and formaldehyde from wood burning, the major source of PM 2.5 in our nonattainment area. HMS, a carcinogenic compound is found in high percentages in the nonattainment area and needs to be monitored specifically which includes SO2. HMS poses a grave threat to the health of all who live and breathe in the area. The idea that monitoring SO2 levels is less important than monitoring PM2.5 for the sake of achieving an acceptable SIP defeats the purpose of the Clean Air Act (CAA), which is to protect human health.

Response: *This comment is outside the scope of the minor permit. Please see the response to the SIP Amendment comments.*

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2. **General Comment:** How does ADEC form its opinion that it does not consider this change to be a potential or actual emissions increase under 18 AAC 50.502(c)(3), or a potential or net emissions increase under 40 C.F.R. 52.21(b)?

   How will ADEC know what is happening with SO_2 levels in real time?

How will ADEC monitor the potentially reduced SO2 from the legally required change to home heating fuel with increased coal burning and greatly increased diesel fuel consumption for vastly increased trucking through the nonattainment area?

Response: *Regarding the potential or actual emissions increase in sulfur dioxide (SO_2), see the response to UAF Comment 36 below. Regarding the SO_2 levels and monitoring potentially reduced SO_2, these comments are outside the scope of the minor permit issuance.*

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3. General Comment: Is each point source monitored for its SO2 output?

How are mobile sources being accurately monitored?

What will ADEC do if emissions for the UAF plant exceed 761 tons per year?

Since this is an annual measurement, what if in a cold winter month the SO2 is much higher and thus likely to be formulating more HMS? At that point one doesn't know if the amount will be less or more than 761 tons/yr. That's like a person coming into the hospital with a 105 degree fever and being told everything's Ok because their average temperature over the last month was 98.6 degrees F. We are all continuously breathing whatever is in the air and deal with the damaging and expensive consequences.

Response: *Each point source is not individually monitored for SO_2 emissions. However, as part of their standard Title V operating permit reporting requirements, permittees are required to measure, calculate, and report emissions of SO_2 and other pollutants emitted from their stationary sources on a yearly basis. The monitoring of mobile sources is outside the scope of the minor permit issuance. Exceedance of any BACT emission limit would require UAF to report such exceedance as an excess emission report, which would prompt the Department to take compliance or enforcement action.*

UAF's potential to emit (PTE) of SO_2 of 761 tons per year (tpy) has been calculated based on the permitted emission units' maximum amount of air pollutants a stationary source can emit based on its physical and operational design. Absent permitted operational limits such as a limit on number of operating hours per year, PTE is used to predict how much air contaminants a source will release if it operates at its maximum capacity, i.e., 24 hours a day, 365 days a year. PTE also takes into account the permitted designation on emergency status (e.g. a diesel engine designated as an emergency engine in the source's emissions inventory), in which case the PTE for such equipment is based on less potential hours of operation per year than 24 hours a day, 365 days a year. In general, however, stationary sources actual emissions are normally far below their PTE calculated values for all pollutants. In general, the BACT limits established in UAF's Minor Permit are short-term limits averaged over 3 hours.

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4. General Comment: Health care is limited in the Fairbanks North Star Borough. Appointments take weeks sometimes and the cost of Emergency Room or Urgent Care is extremely expensive. The medical costs of dirty, polluted air are not figured into the cost of cleaning up our air. The cost is born by the citizens of our community both in monetary terms and pain and suffering. Many cannot afford and do not have access to care and therefore go without. Many wait until it is too late and they become part of our premature mortality statistics. Air pollution is known to affect a child's developing brain and cognition. Is it any wonder that students in the nonattainment area may not be performing at

expected levels? We know that breathing dirty, polluted air doesn't help anyone be healthier or perform better. This cost is consistently ignored when meeting attainment is discussed or reviewed. It is the reason for meeting attainment. The state of Alaska chooses how to spend its money. It has relied on the EPA to foot the bill almost entirely, while not batting an eye at spending untold amounts of money to subsidize foreign corporations, including mining and oil and gas.

Response: *This comment is outside the scope of the minor permit issuance. See the response to the SIP Amendment comments.*

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5. **General Comment:** Citizens for Clean Air (CCA) specifically calls for the complete adherence to the CAA. The lawful compliance with the protective health standards is the state's responsibility. EPA's responsibility is to protect us through lawful enforcement of the CAA.

Response: *Comment acknowledged.*

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6. **General Comment:** CCA strongly objects to any increase in SO2 levels at any point source in the nontattainment area. CCA objects to the idea that SO2 levels are less relevant because they are not required in the current SIP update. CCA believes that SO2 levels are critical to meeting the health protective standards of the CAA and therefore request that the SO2 permits be as restrictive as possible, meeting all legal requirements.

Response: *This comment is outside the scope of the minor permit.*

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7. **General Comment:** The UAF power plant uses old, polluting technology while UAF purports to be an innovative university on the cutting edge of many things, including clean energy initiatives. Students and nearby residents should not be subjected to high levels of PM 2.5, SO2 and any other toxics know to be by products of coal combustion.

Response: *The BACT determinations prepared for both $PM_{2.5}$ and SO_2 were conducted following the proper methodology in compliance with the CAA.*

B. Comments from University of Alaska Fairbanks

Permit:

1. **General comment:** This permit incorporates the $PM_{2.5}$ Best Available Control Technology (BACT) requirements identified in the proposed amendments to the $PM_{2.5}$ Serious State Implementation Plan (SIP). The University of Alaska Fairbanks (UAF) submitted many comments addressing the proposed SIP amendments on October 7, 2024. The UAF comments specifically address the BACT determinations for the UAF Fairbanks Campus emissions units. Please ensure that revisions to the SIP based on those comments are consistent with the final version of this minor air quality permit.

Response: *Comment noted. The Department has verified that revisions to the SIP based on SIP Response to Comments are consistent with the revision to the minor permit AQ0316MSS08 Revision 1.*

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2. **General comment:** The proposed permit does not indicate the effective date of certain emissions limits, which should be no sooner than the date that those limits become effective in the SIP. Vol. II: III.D.7.7.13.8.7 (pages 185 through 186, Table 7.7-47) of the proposed

SIP amendments indicates that the effective date is "no later than December 31, 2024." As a result, certain permit emissions limits should not take effect any sooner than the date that the limit becomes effective in the SIP. In addition, Section 7 of the Technical Analysis Report (TAR) to preliminary permit AQ0316MSS08 Revision 1 states that UAF may not operate under this minor permit until the permit is incorporated into Permit AQ0316TVP03 Revision 1 and that Title V permit becomes effective. The timelines for effective dates of limits and initial compliance demonstrations should be consistent with the Title V revision process.

Response: *The Permit becomes effective upon issuance. The Department has removed the Effective Date Column from Table 7.7-47 of Chapter 7 and the proposed effective date of December 31, 2024 is no longer applicable." This was done because the minor permits are being incorporated into the SIP and there is no longer a need to address a future effective date of when the limits will take effect.*

Additionally, the Department has re-evaluated the differences between the requirements in the SIP section of Minor Permit AQ0316MSS08 Rev. 1 to the MR&R requirements contained in the SIP section of Operating Permit AQ0316TVP03, and found that they are complimentary and not contradictory. Therefore, the Department changed the wording in the TAR for Minor Permit AQ0316MSS08 Rev. 1 to state that the Permittee may operate under the terms and conditions of the minor permit revision upon issuance. Additionally, the Department intends to incorporate AQ0316MSS08 Rev. 1 into the operating permit as soon as practicable.

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3. **General comment:** UAF is requesting several changes to the monitoring requirements. Please ensure that all associated recordkeeping and reporting requirements are ultimately consistent with the monitoring requirements that appear in the final version of the permit.

Response: *Comment noted. See responses to the more specific related comments below.*

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4. **Section 1, Table 1:** Please delete EU 26 from the Emission Unit Inventory in Table 1. Per the UAF comments on the EPA proposed disapproval of the Serious SIP, in a letter dated March 23, 2023, EU 26 has been permanently removed from service. Please remove EU 26 from this permit entirely.

Response: *EU ID 26 has been removed from the Minor Permit, as requested.*

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5. **Condition 3.1:** Please see UAF comments addressing the preliminary Technical Analysis Report (TAR) for this permit and ensure the assessable PTE value in this condition is accurate in the final permit.

Response: *Comment noted. See the response to UAF Comment 37 for further discussion.*

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6. **Condition 5:** Please correct the typographical error in this condition as follows.

   The Permittee shall limit the emissions from the dual fuel-fired boiler EU ID 113 as specified ~~in ified~~ in Table 2.

Response: *The Department corrected the typographical error as requested.*

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7. **Condition 5, Table 2:** Please correct the table heading for Table 2 to reflect that the table is for EU ID 113, not EU ID 13.

Response: *The Department corrected the table heading to reflect EU ID 113.*

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8. **Condition 5, Table 2:** Please delete "State Visible Emissions Standards 18 AAC 50.055(a)(1)" from the BACT Emission Limit field in this table. The BACT determination in the proposed SIP amendments does not identify this requirement as an available control technology or carry this requirement through the BACT analysis. The BACT determination does not provide any rationale for including this requirement as a BACT limit. Compliance with opacity standards is not addressed as an available control technology for $PM_{2.5}$ emissions in Step 1 of Section 4.1 of the BACT determination. As a result, compliance with the state VE standard should not be a BACT limit. UAF submitted similar comments on the proposed SIP amendment addressing this issue.

Response: *The Department did not remove the requirement to maintain compliance with the state opacity standard.*

The State's opacity standard is not considered a control device but was selected as a related limit to the $PM_{2.5}$ emissions limit, and therefore does not need to be brought through the BACT determination process. While a quantitative correlation between the State's opacity standard and the proposed $PM_{2.5}$ emissions limit of 0.012 lb/MMBtu has not been established, the direct proportionality of opacity level and particulate matter emissions concentration is widely accepted.

Given that the demonstration of compliance with the proposed $PM_{2.5}$ emission limit is through a one-time source test only, the Department saw appropriate to include a surrogate limit that can be measured on a continuous basis. While the Department may implement additional source testing requirements as part of Title V permitting program, compliance demonstration of the opacity standard supports in some fashion that PM and $PM_{2.5}$ emissions are being kept under the established BACT emission limit.

The Department believes that compliance with opacity standards support the overall effort for bringing the nonattainment area into compliance with the $PM_{2.5}$ standards. As historical precedent, the Department notes that a similar requirement was established to meet a 10% opacity standard in the BACT determination for gas-fired turbines at Alaska Gasline Development Corporation's Liquefaction Plant under Construction Permit AQ1539CPT01, even if was not located in a nonattainment area for $PM_{2.5}$.

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9. **Condition 5.1a:** The proposed permit does not indicate the effective date of the limit, which should be no sooner than the date that those limits become effective in the SIP. Vol. II: III.D.7.7.13.8.7 (pages 185 through 186, Table 7.7-47) of the proposed SIP amendments indicates that the effective date is "no later than December 31, 2024." As a result, certain permit emissions limits should not take effect any sooner than the date that the limit becomes effective in the SIP. In addition, Section 7 of the Technical Analysis Report (TAR) for preliminary Permit AQ0316MSS08 Revision 1 states that UAF may not operate under this minor permit until the permit is incorporated into Permit AQ0316TVP03 Revision 1 and that Title V permit becomes effective. The timelines for effective dates of limits and initial compliance demonstrations should be consistent with the Title V revision process. Please

revise this condition to provide an initial source test deadline that is no sooner than at least 180 days after the limit is effective in the SIP and at least 180 days after the Title V permit becomes effective.

Response: *In regard to the effective date of the limit, the BACT limit is effective on the date the final permit is issued. See the response to UAF Comment 2 above for further justification.*

In addition, regarding the initial source test deadline, the timeline requirement of "no later than December 31, 2024." has been removed from Vol. II: III.D.7.7.13.8.7 given that Minor Permit No AQ0316MSS08 Rev. 1 has been incorporated into the SIP in its entirety. The Minor Permit specifies compliance deadlines as appropriate. The deadline to comply with required source testing has been extended to 12 months from permit issuance to provide stationary sources the flexibility to test within any season during the year.

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10. Condition 5.1a: Please correct the typographical error in this condition ("Conduct a ~~a~~ one-time source test…").

Response: *The Department corrected the typographical error as requested.*

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11. Condition 5.1a(i): Please revise this condition to more precisely reference the test methods and acknowledge that using Method 202 is not necessary to measure total $PM_{2.5}$ if the gas filtration temperature is less than or equal to 85 degrees Fahrenheit, as specified in Method 201A. UAF believes the language in this condition should either be consistent with the language in Condition 28.3 or should simply reference Condition 28.3. UAF submitted a similar comment on the proposed SIP amendment addressing this issue. Suggested language is provided below.

> Conduct the source test at the maximum achievable load of the boiler **in accordance with the procedures specified in 40 CFR 51, Appendix M, Methods 201 A and, if applicable, Method 202** ~~using EPA Methods 201A and 202~~.

Response: *The Department made the revision as requested, and also added "as provided under Method 201A" at the end of the condition for clarity.*

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12. Conditions 5.1c(i) through (v): Please replace these requirements with the language from Conditions 34.1 through 34.6 and 35 of Permit No. AQ0316TVP03. Consistent with the UAF comments on the proposed SIP amendments, these conditions already impose appropriate requirements to satisfy the BACT requirement to operate fabric filters. Note the underlying Title I permit is AQ0316MSS09.

UAF particularly disagrees with inclusion of the provision in Condition 5.1c(v). This requirement was not identified as a potential MR&R requirement in the SIP. UAF is already required to report malfunctions (for both the operations of the unit and the continuous emission monitoring systems) and EEMSPRs under the federal regulations. EU 113 is subject to NSPS emission standards and NESHAP regulations. Complying with the applicable NSPS and NESHAP requirements inherently require the operator to follow good

combustion practices. Please see Conditions 52 through 54, 57, 95, and 105.2 through 105.4 of Permit No. AQ0316TVP03.

UAF understands that the minor permit must include stand-alone language and not incorporate Title V conditions by reference. However, the language from the applicable Title V conditions can and should be included verbatim in this permit. Two sets of similar but not identical requirements in two separate permits for the same emissions unit is inefficient and confusing. UAF is already complying with robust MR&R requirements with respect to fabric filter operation and good combustion practices for EU 113.

Response: *The Department acknowledges the similarity between the MR&R listed in AQ0316MSS08 Revision 1 for good combustion practices (GCPs) and that of 40 CFR 63 Subpart JJJJJJ. The MR&R listed in AQ0316MSS08 Rev. 1 was tailored to better support demonstration of continuous compliance with the GCPs to minimize $PM_{2.5}$ emissions. Footnote 9 of Operating Permit AQ0316TVP03 also notes that compliance demonstration requirements from the Title I permit AQ0316MSS09 are similar to the requirements under NESHAP Subpart JJJJJJ for affected emissions unit subject to the subpart's PM standard and using a fabric filter to control PM emissions for compliance demonstration. Condition 5.1c(i) requires the Permittee to keep records of each time-period that the EU is operated without a fabric filter. This requirement is carried from the original minor permit AQ0316MSS08 issued in 2021 and incorporated as Condition 49.3c in the operating permit AQ0316TVP03. Condition 5.1c(ii) requires the Permittee to perform regular maintenance according to the manufacturer's and the operator's maintenance requirements. These are essentially the same requirements as those contained in 40 CFR 63.11223 for tune-up maintenance consistent with the manufacturer specifications, and the Department does not believe that they would require the Permittee to change the current maintenance procedures that are being conducted on the boiler.*

The Department retains Condition 5.1c(v) as written. The condition requires the Permittee to operate the EU consistent with the manufacturer's recommended combustion settings or those established during the source test. The wording for manufacturer's recommended settings reflects the tune-up requirements contained in 63.11223(b)(1) through (7). A handheld analyzer can be used to effectively verify that combustion equipment is well tuned by periodically measuring CO and O_2 concentrations and comparing them with reference values. Deviations from ideal fuel and combustion air ratios can be detected using a portable combustion analyzer. Especially for conditions where equipment deterioration result in gradual deviation of normal CO and O_2 levels, periodic measurement of the concentration of these pollutants may provide additional insight of the combustion parameters at different loads before malfunctions are severe enough to result in significant visible opacity increases. Portable analyzers are commonly ubiquitously used devices to verify proper combustion settings in industrial fuel burning equipment.

One of the main differences between the Department's MR&R requirements in Minor Permit AQ0316MSS08 Rev. 1 and the NESHAP Subpart JJJJJJ requirements is Condition 5.1e(i), i.e., the obligation to report a summary of the maintenance records that would have a significant effect on emissions required under Condition 5.1c(iii). This was included in the minor permit to satisfy additional reporting requirements requested by EPA Region 10 in order to make the BACT limits in the SIP more enforceable. For similar reporting requirements, UAF may

streamline reporting by including a single set of data indicating that such information satisfies both federal and SIP reporting requirements (i.e., tune-up reporting).

The Department generally agrees with UAF's comment that it is not ideal to have somewhat duplicative sets of conditions for the same EU. The timeline to avoid a Federal Implementation Plan (FIP) on this current SIP requirement requires the Department to finalize these minor permits for incorporation into the SIP submittal for timely EPA approval. Pending final approval of the SIP submittal, the Department will invite a permit modification application to replace the current conditions with the equivalent GCPs requirements in NESHAP Subpart JJJJJJ. Therefore, should UAF wish to request a change in these requirements at a later date, UAF may submit a permit modification application under State regulations proposing the desired change and the Department will work with UAF to have them amended in the minor permit as well as the SIP.

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13. Condition 5.1c(ii): Per the above comment addressing Conditions 5.1c(i) through (v), UAF has proposed more appropriate, alternate language for these conditions. If Condition 5.1c(ii) is retained in any form, please revise the condition to require following manufacturer OR operator procedures, consistent with UAF comments on the proposed SIP amendments, and to correct a typographical error as follows.

> Perform regular maintenance ~~regular maintenance~~ according to the manufacturer's **<u>or</u>** ~~and~~ the operator's ~~maintenance requirements and~~ **<u>recommended maintenance</u>** procedures.

Response: *The Department did not amend the language of Condition 5.1c(ii). The language of these conditions is a slight modification from the Department's SPC VI – Good Air Pollution Control Practice. The Department is maintaining this set of conditions across all the Fairbanks North Star Borough Non-attainment Area SIP Minor Permits. The Department corrected the typographical error as requested.*

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14. Condition 5.1d(i): Please revise this condition to address the following concerns. Please note that UAF is commenting on the procedural methodology of incorporating the Standard Permit Condition, not the content of the Standard Permit Condition (SPC) itself.

a. The requirement to demonstrate compliance with a monitoring requirement by "following" a Standard Permit Condition is unclear.
b. SPC XIII includes visible emission standards and MR&R, PM standards and MR&R, and SO_2 standards and MR&R. Requiring compliance with the entirety of SPC XIII to demonstrate compliance with the MR&R requirements for the applicable visible emissions standard is unreasonable and without basis.
c. Incorporating the Coal-Fired Boilers SPC XIII by reference is inappropriate because existing Title V Permit AQ0316TVP03 contains site-specific language in the visible emission permit condition for the coal-fired boilers. The site-specific requirements are outlined on page 28 in the Statement of Basis for Permit AQ0316TVP03. As a result, incorporating the SPC language here will create a conflict with the site-specific language in the existing Title V permit and the underlying minor permit. The site-specific language from the existing Title V permit should be included verbatim in this

permit if EPA has indicated that referencing the Title V permit with the appropriate requirements is not allowable.

d. As UAF has noted above and in comments addressing the proposed SIP amendments, complying with the state VE standard was never analyzed as a BACT option. As a result, no basis exists for imposing this requirement as BACT.
e. Incorporating the Performance Audits for COMS SPC by reference is inappropriate because Condition 27 in existing Title V Permit AQ0316TVP03 presents the provisions in this SPC in their entirety. The language from Condition 27 in the Title V permit should be included verbatim in this permit to avoid any unintended inconsistencies. (UAF also notes that the correct nomenclature for this SPC is "**Performance Audits for COMS**." The name of this standard permit condition is not "the Department's Default COMs [sic] Audit Procedures.")

Response: *The Department agrees that only the visible emissions monitoring requirements in SPC XIII are necessary to demonstrate compliance with the visible emissions standard in Table 2 of the minor permit. Therefore, the Department revised Condition 5.1d(i) to include the relevant visible emissions monitoring requirements from SPC XIII in the minor permit.*

The Department notes there are additional monitoring and reporting requirements in Operating Permit AQ0316TVP03 that must be complied with, but there are no conflicts with the monitoring conditions in Minor Permit AQ0316MSS08 Revision 1.
For the portion of the comment regarding compliance with the visible emissions standard for BACT, see the response to UAF Comment 8.

The revision to the nomenclature for the SPC "Performance Audits for COMS" is made in accordance with the language in SPC XIII and noted on the cover page.

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15. Condition 6.1a: The proposed permit does not indicate the effective date of the limit, which should be no sooner than the date that those limits become effective in the SIP. Vol. II: III.D.7.7.13.8.7 (pages 185 through 186, Table 7.7-47) of the proposed SIP amendments indicates that the effective date is "no later than December 31, 2024." As a result, certain permit emissions limits should not take effect any sooner than the date that the limit becomes effective in the SIP. In addition, Section 7 of the Technical Analysis Report (TAR) for preliminary Permit AQ0316MSS08 Revision 1 states that UAF may not operate under this minor permit until the permit is incorporated into Permit AQ0316TVP03 Revision 1 and that Title V permit becomes effective. The timelines for effective dates of limits and initial compliance demonstrations should be consistent with the Title V revision process. Please revise this condition to provide an initial source test deadline that is no sooner than at least 180 days after the limit becomes effective in the SIP and at least 180 days after the Title V permit becomes effective.

Response: *The limit and permit are effective upon issuance. See the response to UAF Comment 9 above.*

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16. Condition 6.1a(i): Please revise this condition to more precisely reference the test methods and acknowledge that using Method 202 is not necessary to measure total $PM_{2.5}$ if the gas filtration temperature is less than or equal to 85 degrees Fahrenheit, as specified in Method 201A. UAF believes the language in this condition should either be consistent with the language in Condition 28.3 or should simply reference Condition 28.3. UAF submitted a

similar comment on the proposed SIP amendment addressing this issue. Suggested language is provided below.

> Conduct the source test at the maximum achievable load of the boiler **in accordance with the procedures specified in 40 CFR 51, Appendix M, Methods 201 A and, if applicable, Method 202** ~~using EPA Methods 201A and 202~~.

Response: *The Department made the revision as requested, and also added "as provided under Method 201A" at the end of the condition for clarity.*

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17. Conditions 6.1c(i) through (v): These requirements are inconsistent with the MR&R provisions identified in the MR&R requirements table following the BACT determination on page Appendix III.D.7.7-1535. Please replace these requirements with the language from Conditions 95 and 105.2 through 105.4 of Permit AQ0316TVP03. Consistent with the UAF comments on the proposed SIP amendments, these conditions already impose appropriate requirements to satisfy the BACT requirement to use good combustion practices.

UAF particularly disagrees with inclusion of the provision in Condition 5.1c(v). As UAF commented on the proposed SIP amendments, UAF believes that the requirement to conduct quarterly monitoring of CO and O_2 concentrations in the exhaust of these boilers should be deleted. The basis for this proposed requirement is unclear, as is the need for this information to effectively demonstrate good combustion practices.

UAF understands that the minor permit must include stand-alone language and not incorporate Title V conditions by reference. However, the language from the applicable Title V conditions can and should be included verbatim in this permit. Two sets of similar but not identical requirements in two separate permits for the same emissions unit is inefficient and can result in a lack of clarity. UAF is already complying with robust MR&R requirements with respect to good combustion practices for EUs 3 and 4.

Additionally, UAF notes that Condition 6.1c(v)(A) refers to EUs 1 and 2, which are no longer in the UAF emissions unit inventory. The reference to EUS 1 and 2 is likely a typographical error.

Response: *See the response to UAF Comment 12 above.*

The Department believes UAF meant to refer to Condition 6.1c(v), not 5.1c(v), in this comment. The Department did not remove the condition as requested. Condition 6.1c(v) requires the Permittee to operate the EUs consistent with the manufacturer's recommended combustion settings or those established during the source test, and Condition 6.1c(v)(A) requires the Permittee to quarterly monitor CO and O_2 concentrations.

A handheld analyzer can be used to effectively verify that combustion equipment is well tuned by periodically measuring CO and O_2 concentrations and comparing them with reference values. Deviations from ideal fuel and combustion air ratios can be detected using a portable combustion analyzer. Especially for conditions where equipment deterioration result in gradual deviation of normal CO and O_2 levels, periodic measurement of the concentration of these pollutants may provide additional insight of the combustion parameters at different loads before

malfunctions are severe enough to result in significant visible opacity increases. Portable analyzers are commonly ubiquitously used devices to verify proper combustion settings in industrial fuel burning equipment.

The Department corrected Condition 6.1c(v)(A) to refer to EU IDs 3 and 4, as EU IDs 1 and 2 are no longer in the UAF emissions unit inventory.

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18. Condition 6.1c(iii): Per the above comment addressing Conditions 6.1c(i) through (v), UAF has proposed more appropriate, alternate language for these conditions. If Condition 6.1c(iii) is retained in any form, please revise the condition to require following manufacturer OR operator procedures, consistent with UAF comments on the proposed SIP amendments, as follows.

> Keep a copy of the manufacturer's **or** ~~and~~ the operator's ma~~intenance requirements and~~ **recommended maintenance** procedures.

Response: *The Department did not modify Condition 6.1c(iii) for the reasons stated in the response to UAF Comment 13 above.*

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19. Conditions 7.1a(i) through a(iii): Please replace these sub-conditions entirely with the verbiage of Conditions 96.2 through 96.5 of Permit AQ0316TVP03, which incorporate the 40 CFR 63 Subpart JJJJJJ tune-up requirements to ensure good combustion practices. The MR&R requirements of those permit conditions are adequate to ensure compliance and are consistent with Section 4.3 of the BACT determination in the proposed SIP amendments. UAF understands that the minor permit must include stand-alone language and not incorporate Title V conditions or NESHAP regulations by reference. However, the language from the applicable Title V conditions can and should be included verbatim in this permit. UAF is already complying with MR&R requirements with respect to good combustion practices for EUs 17 through 22.

If ADEC declines to replace these sub-conditions with the federally applicable requirements in Subpart JJJJJJ, please revise Conditions 7.1a(i) and 7.1a(iii) to require following manufacturer OR operator procedures, consistent with UAF comments on the proposed SIP amendments, as follows.

> 7.1a(i) Perform regular maintenance according to the manufacturer's **or** ~~and~~ the operator's ~~maintenance requirements and~~ **recommended maintenance** procedures.
> 7.1a(iii). Keep a copy of the manufacturer's **or** ~~and~~ the operator's maintenance procedures.

Response: *The Department did not modify Conditions 7.1a(i) and (iii) for the reasons stated in the response to UAF Comments 12 and 13 above.*

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20. Condition 8.1: Please replace the MR&R requirements for Conditions 8.1a(i) through (iii) (for EU 35), 8.1b(i), and 8.1d(i) with verbatim language from the existing, federally enforceable requirements providing the MR&R requirements. Consistent with the UAF comments on the proposed SIP amendments, these provisions already impose appropriate requirements to satisfy the BACT requirements to use good combustion practices and

combust ULSD. The proposed SIP amendments already identify the existing federally enforceable requirements for limited non-emergency operation. UAF is providing a cross-reference table identifying the correct reference for the MR&R requirement for each emissions unit below. UAF understands that the minor permit must include stand-alone language and not incorporate Title V conditions and/or federal regulations by reference. However, the language from the applicable regulations can and should be included verbatim in this permit. Two sets of similar but not identical requirements in two separate permits for the same emissions unit is inefficient and confusing. UAF is already complying with robust MR&R requirements with respect to good combustion practices for EU 35, and limited non-emergency operation and the combustion of ULSD for both EUs 8 and 35.

AQ0316MSS08 Rev 1 requirement	Existing requirements applicable to EU 8	Existing requirements applicable to EU 35
Conditions 8.1a(i) through (iii), Good Combustion Practices	*N/A, see below	Conditions 79 and 83 of Permit AQ0316TVP03
Condition 8.1b(i), Combust ULSD	Condition 43.2 of Permit AQ0316TVP03	Conditions 80, 82.5, and 83 of Permit AQ0316TVP03
Condition 8.1d(i), Limit Non-emergency Operation	40 CFR 63.6640(f)	40 CFR 60.4211(f)

*For EU 8, please revise Conditions 8.1a(i) and 8.1a(iii) to require following manufacturer OR operator procedures, consistent with UAF comments on the proposed SIP amendments, as follows.

> 8.1a(i) Perform regular maintenance according to the manufacturer's **or** ~~and~~ the operator's ~~maintenance requirements and~~ **recommended maintenance** procedures.
> 8.1a(iii) Keep a copy of the manufacturer's **or** ~~and~~ the operator's maintenance procedures.

Response:

The Department has not changed the requirements in the Minor Permit to reference NSPS Subpart IIII, NESHAP Subpart ZZZZ, or Operating Permit AQ0316TVP03. The Department acknowledges the similarity between some of the GCPs and associated MR&R requirements listed in AQ0316MSS08 Rev. 1 and that of 40 CFR 60 Subpart IIII, 40 CFR 63 Subpart ZZZZ, and Condition 43.2 of AQ0316TVP03. The MR&R listed in AQ0316MSS08 Rev. 1 was tailored to support demonstration of continuous compliance with the GCPs to minimize $PM_{2.5}$ emissions. Regarding similarity between conditions, Condition 8.1a(i) requires the Permittee to perform regular maintenance according to the manufacturer's and the operator's maintenance requirements. These are essentially the same requirements as those contained in 60.4211(g) and 63.6605(b) and 63.6625(e), and the Department does not believe that they would require the Permittee to change the current maintenance procedures that are being conducted on the engines. In contrast, 40 CFR 60 Subpart IIII and 40 CFR 63 Subpart ZZZZ contain additional GCPs requirements not listed in AQ0316MSS08 Rev. 1.

Condition 8.1b requires the Permittee to combust only ULSD, and Condition 8.1b(i) requires the Permittee to keep receipts that specify fuel grade and amount. This reflects the same requirements as Condition 43.2 of Permit AQ0316TVP03 (in turn an incorporation of Minor Permit AQ0316MSS08 conditions), to combust ULSD as well as follow MR&R requirements in accordance with Condition 30.1. Condition 30.1 requires the Permittee to record weight percent sulfur, including through fuel grade delivery receipts. The Department does not believe that following Condition 8.1b(i) of AQ0316MSS08 Rev. 1 would require the Permittee to change the current procedure performed following Condition 43.2 and in turn, 30.1 of AQ0316TVP03.

One of the main differences in the Department's MR&R requirements in Minor Permit AQ0316MSS08 Rev. 1 and the NSPS Subpart IIII and NESHAP Subpart ZZZZ requirements is Condition 8.1f(i), i.e., the obligation to report a summary of the maintenance records that would have a significant effect on emissions required under Condition 8.1a(ii). This was included in the minor permit to satisfy additional reporting requirements requested by EPA Region 10 in order to make the BACT limits in the SIP more enforceable. For similar reporting requirements, UAF may streamline reporting by including a single set of data indicating that such information satisfies both federal and SIP reporting requirements.

The Department generally agrees with the UAF comment that it is not ideal to have somewhat duplicative sets of conditions for the same EUs. The timeline to avoid a FIP on the current SIP requirement requires the Department to finalize these minor permits for incorporation into the SIP submittal for timely EPA approval. Pending final approval of the SIP submittal, the Department will invite a permit modification application to replace the current conditions with the equivalent GCPs requirements in NSPS Subpart IIII and NESHAP Subpart ZZZZ. Therefore, should UAF wish to request a change in these requirements at a later date, UAF may submit a permit modification application under State regulations proposing the desired change and the Department will work with UAF to have them amended in the minor permit as well as the SIP.

Regarding revision to Conditions 8.1a(i) and 8.1a(iii) for EU 8, see the response to UAF Comment 13 above.

Regarding revision to Condition 8.1d(i), see the response to UAF Comment 26 below.

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21. Condition 9, Table 6: Please revise the BACT emission limit for EU IDs 27 and 34 from 0.15 g/hp-hr to 0.19 h/hp-hr. The ADEC economic analysis in Section 4.5 of the BACT determination analysis is based on the Tier 3 emission standard including the 1.25 not-to-exceed (NTE) multiplier. Table 4-14 on page Appendix III.D.7.7-1504 calculates EU 27 $PM_{2.5}$ at 0.45 tpy.

> 0.45 tpy = (0.19 g/hp-hr) x (4,380 hr/yr) x (500 hp) x (1 lb/453.59 g) x (1 ton/2000 lb)

The resulting BACT limit for EU 27 should include the NTE multiplier. ADEC based the BACT determination for EU 34 on the same economic analysis, so the resulting BACT limit for EU 34 should also include the NTE multiplier. UAF submitted a similar comment on the proposed SIP amendments.

Response: *The Department adjusted the emission factors for the EU IDs listed above to include NTE multipliers for the diesel engines in accordance with 40 C.F.R. 1039.101.*

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22. Condition 9, Table 6: Please revise the BACT emission limit for EU ID 29 from 0.015 g/hp-hr to 0.023 g/hp-hr. As described above in the comment addressing the BACT limit for EUs 27 and 34, ADEC based the BACT determination for EU 29 on the same economic analysis used for EU 27, which includes the 1.25 NTE multiplier. This requested change is also consistent with footnote 8 to Table A-1 in Appendix A of the Technical Analysis Report (TAR) to Permit AQ0316MSS08. UAF submitted a similar comment on the proposed SIP amendments.

Response: *The Department believes the Permittee meant a 1.5 NTE multiplier. The Department adjusted the emission factor for the EU ID listed above to include an NTE multiplier for the diesel engine in accordance with 40 C.F.R. 1039.101.*

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23. Conditions 9.1a(1)(i) through (iii): For EUs 27, 29, and 34, please replace these requirements with the language from Condition 79 of Permit No. AQ0316TVP03. This requirement from 40 CFR 60 Subpart IIII is consistent with the MR&R to comply with good combustion practices identified in the proposed SIP amendments on page Appendix D.7.7-1537.

UAF understands that the minor permit must include stand-alone language and not incorporate Title V conditions or federal regulations by reference. However, the language from the applicable NSPS can and should be included verbatim in this permit. Two sets of similar but not identical requirements in two separate permits for the same emissions unit is inefficient and confusing. UAF is already complying with robust MR&R requirements with respect to good combustion practices for EUs 27, 29, and 34.

Response: *The Department has not changed the requirements in the Minor Permit to reference NSPS Subpart IIII for the reasons stated in the response to UAF Comment 20 above.*

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24. Conditions 9.1a(i) through (iii): For EU 24, please revise Conditions 9.1a(i) and 9.1a(iii) to require following manufacturer OR operator procedures, consistent with UAF comments on the proposed SIP amendments, as follows.

> 9.1a(i) Perform regular maintenance according to the manufacturer's **<u>or</u>** ~~and~~ the operator's ~~maintenance requirements and~~ **<u>recommended maintenance</u>** procedures.
> 9.1a(iii). Keep a copy of the manufacturer's **<u>or</u>** ~~and~~ the operator's maintenance procedures.

Response: *The Department did not modify Conditions 9.a(i) through (iii) for the reasons stated in the response to UAF Comment 13 above.*

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25. Condition 9.1b: Please remove EU 27 from this condition. EU 27 is not an emergency engine and is not subject to the requirement to limit non-emergency operation to 100 hours per year. The correct requirements for limited operation of EU 27 (4,380 hr/yr) are presented in Condition 9.2 of this preliminary minor permit and are consistent with the requirement in the proposed SIP amendment on page Appendix III.D.7.7-1537.

Response: *The Department removed EU ID 27, to correctly implement the $PM_{2.5}$ BACT determination for the non-emergency engine.*

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26. Condition 9.1b(i): For EUs 29 and 34, please replace these requirements with the language from Condition 82.4b of Permit No. AQ0316TVP03. This requirement from 40 CFR 60 Subpart IIII is consistent with the MR&R for limited non-emergency operation identified in the proposed SIP amendments on page Appendix D.7.7-1537. For EU 24, please replace these requirements with the language from Condition 88.2b of Permit No. AQ0316TVP03. This requirement from 40 CFR 63 Subpart ZZZZ is consistent with the MR&R for limited non-emergency operation identify in the proposed SIP amendments on page Appendix D.7.7-1537.

UAF understands that the minor permit must include stand-alone language and not incorporate Title V conditions or federal regulations by reference. However, the language from the applicable NSPS or NESHAP can and should be included verbatim in this permit. Two sets of similar but not identical requirements in two separate permits for the same emissions unit is inefficient and confusing. UAF is already complying with robust MR&R requirements with respect to limit non-emergency operation for EUs 29 and 34.

Response: *The Department did not replace the requirements in the minor permit with the requirement from NSPS Subpart IIII or NESHAP Subpart ZZZZ. The Department acknowledges the similarity between the MR&R requirements listed in AQ0316MSS08 Rev. 1 and that of 40 CFR 60 Subpart IIII and 40 CFR 63 Subpart ZZZZ. Condition 9.1b(i) requires the Permittee to maintain and operate a non-resettable hour meter recording total operating hours of each EU. These are essentially the same requirements as those contained in 40 CFR 60.4214(b) and 40 CFR 63.6655(f), and the Department does not believe that they would require the Permittee to change the current procedures that are being conducted regarding non-emergency operation MR&R on the engines.*

The Department generally agrees with the UAF comment that it is not ideal to have somewhat duplicative sets of conditions for the same EUs. The timeline to avoid a FIP on the current SIP requirement requires the Department to finalize these minor permits for incorporation into the SIP submittal for timely EPA approval. Pending final approval of the SIP submittal, the Department will invite a permit modification application to replace the current conditions with the equivalent non-emergency requirements in NSPS Subpart IIII and NESHAP Subpart ZZZZ. Therefore, should UAF wish to request a change in these requirements at a later date, UAF may submit a permit modification application under State regulations proposing the desired change and the Department will work with UAF to have them amended in the minor permit as well as the SIP.

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27. Condition 10, Table 7: Please revise the BACT Control listed in Table 7 to include "Limited Operation". The BACT Emissions Limit of 109 tons per 12-month rolling period is based on limited operation. Including "Limited Operation" as a BACT Control is consistent with the BACT Limit provisions in Appendix III.D.7.7-1507 of the SIP.

Response: *The Department revised Table 7 to include Limited Operation as a BACT Control, in comport with the BACT Limit provisions in Appendix III.D.7.7-1507 of the SIP.*

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28. Condition 10, Table 7: The BACT Emission Limit of 4.67 lb per ton of waste should include an averaging period. UAF submitted a similar comment addressing Section 4.6 of the BACT determination in the proposed SIP amendments.

Response: *As stated in the SIP amendments response to comments (RTC), the Department did not include an averaging period for the incinerator emission limit. Given that the incineration cycle is a batch process, a performance test would require EPA Method 5 over as many source test runs as possible during the entire burn cycle. Therefore, the duration of the test would depend on the duration of the burn cycle.*

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29. Condition 10.1a through f: Please. Replace these sub-conditions entirely with the verbiage of Conditions 8.1 through 8.4 of Permit AQ0316MSS04. The MR&R requirements of that permit condition are adequate to ensure compliance and will enhance consistency between Permits AQ0316MSS04 and AQ0316MSS08.

Response: *The Department did not replace the Conditions as requested. The Department acknowledges the similarity between the MR&R requirements in Minor Permit AQ0316MSS04 Conditions 8.1 through 8.4 and the MR&R requirements of Minor Permit AQ0316MSS08 Rev. 1 Condition 10.1c, 10.1d(iii) and (iv), and 10.1f(i). These are essentially the same requirements, and the Department does not believe that they would require the Permittee to change the current procedures that are being conducted regarding MR&R on the incinerator.*

The Department generally agrees with the UAF comment that it is not ideal to have somewhat duplicative sets of conditions for the same EUs. The timeline to avoid a FIP on the current SIP requirement requires the Department to finalize these minor permits for incorporation into the SIP submittal for timely EPA approval. See related response to UAF Comment 26.

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30. Condition 11, Table 8: Please revise the BACT Emission Limit for EU IDs 105, 107, 109, 110, and 128 through 130 from "0.03 gr/dscf" to "0.003 g/dscf". This limit is provided in Section 4.7, Table 4-20, of the BACT determination in the proposed SIP amendments (see page Appendix III.D.7.7-1510).

Response: *The Department corrected the typographical error.*

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31. Condition 11.1a through 11.1a(iii): Please replace these requirements with the language from Conditions 49.3a through 49.3c of Permit No. AQ0316TVP03. Per the UAF comments on the EPA proposed disapproval of the Serious SIP, in a letter dated March 23, 2023, Conditions 49.3a and 49.3b of AQ0316TVP03 require enclosure of EUs 105, 107, 109, 110, and 128 through 130. MR&R requirements are provided in Conditions 49.3c and 49.5. These provisions already impose appropriate requirements to satisfy this BACT measure.

Response: *The Department did not replace the Conditions as requested. The Department acknowledges the similarity between the MR&R requirements in Operating Permit AQ0316TVP03 Conditions 49.3a through 49.3c and Minor Permit AQ0316MSS08 Rev. 1 Conditions 11.1a through 11.1a(iii). Enclosure requirements for EUs 105, 107, 109, 110, and 128 through 130 were included in Condition 11.1b. as well as the corresponding MR&R requirements. These are essentially the same requirements as Conditions 49.3a through 49.3c of AQ0316TVP03, and the Department does not believe that they would require the Permittee to*

change the current procedures that are being conducted regarding MR&R for the Material Handling Units.

The Department generally agrees with the UAF comment that it is not ideal to have somewhat duplicative sets of conditions for the same EUs. The timeline to avoid a FIP on the current SIP requirement requires the Department to finalize these minor permits for incorporation into the SIP submittal for timely EPA approval. See related response to UAF Comment 26.

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32. Condition 18: Please delete the phrase "for the life of this permit" because the phrase is relevant only in a Title V permit. The associated footnote addresses permit effective dates and permit expiration. Title I permits, such as this minor permit, do not expire.

Response: *The Department did not delete the phrase "for the life of this permit" from the condition. The phrase "for the life of this permit" corresponds to the standard permit condition (SPC) derived for Operating Reports required by Operating Permits. Since EPA requested that the Minor Permit be self-contained, the Department brought in the exact SPC, which contains the phrase. Since Minor Permits typically do not have expiration dates, while the phrase may be considered irrelevant, it is not considered factually incorrect for the purpose of incorporating this minor permit into the SIP.*

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33. Conditions 19 and Conditions 5.1b, 6.1b, 7.1b, 8.1e, 9.1d, 10.1e, 11.1e, and 12.1b: UAF disagrees that an annual compliance certification should be prepared for a minor permit.

UAF also disagrees that an annual compliance certification for a minor permit should be submitted to EPA per Condition 19.2. The discussion of this permit condition on page 11 of the draft Technical Analysis Report (TAR) states that the basis for this requirement is a letter from EPA dated Aug 23, 2024. However, the TAR does not provide a specific rationale or explanation as to the reason an annual compliance certification is required for a minor permit. The language in the TAR is confusing and unclear because the language refers to two effective permits, expiration of an old permit, and a renewal permit. This language appears to be specific to Title V permits and does not explain or clarify the reason for Condition 19 in this minor permit. Please delete or revise Condition 19 to address these concerns. If Condition 19 is retained in any form in the final permit, please ensure that the TAR provides sufficient rationale for imposing this requirement.

Response: *The Department will maintain the requirement to submit an Annual Compliance Certification (ACC) in the Minor Permit. Since EPA requested that the Minor Permit be self-contained and specifically identified the ACC as an item need to accomplish this, the Department brought in the requirement for submitting an ACC for the conditions listed in the Minor Permit. The Department removed the confusing language related to effective permits and renewal permits that are specific to Title V permits. The Department also corrected the cross-reference to the Submittals Condition 15 from Condition 14.*

The updated language in the TAR reads as follows:

Condition 19, Annual Compliance Certification

This condition specifies the periodic compliance certification requirements and specifies a due date for the annual compliance certification. No format is specified. ~~The Permittee may provide one report certifying compliance with each permit term or condition for each of the effective~~

~~permits during the certification period, or may choose to provide two reports: one certifying compliance with permit terms and conditions from January 1 until the date of expiration of the old permit, and a second report certifying compliance with terms and conditions in effect from the effective date of the renewal permit until December 31.~~

The Permittee is required to submit to the Department an annual compliance certification report. The Permittee may submit the required report electronically at its discretion.

The Department included Condition 19 ~~in order to add reporting requirements into the minor permit to satisfy additional SIP inclusion conditions recommended by~~ following EPA Region 10 recommendations in a letter dated August 23, 2024. In its letter, EPA expressed that including the ACC in the minor permit would ensure that the permit's MR&R would be "self-contained." This would allow the minor permits rather than the TV Permits which require renewal every five years, to be incorporated in the NAA SIP.

TAR:

34. Page 2, TAR Section 1, first paragraph on page 2: This paragraph cites the 2019 Serious SIP instead of the 2024 SIP amendments as the basis for the permit requirements.

Response: *A note indicating a forthcoming adoption of new SIP amendments has been added.*

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35. Page 2, TAR Section 1, first paragraph on page 2: This paragraph cites an August 23, 2024, letter from EPA to the Department that recommended "certain requirements be contained in the Department's NAA minor permit for the Zehnder Facility," and states that the EPA recommended certain revisions to Minor Permit AQ0109MSS01 Rev 1. This discussion is unclear as to how the EPA letter addressing a different Permittee and facility relates to this minor permit for the UAF Fairbanks Campus stationary source. Please revise this discussion to provide the needed clarity.

Response: *The Department revised the paragraph by adding the following for clarity:*

…of the operating permit. The Department understood the EPA recommendations to not be exclusive to only the Zehnder Facility, as conditions in AQ0316MSS08 Revision 1 would need to be independent of Operating Permit AQ0316TVP03, and therefore implemented similar revisions to the UAF Campus permit. In light of…

While EPA's letter recommended revisions to the Zehnder Facility Minor Permit AQ0109MSS01 Rev. 1, the Department interpreted such comment to apply to all stationary sources subject to SIP Minor Permit requirements, including but not limited to that for the UAF Fairbanks Campus.

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36. Page 2, final paragraph of TAR Section 1: UAF requests that ADEC provide a detailed rationale to explain the reasons the increase in SO_2 emissions is not a potential or actual emissions increase under 18 AAC 50.502(c)(3) or a potential or net emissions increase under 40 CFR 52.21(b). The rationale should explain that the SO_2 BACT limits were never federally enforceable because EPA never approved the SO_2 BACT requirements in the

serious $PM_{2.5}$ nonattainment SIP. As a result, those limits were never in effect for determining potential to emit (40 CFR 52.21(b)(4)).

The rationale should also explain that permit requirements under 40 CFR 51.165 are not triggered because the SO_2 BACT limits were never federally enforceable and not in effect for determining potential to emit under the Nonattainment New Source Review (NNSR) program, as defined at 51.165(a)(1)(iii).

The rationale should also explain that any increase in SO_2 emissions that result from returning to the combustion of a fuel, the combustion of which was allowed before the BACT SO_2 limits were imposed, is not an increase in actual emissions for permit applicability determination purposes.

This permit applicability discussion should be robust and comprehensive.

Response: *The Department added additional text to the final paragraph of TAR Section 1 on Page 2 to clarify that there is no increase in actual emissions for permit applicability determination purposes. The final paragraph now reads as follows:*

With the issuance of Minor Permit AQ0316MSS08 Rev. 1, UAF's potential SO_2 emissions reverts the October 1, 2020 SO_2 limits went into effect. The Department does not consider this change to be a potential or actual emissions increase under 18 AAC 50.502(c)(3), or a ~~potential or net~~ significant emissions increase under 40 C.F.R. 52.21(~~b~~a)(2). This is because the Department originally issued AQ0316MSS08 for the primary purpose of implementing SO_2 controls identified in the FNSB NAA SIP for the UAF Campus. However, the Department later found no underlying basis for issuing such permit.

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37. Page 3, TAR Section 5, Table 10: When finalizing the TAR, please ensure that the PTE and assessable emission calculations are accurate and incorporate any relevant revisions based on other UAF comments. Please address the following specific concerns.

a. Please add citations for the source(s) for the emissions of pollutants other than $PM_{2.5}$ and SO_2 (which are given in Table A-1 of Appendix A).
b. Please refer to the UAF comments addressing Table A-1 and ensure that any relevant corrections are also incorporated into Table 10.
c. The bottom row of Table 10 shows a negative emissions increase of 241 tpy, for both SO_2 emissions and the total emissions. Based on the data points shown in the table, this increase of 241 tpy is positive.

Response: *Regarding sub comment a, The Department did not add citations for the sources of other pollutants beyond $PM_{2.5}$ and SO_2 as requested, because the emission factors for other pollutants were not changed. The timeline to avoid a FIP on the current SIP requirement requires the Department to finalize these minor permits for incorporation into the SIP submittal for timely EPA approval.*

Regarding sub comment b, the Department revised Table 10 to account for corrections to Table A-1. The Department acknowledges that the PTE prior to October 1, 2020 and October 1, 2023 in Table 10 do not match the PTE detailed in Table A-1. This is because Table 10 denotes the

entire stationary source, while Table A-1 includes only the affected emissions units addressed in AQ0316MSS08.

Regarding sub comment c, the Department removed the bottom row of Table 10 detailing emissions increase for consistency with other SIP amended permits. The Department added Table Footnote 4 to explain the emissions difference between Table 10 and Table A-1.

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38. Pages 9 and 10, TAR Section 8, discussion of Section 3 SIP Requirements: The first paragraph of this section cites the 2019 Serious SIP instead of the 2024 SIP amendments as the basis for the permit requirements. The entire section addressing Section 3 of the permit summarizes the conditions in Section 3 of the permit but provides minimal discussion of the regulatory and/or legal basis for the requirements. Please ensure that revisions to the SIP and permit AQ0316MSS08 Revision 1 are also addressed in this section when preparing the final version of this TAR. Those revisions should include, but are not limited to, correcting applicable BACT requirements and applicable MR&R requirements.

Response: *A note indicating a forthcoming adoption of new SIP amendments has been added. The Department also included a note to reference Section 1 of the TAR for a more detailed explanation of why the UAF Campus is required to implement BACT controls.*

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39. Page 11, TAR Section 8, discussion of Condition 19: The discussion of Condition 19 states that the basis for this requirement is a letter from EPA dated Aug 23, 2024. As stated in the comment above addressing Condition 19 in the permit, the TAR does not provide a specific rationale or explanation as to why an annual compliance certification is required for a minor permit. The language in the TAR is confusing and unclear because it refers to two effective permits, expiration of an old permit, and a renewal permit. This language appears to be specific to Title V permits and does not explain or clarify the reason for Condition 19 in this minor permit. If Condition 19 is retained in any form in the final permit, please ensure that the TAR provides sufficient rationale for imposing this requirement.

Response: *This section was updated according to the response to UAF Comment 33 above.*

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40. Pages xiii through xvi, Appendix A, Table A-1: This table contains several errors and discrepancies. Please ensure that this table is consistent with the information provided in previous comments. Please ensure the total assessable PTE value is correct in the final permit. UAF concerns on this table include but are not limited to the following items.

a. The introductory text for this table states that "the last set of columns includes both set [sic] of pollutants after October 1, 2023, until AQ0316MSS08 Rev. 1 becomes effective…". However, the heading for this set of columns (presumably the columns to the far right of the table) is labeled "October 1, 2023 & Upon AQ0316MSS08 Rev 1 becoming effective for $PM_{2.5}$ Emissions." As a result, the table is unclear as to the chronology of each set of emission rates being presented. Presenting the information

chronologically and using two separate tables for $PM_{2.5}$ emissions and SO_2 emissions would provide more clarity.

b. EUs 17, 18, 22, 34, and 35 are addressed in the preliminary permit but have been omitted from this table.
c. EUs 26 and 28 appear in this table but have been permanently removed from service. UAF submitted a similar comment on the proposed SIP amendment addressing this issue. The emissions unit inventory in Table A of Permit No. AQ0316TVP03 already reflects the removal of EU 28.
d. The "maximum rating capacity" for EU 8 is listed as 13,266 MMBtu/hr. The correct maximum rating for EU 8 is 13,266 hp.
e. The $PM_{2.5}$ emission factor for EUs 19 through 21, upon AQ0316MSS08 Revision 1 becoming effective, is incorrectly listed as 0.012 lb/MMBtu. The correct emission factor is 0.016 lb/MMBtu, per Condition 7 of the preliminary permit and Section 4.3 of the BACT determination in the 2024 proposed SIP amendment.
f. The $PM_{2.5}$ emission factor for EU 27, upon AQ0316MSS08 Revision 1 becoming effective, is incorrectly listed as 4.14E-04 lb/hp-hr. The correct emission factor is 4.19E-04 lb/hp-hr (or 0.19 g/hp-hr), as indicated in previous UAF comments on the preliminary permit and proposed SIP amendments.
g. The $PM_{2.5}$ emission factor for EU 29, upon AQ0316MSS08 Revision 1 becoming effective, is incorrectly listed as 0.023 lb/hp-hr. The correct emission factor is 0.023 g/hp-hr, as indicated in previous UAF comments on the preliminary permit and proposed SIP amendments.
h. Please calculate the $PM_{2.5}$ emissions for EU 8 using the $PM_{2.5}$ BACT limit of 0.32 g/hp-hr in Section 4.4 of the BACT determination. This limit is based on the PM emission factor in AP-42 Table 3.4-1 of 0.0007 lb/hp-hr, per footnote 18 in the BACT determination (see page Appendix III.D.7.7-1500). Note 5 to this table states that the emission factor of 0.056 lb/MMBtu is from AP-42 Table 3.4-2, which is not the basis of the $PM_{2.5}$ BACT limit for EU 8.
i. UAF has been unable to confirm the annual $PM_{2.5}$ emission values for EUs 8, 19 through 21 and 27. Please ensure that these values are correct in the final version of the TAR.
j. Due to the other concerns identified in this comment and previous UAF comments, corrections to the calculated emission rates of $PM_{2.5}$ and/or SO_2, for various emissions units, are likely necessary.
k. Due to the other concerns identified in this comment and previous UAF comments, corrections to the calculated emissions for various emissions units are likely necessary. The "Total Emissions" calculated at the bottom of the table are also likely not accurate. The Total Emissions also do not appear to be a stationary source total, given that some emissions units have been omitted from this table. The table does not provide an explanation for how the "Emissions Reductions," at bottom of the table, are calculated – what are the two values being compared to calculate a reduction in any given column? These values likely need to be revised as well, although the reason for which these totals have been calculated is unclear, because the table does not include the entire stationary source, or even all of the emissions units subject to the BACT determination.

Response: *Regarding each comment above, the Department made changes as follows:*

a. Table A-1 was separated into tables A-1 and A-2 to better chronologically detail the affected emission units, emission factors, and emissions across two distinct time periods carried over from AQ0316MSS08 PTE calculations (10/1/20 and 10/1/23), and upon issuance of AQ0316MSS08 Rev. 1.

b. EUs 17, 18, 22, 34, and 35 were added to the table.

c. EUs 26 and 28 have been removed.

d. Corrected.

e. Corrected.

f. Corrected.

g. Corrected.

h. Corrected.

i and j. PTE have been recalculated with the latest corrections.

k. The Emissions Reduction row denotes the difference between the current and previous calculations between the columns at the top of the table. The table now includes all emission units subject to the BACT determination. Emission calculations have been recalculated using the latest corrections.

C. Editorial Corrections Made by the Department

The Department also made the following minor editorial corrections not mentioned in the responses to comments:

1. **List of Abbreviations and Acronyms:** Added COMS in the list.
2. **Condition 9.2:** Removed the redundant word "Conditions".
3. **Condition 12, Table 9:** Corrected BACT limit to "5.50E-05 pound per ton of ash".
4. **Page 9, TAR Section 8, discussion of Condition 5 and Table 2 :** Corrected typographical error "avering" to "averaging".

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Appendix E – Doyon Utilities, LLC, Fort Wainwright (Privatized Emission Units) RTC

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Response To Comments on Preliminary Minor Permit AQ1121MSS04 Revision 1

Doyon Utilities, LLC, Fort Wainwright (Privatized Emission Units)

Public Comment Closing Date: October 25, 2024
Prepared by Scott Faber on October 31, 2024

This document provides the Alaska Department of Environmental Conservation's (Department's) responses to all public comments on the preliminary decision to issue Air Quality Control Minor Permit No. AQ1121MSS04 Revision 1 for Fort Wainwright (Privatized Emission Units). The Department provided an opportunity for public comment beginning September 23, 2024 and ending October 25, 2024. Comments were received via email from Doyon Utilities, LLC on October 16, 2024. Additionally, comments were received from Patrice Lee on behalf of Citizens for Clean Air on October 28, 2024, after the Department made an exception for a late submittal because our Air Online Services comments submittal portal was having technical difficulties. These comments appear exactly as submitted.

In quoting text from the preliminary permit and Technical Analysis Report (TAR) as part of response or comment, the following text formatting are used to indicate how revisions are made: underlined text means text to be added while ~~strike-through~~ text means text to be deleted.

The Department has identified comments below (see Section B) that were not addressed because they were outside the scope of the permitting action and were material changes to permit conditions.

A. Comments from Doyon Utilities, LLC

Permit:

1. **General comment:** This permit incorporates the $PM_{2.5}$ Best Available Control Technology (BACT) requirements identified in the proposed amendments to the $PM_{2.5}$ Serious State Implementation Plan (SIP). Doyon Utilities, LLC (DU) submitted many comments addressing the proposed SIP amendments on October 7, 2024. The DU comments specifically address the BACT determinations for the DU emissions units. Please ensure that revisions to the SIP based on those comments are consistent with the final version of this minor air quality permit.

Response: *The Department has made every attempt to maintain consistency between the $PM_{2.5}$ Best Available Control Technology (BACT) requirements identified in the proposed amendments to the $PM_{2.5}$ Serious State Implementation Plan (SIP) and the minor permit.*

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2. **General comment:** The proposed permit does not indicate the effective date of certain emissions limits, which should be no sooner than the date that those limits become effective in the SIP. Vol. II: III.D.7.7.13.8.4 (page 183, Table 7.7-44) of the proposed SIP amendments indicates that the effective date is "no later than December 31, 2024." As a result, certain

permit emissions limits should not take effect any sooner than the date that the limit becomes effective in the SIP.

Response: *The Permit becomes effective upon issuance. The Department has removed the Effective Date Column from Table 7.7-44 of Chapter 7 that previously stated, "no later than December 31, 2024." This was done because the minor permits are being incorporated into the SIP and there is no longer a need to address a future effective date of when the limits will take effect.*

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3. **Section 1, Table 1 – Inventory:** Please make the following corrections to certain emissions units in Table 1, and throughout the permit, consistent with the information presented in the 2019 DU-FWA Title V renewal application and the 2021 application amendment. DU submitted a similar comment on the proposed SIP amendment addressing this issue.

EU #	EU Description	Make/Model	Fuel	Rating/Max Capacity	Installation Date
7C	North Coal Handling Dust Collector (NDC-1)	Dustex C67-10-547	~~Distillate~~ N/A	9,250 acfm	2004
30A	~~Emergency Pump Engine~~ Emergency Generator Engine	Caterpillar C4.4 LC60	Distillate	~~80~~ 91 hp	2018
32A	~~Emergency Pump Engine~~ Emergency Generator Engine	Caterpillar C4.4 LC60	Distillate	~~80~~ 91 hp	2018
33A	~~Emergency Pump Engine~~ Emergency Generator Engine	Caterpillar C4.4	Distillate	75 hp	2015
~~37A~~ 37	~~Emergency Pump Engine~~ Emergency Generator Engine	Caterpillar C4.4	Distillate	75 hp	2015

Response: *The changes to Table 1 are made as requested. Note 1 for Table 1 is removed because the correct horsepower is now in the table for EU IDs 30a and 32a. Also see additional related changes on EU IDs nomenclature and description noted below in Section C - Additional Corrections Made by the Department, items 2 and 4.*

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4. **Condition 3.1:** Please ensure the correct assessable potential to emit value is provided in this condition. DU does not agree with certain emission calculations presented in Tables 6

and A-1 of the Technical Analysis Report (TAR) for preliminary permit AQ1121MSS04 Revision 1. Please see the DU comments on those tables below in this comment document.

Response: *The assessable potential to emit is revised after corrections to Tables 6 and A-1 of the TAR. See related response to Comment 32.*

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5. **Condition 5, Table 2:** Please delete "and State Visible Emissions Standard 18 AAC 50.055(a)(9)" from the BACT Emission Limit field in this table. Complying with the state opacity standard was proposed as MR&R to demonstrate compliance with the BACT requirement to operate the baghouse. The BACT determination in the proposed SIP amendments does not identify this requirement as an available control technology or carry this requirement through the BACT analysis. The BACT determination does not provide any rationale for including this requirement as a BACT limit. Compliance with opacity standards is not addressed as an available control technology for $PM_{2.5}$ emissions in Step 1 of Section 4.1 of the BACT determination. As a result, compliance with the state VE standard should not be a BACT limit. DU submitted a similar comment on the proposed SIP amendment addressing this issue.

Response: *The State's opacity standard is not considered a control device but was selected as a related limit to the $PM_{2.5}$ emissions limit, and therefore does not need to be brought through the BACT determination process. While a quantitative correlation between the State's opacity standard and the proposed $PM_{2.5}$ emissions limit of 0.045 lb/MMBtu has not been established, the direct proportionality of opacity level and particulate matter emissions concentration is widely accepted.*

Given that the demonstration of compliance with the proposed $PM_{2.5}$ emission limit is through a one-time source test only, the Department saw appropriate to include a surrogate limit that can be measured on a continuous basis. While the Department may implement additional source testing requirements as part of Title V permitting program, compliance demonstration of the opacity standard supports in some fashion that PM and $PM_{2.5}$ emissions are being kept under the established BACT emission limit.

The Department believes that compliance with opacity standards support the overall effort for bringing the nonattainment area into compliance with the $PM_{2.5}$ standards. As historical precedent, the Department notes that a similar requirement was established to meet a 10% opacity standard in the BACT determination for gas-fired turbines at Alaska Gasline Development Corporation's Liquefaction Plant under Construction Permit AQ1539CPT01, even if was not located in a nonattainment area for $PM_{2.5}$.

The BACT Emission Limit field in Table 2 remains as written in the preliminary minor permit.

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6. **Condition 5.1a:** Please make the deadline for conducting the initial source testing at least 180 days after the effective date of the BACT limit in the SIP or 180 days following the end of the winter season following the effective date of the BACT limit, whichever is the later date. This proposed permit does not indicate the effective date of the limit, which should not be any sooner than the date that the limit becomes effective in the SIP. Vol. II:

III.D.7.7.13.8.4 (page 183, Table 7.7-44) of the proposed SIP amendments indicates that the effective date is "no later than December 31, 2024." As a result, this limit in the permit should not take effect any sooner than the date that the limit is effective in the SIP.

The proposed SIP amendments did not provide a deadline for conducting the initial source tests. Adequate time will be needed to budget and allocate funds to conduct source testing on the six coal-fired boilers. Adequate time will be needed to retain a source testing firm to conduct the testing, particularly if several other Fairbanks-area facilities are also required to conduct source testing in the same timeframe. Testing during the winter months (which DU considers to be November through April) is not feasible for two reasons.

a. The configuration of the stacks would expose the sampling trains to temperatures well below freezing, which would present significant challenges to conducting successful testing.

b. The six coal-fired boilers provide steam for space heating to the entirety of the Fort Wainwright garrison. The plant must carefully balance heating demand and boiler loads during mid-winter in Fairbanks. Arranging boiler availability and proper load conditions for source testing during the winter season adds an untenable level of complexity to a plant providing critical, life-safety heat for thousands of people.

Testing during summer months would present operational challenges because the demand for steam is low. Operating boilers at or near full load to conduct source testing would result in significant operational inefficiencies. DU submitted a similar comment on the proposed SIP amendment addressing this issue.

Response: *The BACT limit is effective on the date the final permit is issued. The deadline for conducting the initial source tests is revised to 12 months from the date the final permit is issued to allow budgeting and allocating funds and to allow testing at an appropriate time of year.*

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7. Condition 5.1a(i): Please revise this condition to more precisely reference the test methods and acknowledge that using Method 202 is not necessary to measure total $PM_{2.5}$ if the gas filtration temperature is less than or equal to 85 degrees Fahrenheit, as specified in Method 201A. DU believes the language in this condition should either be consistent with the language in Condition 22.3 or should simply reference Condition 22.3. DU submitted a similar comment on the proposed SIP amendment addressing this issue. Suggested language is provided below.

> Conduct the source test at the maximum achievable load on any two of EU IDs 1 through 6 in accordance with the procedures specified in 40 CFR 51, Appendix M, Methods 201 A and, if applicable, Method 202 ~~using EPA Methods 201A and 202~~.

Response: *The Department made the revision, as requested, and also added "as provided under Method 201A" in the end of the condition for clarity.*

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8. **Condition 5.1c(v):** Please delete this requirement. This requirement does not appear in the BACT determination in the proposed SIP amendments. DU notes that these boilers are already subject to filterable PM and carbon monoxide (CO) emission standards under 40 CFR 63 Subpart DDDDD. Each boiler uses an oxygen trim system to continuously demonstrate compliance with the CO emission standard. The applicable Subpart DDDDD emission standards are very stringent (particularly the CO standard) and good combustion practices must be inherently followed to comply. DU disagrees that including this broad, vague condition is necessary because the boilers are already subject to specific and stringent federally applicable requirements that ensure the use of good combustion practices.

Response: *This requirement is in the BACT determination in the proposed SIP amendments as currently revised and identified as a BACT control. Good combustion practices is also identified as a BACT control in Table 2 in the minor permit. 40 CFR 63 Subpart DDDDD is not part of the BACT determination. The condition ensures the BACT control is applied. Therefore, the condition is not removed.*

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9. **Condition 5.1d:** Please revise this condition to reflect that complying with the State VE standard is a MR&R requirement to demonstrate compliance with the BACT requirement to operate the full stream baghouse. As addressed above and in the DU comments on the proposed SIP amendments, DU does not agree that complying with the state VE standard is an appropriate BACT limit. DU submitted a similar comment on the proposed SIP amendment addressing this issue.

Response: *No change is made to this condition. Please see the response to Comment 5.*

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10. **Condition 5.1d(i):** Please revise this condition to address the following concerns. Please note that DU is commenting on the procedural methodology of incorporating the Standard Permit Condition, not the content of the Standard Permit Condition (SPC) itself.

    a. The requirement to demonstrate compliance with a monitoring requirement by "following" a Standard Permit Condition is unclear.

    b. SPC XIII includes visible emission standards and MR&R, PM standards and MR&R, and SO_2 standards and MR&R. Requiring compliance with the entirety of SPC XIII to demonstrate compliance with the MR&R requirements for the applicable visible emissions standard is unreasonable and without basis.

    c. Incorporating the Coal-Fired Boilers SPC XIII by reference is inappropriate because the existing Title V permit, AQ1121TVP02 Revision 2, contains site-specific language in the visible emission permit condition for the coal-fired boilers, in part based on requirements from existing minor permit AQ1121MSS03. As a result, incorporating the SPC language here will create a conflict with the site-specific language in the existing Title V permit and the underlying minor permit. The site-specific language from the existing Title V permit should be brought verbatim into

this permit if EPA has indicated that referencing the Title V permit with the appropriate requirements is not allowable.

d. As DU has noted above and in comments addressing the proposed SIP amendments, complying with the state VE standard was never analyzed as a BACT option and no basis exists for imposing this requirement as BACT.

e. Please revise this condition to present the correct nomenclature for the SPC "Performance Audits for COMS." The name of this standard permit condition is not "the Department's Default COMs [sic] Audit Procedures."

Response: *The Department agrees that only the visible emissions monitoring in SPC XIII is necessary for the visible emissions standard in Table 2 of the minor permit. Therefore, the Department revised Condition 5.1d(i) to include the visible emissions monitoring requirements from SPC XIII in the minor permit with the following revision in Condition 5.1d(i)(C) of the minor permit:*

(C) except during COMS breakdowns, repairs, calibration checks, and zero and upscale adjustments, complete one cycle of sampling and analyzing for each successive ~~15~~ 10 - second period of emissions unit operation; from this data, calculate and record the average opacity for each successive one-minute period; and

This revision prevents the monitoring for BACT in the minor permit from conflicting with the monitoring in Minor Permit AQ1121MSS03 and Operating Permit AQ1121TVP02 Revision 2. The Department notes there are additional monitoring and reporting requirements in Minor Permit AQ1121MSS03 and Operating Permit AQ1121TVP02 Revision 2 that must be complied with, but there are no conflicts with the monitoring conditions in Minor Permit AQ1121MSS04 Revision 1.

For the portion of the comment regarding compliance with the visible emissions standard for BACT, see the response to Comment 5.

The revision to the nomenclature for the SPC "Performance Audits for COMS" is made in accordance with the language in SPC XIII.

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11. Condition 6, Table 3: Please revise the BACT emission limit for EU 8. The emission limit of 0.15 g/hp-hr in the table does not include the "not-to-exceed" (NTE) multiplier of 1.25 per 40 Code of Federal Regulations (CFR) 60.4212(c), 40 CFR 1039.101(e), and ADEC policy. The $PM_{2.5}$ BACT emission limit for EU 8 should be 0.19 g/hp-hr, or 0.25 g/kW-hr. DU submitted a similar comment on the proposed SIP amendment addressing this issue.

BACT Emissions Limit: ~~0.15~~ 0.19 g/hp-hr

Response: *The change is made as requested to account for a NTE multiplier of 1.25 as specified under 40 CFR 1039.101(e).*

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12. Condition 6.1e.(ii): Please revise Condition 6.1e(ii) for clarity as follows.

> the operating hour records for ~~each engine~~ EU ID 8 collected under Condition 6.1b(ii)(B);

Response: *The change is made as requested.*

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13. Condition 7: Please revise Condition 7 to correctly reflect the EU ID for EU 37. No EU 37a exists in the DU Fort Wainwright inventory. This comment is generally applicable wherever EU 37 is addressed in the minor permit and associated documentation. DU submitted a similar comment on the proposed SIP amendment addressing this issue.

Response: *The change is made as requested.*

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14. Condition 7, Table 4: Please revise the BACT Emissions Limit for EU 14 because the emission limit of 0.2 g/kW-hr given in the table does not include the NTE multiplier of 1.25 per 40 CFR 60.4212(c), 40 CFR 1039.101(e), and ADEC policy. Exhaust emissions from stationary CI ICE subject to Tier 3 emission standards must not exceed the NTE numerical requirements. The $PM_{2.5}$ BACT emission limit for EU 14 should be 0.25 g/kW-hr. DU submitted a similar comment on the proposed SIP amendment addressing this issue.

> BACT Emissions Limit: ~~0.2~~ 0.25 g/kW-hr

Response: *The change is made as requested.*

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15. Condition 7, Table 4: Please revise the phrase "Limited Operations" in the BACT Control entry in Table 4 to "Limited Operations for Non-Emergency Use" for consistency with the BACT determination in the proposed SIP amendment (see Section 4.4, Step 5, item (b) on page Appendix III.D.7.7-1067).

Response: *The change is made as requested.*

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16. Condition 7, Table 4: EUs 30a, 32a, 33a, and 35a are Tier 3-certified engines. The applicable emission limit is 0.4 g/kW-hr and should include the NTE multiplier of 1.25 per 40 CFR 60.4212(c), 40 CFR 1039.101(e), and ADEC policy. The $PM_{2.5}$ BACT emission limit for EUs 30a, 32a, 33a, and 35a should be 0.5 g/kW-hr. Please revise the BACT Emissions Limit entries in this table for EUs 30a, 32a, 33a, and 35a as follows. DU submitted a similar comment on the proposed SIP amendment addressing this issue.

> BACT Emissions Limit: ~~0.3~~ 0.5 g/~~hp~~ kW-hr

Response: *The change is made for EU IDs 30a, 32a, 33a, and 35 (the Department assumes the reference to EU ID 35a is a typographical error) as requested. The change is also made for*

EU ID 37 because DU included it when submitting the same comment for the proposed SIP amendments.

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17. Condition 8, Table 5: Please address the following concerns in Table 5. DU submitted similar comments on the proposed SIP amendment addressing these issues.

a. The table does not clearly distinguish which BACT controls are applicable to which emissions units. (For example, the top BACT Control entry is intended for EUs 7a through 7c and 51a through 51c, but not EU 52. The table does not clearly communicate this distinction.)

b. Please delete the phrase "and Enclosed Coal/Ash Handling Systems" from the top BACT Control table entry. Fugitive dust control requirements are not applicable to point source emissions units EUs 7a through 7c, 51a, and 51b, which are dust collectors. Please see the October 7, 2024, DU comments addressing Section 4.5 of the BACT determination. Table A in Section 2 of the BACT determination identifies the emissions units subject to BACT review and correctly identifies these emissions units as dust collectors. The BACT determination should address $PM_{2.5}$ emissions from these dust collectors. ADEC confirmed which emissions units were subject to BACT review in a letter to DU on February 3, 2016, in response to the $PM_{2.5}$ Serious Nonattainment BACT Analysis Protocol for the Fort Wainwright (Privatized Emission Units) that DU submitted to ADEC on December 11, 2015. These documents and correspondence are provided on pages 316 through 338 of Appendix III.D.7.7 of the existing $PM_{2.5}$ Serious SIP, adopted on November 19, 2019. While not flagged as a change, these MR&R tables have been added to the BACT determination appendix and include requirements for the coal and ash handling systems which are not addressed in the text of the BACT determination in Section 4.5. ADEC has not provided a rationale for addressing these processes which are not identified as emissions units subject to BACT review in Table A of the BACT determination. The BACT determination should be consistent with the approach that ADEC and DU agreed upon in 2016. This permit condition should ultimately be consistent with this approach as well.

c. Please revise the BACT Control for EU 52 to read, "Wind Awareness, Compaction, Watering used on active area of pile and road around the pile as needed during summer months, and Snow Cover on non-active faces of the coal storage pile during winter months." Note that wind screens are identified as not technically feasible in Section 4.5, Step 1, item (g) of the BACT analysis, so wind fencing should not be identified as a BACT control. DU agrees that wind fencing is not technically feasible for EU 52 due to the size and height of the coal storage pile. While haul vehicles are used in conjunction with ash disposal operations at the CHPP, coal is delivered by rail. Covered haul vehicles is not identified as an available or technically feasible control technology in the BACT analysis and should not be identified as a BACT control.

Watering is feasible during summer months for the active face of the storage pile and the road providing access around the pile. Watering the entire coal pile is not feasible due to the size and height of the coal storage pile.

The use of chemical treatments, including chemical stabilizers, is not authorized by the Army environmental department at Fort Wainwright. The outdoor use of any chemical products is strictly limited. These limits encompass the Fort Wainwright pesticide program, fertilizers, and even which soaps can be used for washing vehicles. These limits are due in part to the fact that a Superfund site exists on Fort Wainwright. The Fort Wainwright Municipal Separate Storm Sewer Systems (MS4) permit also contains strict limits for non-stormwater discharges to the ground and does not allow for the use of chemical dust control methods. DU strongly emphasizes that the Army Best Management Practices for dust control at Fort Wainwright rely on the use of water only.

Based on the information presented above, DU requests the following revisions to the BACT Control for EU 52 in Table 5:

~~Chemical Stabilizers, Wind Fencing, Covered Haul Vehicles, Watering, and~~ Wind Awareness, Compaction, Watering used on active area of pile and road around the pile as needed during summer months, and Snow Cover on non-active faces of the coal storage pile during winter months

Response: *The Department believes Table 5 clearly shows the BACT controls for EU IDs 7a through 7c, 51a, and 51b (the Department assumes the reference to EU ID 51c is a typographical error because it is not in the minor permit) and the separate BACT controls for EU ID 52. Therefore, no change is made to the layout of Table 5 other than an extra split across the fuel type column to more clearly show that EU ID 52 is separate from the other EUs for the BACT control.*

Step 5 in Section 4.5 of the Fort Wainwright BACT Determination states, "$PM_{2.5}$ emissions from the material handling equipment shall be controlled by operating the South and North Coal Handling Systems and the Underbunker Conveyors and the Fly and Bottom Ash Handling Systems with enclosed conveying systems equipped with dust collectors, EUs 7a through 7c, 51a, and 51b, at all times the units are in operation". $PM_{2.5}$ emissions are generated from the material handling systems. Enclosures are necessary for the dust collectors to be effective emissions controls. Therefore, "and Enclosed Coal/Ash Handling Systems" is not removed as BACT control for EU IDs 7a through 7c, 51a, and 51b in Table 5 of the minor permit.

The Department acknowledges that DU is prevented from using chemical stabilizers for the emergency coal storage pile and operations and that the coal storage area is too large for wind fencing to be effective. At the same time the Department acknowledges the demonstrated efficacy of compaction for preventing fugitive dust and also to prevent spontaneous coal combustion. The proposed BACT control in Table 5 is revised to read: "Wind Awareness, Compaction, Water Suppression as necessary, and snow cover as applicable".

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18. Condition 8.1: Please revise this condition and subconditions to address the following concerns. As an alternative, Conditions 9 and 10 of Permit AQ1211MSS04 could be included in this permit instead of the proposed Condition 8.1 because those two conditions adequately ensure compliance and are reasonable requirements.

a. Condition 8.1a. This condition imposes a reporting deadline based on a source test report submittal date. This permit does not impose any source testing requirements for EUs 7a through 7c, 51a, and 51b, so the requirement to report based on a source test submittal date does not make sense. Additionally, as addressed above in DU comments on Condition 8 and in comments on the proposed SIP amendments, the dust collectors on the coal and ash handling systems are the emissions units addressed in the BACT analysis.

b. Condition 8.1a(i). Please delete this condition. Per previous DU comments on this minor permit and the proposed SIP amendments, the dust collectors are the emissions units. The enclosed conveying systems are equipped with the dust collectors.

c. Condition 8.1c. Please delete this condition. Per previous DU comments on this minor permit and the proposed SIP amendments, the dust collectors are the emissions units. The enclosed conveying systems are equipped with the dust collectors.

d. Condition 8.1e(i). Please revise this condition as follows to correctly reflect the system configuration, consistent with DU comments above and on the proposed SIP amendments (particularly those comments on the $PM_{2.5}$ MR&R tables following the BACT determination).

> Monitor that EU IDs 51a and 51b are operating <u>when the respective ash handling system is operating</u> ~~at all times fly and bottom ash is conveyed to truck loading locations~~.

e. Conditions 8.1e(ii) through 8.1e(iv). Please delete these conditions, consistent with DU comments above and on the proposed SIP amendments (particularly those comments on the $PM_{2.5}$ MR&R tables following the BACT determination).

Response: *The reference to the source test report is removed from Condition 8.1a and the condition is revised to require reporting regarding the coal/ash handling and conveying system enclosures in the first operating report due after the issue date of the minor permit.*

The Department replaced "EU IDs 7a, 7b, 7c, 51a, or 51b" with "coal/ash handling and conveying systems" in Condition 8.1a(i).

Condition 8.1c is not removed. Please see the response to Comment 17.

Conditions 8.1e(i) is revised as requested.

Conditions 8.1e(ii) – (iv) The BACT emission limit for EU IDs 51a and 51b is for emissions from the dust collectors and the BACT control is dust collectors and enclosed ash handling

systems. Fugitives, including those from the ash loading building and trucks bodies are not addressed in Table 5. Therefore, the Department has removed Condition 8.1e(ii) through (iv).

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19. Condition 8.2.b: Please delete this condition. The use of chemical treatments, including chemical stabilizers, is not authorized by the Army environmental department at Fort Wainwright. The outdoor use of any chemical products is strictly limited. These limits encompass the Fort Wainwright pesticide program, fertilizers, and even which soaps can be used for washing vehicles. These limits exist in part because a Superfund site exists on Fort Wainwright. The Fort Wainwright Municipal Separate Storm Sewer Systems (MS4) permit also contains strict limits for non-stormwater discharges to the ground and does not allow for the use of chemical dust control methods. The Army does not permit the use of chemical stabilizers at Fort Wainwright. Please refer to the above comments on this issue. DU submitted a similar comment on the proposed SIP amendment addressing this issue.

Response: *The Department understands chemical treatments cannot be used as a control and chemical treatment is removed as a BACT control in Table 5 of the minor permit as noted in the response to Comment 17. Therefore, the Department changed "chemical stabilizers" to "water" in Condition 8.2b.*

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20. Condition 8.2.c: Please delete this condition. Wind screens are identified as not technically feasible in Section 4.5, Step 1, item (g) of the BACT analysis, so wind fencing should not be required. DU agrees that wind fencing is not technically feasible for EU 52 due to the size and height of the coal storage pile. Please refer to the above comments on this issue. DU submitted a similar comment on the proposed SIP amendment addressing this issue.

Response: *Wind fencing is removed as a BACT control in Table 5 of the minor permit as noted in the response to Comment 17. However, compaction, water suppression as necessary, and snow cover are identified as BACT control in Table 5 and replaces wind fencing in Condition 8.2c.*

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21. Condition 8.4c: Please delete this condition, consistent with previous DU comments on the proposed SIP amendments and the above requests to delete Conditions 8.2b and 8.2c.

Response: *Conditions 8.2b and 8.2c remain in the minor permit as noted in the responses to Comments 19 and 20. Therefore, Condition 8.4c is not removed.*

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22. Condition 8.5a: Please delete this condition, consistent with previous DU comments on Condition 8.1a(i) and the proposed SIP amendments.

Response: *The Department replaced "EU" with "coal/ash handling and conveying systems" in Condition 8.5a.*

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23. Condition 8.5b: Please revise this condition to clarify that the dust collectors on the coal and ash handling systems are the emissions units addressed in the BACT analysis. Consistent with previous DU comments above, DU comments on the proposed SIP amendments, and the language in Condition 8.1d, DU proposes the following revisions.

~~an EU~~ a material handling system is operated without operating the associated dust collector as monitored under Condition 8.1d;

Response: *The revisions are made as requested.*

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24. Condition 12: Please delete the phrase "for the life of this permit" because the phrase is relevant only in a Title V permit. The associated footnote addresses permit effective dates and permit expiration. Title I permits, such as this minor permit, do not expire.

Response: *The Department did not delete the phrase "for the life of the permit" from the TAR. The phrase "for the life of this permit" corresponds to the standard permit condition (SPC) derived for Operating Reports required by Operating Permits. Since EPA requested that the Minor Permit be self-contained, the Department brought in the exact SPC, which contains the phrase. While the phrase may be considered irrelevant since Minor Permits typically do not have expiration dates, it is not considered factually incorrect for the purpose of incorporating this minor permit into the SIP.*

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25. Condition 13 and Conditions 5.1b, 6.1d, 7.1d, and 8.3: DU disagrees that an annual compliance certification should be prepared for a minor permit. DU also disagrees that an annual compliance certification for a minor permit should be submitted to EPA per Condition 13.2. The discussion of this permit condition on page 11 of the draft Technical Analysis Report (TAR) states that the basis for this requirement is a letter from EPA dated Aug 23, 2024. However, the TAR does not provide a specific rationale or explanation as to the reason an annual compliance certification is required for a minor permit. The language in the TAR is confusing and unclear because the language refers to two effective permits, expiration of an old permit, and a renewal permit. This language appears to be specific to Title V permits and does not explain or clarify the reason for Condition 13 in this minor permit. Please delete or revise Condition 13 to address these concerns. If Condition 13 is retained in any form in the final permit, please ensure that the TAR provides sufficient rationale for imposing this requirement.

Response: *The Department did not delete the Annual Compliance Certification (ACC) or the requirement to submit ACC's to EPA. An Annual Compliance Certification (ACC) is a type of reporting of compliance status with permit conditions including, but not limited to, those related MR&R. Since EPA requested that the Minor Permit be self-contained and specifically identified the ACC as an item needed to accomplish such, the Department brought in the requirement for submitting an ACC for the conditions listed in the Minor Permit. Note that the Department corrected the reference to Submittals Condition 10 from Condition 9 Additionally, the Department did remove from TAR the confusing language related to effective permits and*

renewal permits that are specific to Title V permits. The updated language in the TAR reads as follows.

Condition 13, Annual Compliance Certification

This condition specifies the periodic compliance certification requirements and specifies a due date for the annual compliance certification. No format is specified. ~~The Permittee may provide one report certifying compliance with each permit term or condition for each of the effective permits during the certification period, or may choose to provide two reports: one certifying compliance with permit terms and conditions from January 1 until the date of expiration of the old permit, and a second report certifying compliance with terms and conditions in effect from the effective date of the renewal permit until December 31.~~

The Permittee is required to submit to the Department an annual compliance certification report. The Permittee may submit the required report electronically at their discretion.

The Department included Condition 13 in order to add reporting requirements into the minor permit to satisfy additional SIP inclusion conditions that were recommended by EPA Region 10 in a letter dated August 23, 2024. In the letter, EPA expressed that including the ACC in the minor permit would ensure that the permit's MR&R would be "self-contained." This would allow the minor permits, rather than the TV Permits which require renewal every five years, to be incorporated in the NAA SIP.

TAR:

26. Pages 2 and 3, TAR Section 1, sixth paragraph beginning on page 2: This paragraph cites an August 23, 2024, letter from EPA to the Department that recommended "certain requirements be contained in the Department's NAA minor permit for the Zehnder Facility," and states that the EPA recommended certain revisions to Minor Permit AQ0109MSS01 Rev 1. This discussion is unclear as to how the EPA letter addressing a different Permittee and facility relates to this minor permit for the DU-Fort Wainwright stationary source. Please revise this discussion to provide the needed clarity.

Response: *A sentence is added to this section of the TAR to note the recommendation applies to all Title I permits being issued for purposes of the Fairbanks North Star Borough Nonattainment Area State Implementation Plan. Additionally, the Department added a sentence in this paragraph to note that the $PM_{2.5}$ requirements from this permit are included in Table 7.7-44 of the updated State Air Quality Control Plan Vol II: III.D.7.7 Control Strategies document with forthcoming adoption expected in 2024.*

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27. Page 3, final paragraph of TAR Section 1: DU requests that ADEC provide a detailed rationale to explain the reasons the increase in SO_2 emissions is not a potential or actual emissions increase under 18 AAC 50.502(c)(3) or a potential or net emissions increase under 40 CFR 52.21(b). The rationale should explain that the SO_2 BACT limits were never federally enforceable because EPA never approved the SO_2 BACT requirements in the

serious $PM_{2.5}$ nonattainment SIP. As a result, those limits were never in effect for determining potential to emit (40 CFR 52.21(b)(4)).

The rationale should also explain that permit requirements under 40 CFR 51.165 are not triggered because the SO_2 BACT limits were never federally enforceable and not in effect for determining potential to emit under the Nonattainment New Source Review (NNSR) program, as defined at 51.165(a)(1)(iii).

The rationale should also explain that any increase in SO_2 emissions that result from returning to the combustion of a fuel, the combustion of which was allowed before the BACT SO_2 limits were imposed, is not an increase in actual emissions for permit applicability determination purposes.

This permit applicability discussion should be robust and comprehensive.

Response: *The paragraph clearly states the Department does not consider the apparent increase in SO_2 emissions from the removal of the SO_2 limits in Minor Permit AQ1121MSS04 to be a change in emissions for purposes of minor permit or PSD permit applicability. However, the Department did revise the last sentence of the paragraph to address PSD permit applicability under 40 CFR 52.21(a)(2) and added one additional sentence to further clarify why the issuance of this permit is not considered an emissions increase.*

The Department notes that any apparent increase in SO_2 emissions from using a fuel previously allowed would only occur due to the removal of the SO_2 limits, which is already addressed in the paragraph.

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28. Page 4, TAR Section 5, Table 6: This table contains several errors and discrepancies. Please ensure that this table is consistent with the information provided in previous comments and the Title V permit renewal application amendment materials submitted to ADEC in January 2021. Please ensure the total assessable PTE value is correct in the final permit. DU concerns about this table include but are not limited to the following items.

a. The row presenting the "PTE upon issuance of AQ1121MSS04 Rev.1" has incorrect values due to discrepancies in Table A-1 of this TAR. As a result, the total assessable PTE value is incorrect. Some examples of the concerns are provided below.

   i. $PM_{2.5}$ emissions from the coal-fired boilers are calculated as 11.59 tpy instead of 115.9 tpy.

   ii. Emissions from the emergency engines (EUs 9 through 37) are calculated at 100 hr/yr instead of 500 hr/yr. While the SIP limits non-emergency operation of these

engines to 100 hr/yr, the PTE for emergency engines should continue to be calculated at 500 hr/yr in accordance with EPA guidance.

iii. Please see DU comments addressing Table A-1 of the TAR.

b. Note [a] states that PM_{10} emissions include $PM_{2.5}$ emissions. The table only presents $PM_{2.5}$ emissions and does not present PM_{10} emissions. Some emissions units have different PM_{10} and $PM_{2.5}$ emission rates, such as EUs 1 through 6. This table then calculates total assessable emissions based on $PM_{2.5}$ emissions instead of PM_{10} emissions. That approach is inconsistent with ADEC policy to calculate assessable emissions using PM_{10} emissions. As a result, the total assessable PTE value is incorrect.

Response: *The row presenting the "PTE upon issuance of AQ1121MSS04 Rev.1" is revised in accordance with the revisions made to Table A-1 of the TAR.*

$PM_{2.5}$ PTE for the coal-fired boilers is corrected to 115.9 in Table A-1 of the TAR.

PTE for the emergency engines is calculated using 500 hours of operation and the values in Table A-1 of the TAR are revised.

Please see the response to Comment 32 for DU comments addressing Table A-1 of the TAR.

$PM_{2.5}$ and PM_{10} emissions are revised in Table 6 of the TAR and assessable PTE now includes the PM_{10} emissions.

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29. Page 8, TAR Section 7: This section states that minor permit AQ1121MSS04 Revision 1 does not contradict conditions in the Title V operating permit AQ1121TVP02 Revision 2. DU has provided comments indicating that the preliminary permit AQ1121TVP02, as written, DOES conflict with provisions in the existing Title V permit. DU has proposed changes to ensure that the final permit DOES NOT conflict. As a result, the permit must include effective dates for each of the BACT limits, which should not be sooner than the effective date of the BACT limits in the SIP. Requiring DU to comply with the permit on issuance could in effect make the limits in the permit effective prior to the limits being effective in the SIP. Please refer to the general comment and the comment on Condition 5.1a which both address this issue. This comment also applies to information provided on the preliminary permit cover page and the discussion of the cover page on page 8, Section 8 of the TAR.

Response: *The Department assumes the reference to "preliminary permit AQ1121TVP02" is an error and should state "preliminary permit AQ1121MSS04 Revision 1". The comment does not clearly explain which preliminary minor permit provisions contradict conditions in the current operating permit. Additionally, the comment does not explain why any contradicting requirements, or proposed revisions to correct contradicting requirements, results in the minor permit needing effective dates for the BACT limits. The Department believes these are separate and unrelated issues. The Department only sees conflicting conditions mentioned in*

Comment 10. That issue is addressed in the response to Comment 10. The issue of effective dates for BACT limits is addressed in the response to Comment 2. There is no change to Section 7 of the TAR.

The language stating the adoption of SPC XIII into the minor permit is removed from the cover page of the minor permit and the discussion of the adoption of SPC XIII into the minor permit is removed from page 8, Section 8 of the TAR. Please see the response to Comment 10.

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30. Pages 8 through 10, TAR Section 8, discussion of Section 3 SIP Requirements: The first paragraph of this section cites the 2019 Serious SIP instead of the 2024 SIP amendments as the basis for the permit requirements. The entire section addressing Section 3 of the permit summarizes the conditions in Section 3 of the permit but provides minimal discussion of the regulatory and/or legal basis for the requirements. Please ensure that revisions to the SIP and permit AQ1121MSS04 Revision 1 are also addressed in this section when preparing the final version of this TAR. Those revisions should include but are not limited to correcting EU nomenclature, ratings, emission limits, applicable BACT requirements, and applicable MR&R requirements.

Response: *The Department added references to the proposed SIP amendments and BACT determinations as necessary and made corrections to EU nomenclature, ratings, emission limits, applicable BACT requirements, and applicable MR&R requirements as necessary.*

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31. Page 11, TAR Section 8, discussion of Condition 13: The discussion of Condition 13 states that the basis for this requirement is a letter from EPA dated Aug 23, 2024. As stated in the comment above addressing Condition 13 in the permit, the TAR does not provide a specific rationale or explanation as to why an annual compliance certification is required for a minor permit. The language in the TAR is confusing and unclear because it refers to two effective permits, expiration of an old permit, and a renewal permit. This language appears to be specific to Title V permits and does not explain or clarify the reason for Condition 13 in this minor permit. If Condition 13 is retained in any form in the final permit, please ensure that the TAR provides sufficient rationale for imposing this requirement.

Response: *As noted in the response to Comment 25 and this section of the TAR, the Department included Condition 13 in order to add reporting requirements to the minor permit in accordance with a recommendation by EPA Region 10 for SIP approval in the letter dated August 23, 2024. The language discussing two effective permits, expiration of an old permit, and a renewal permit is removed because it applies to Title V permitting.*

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32. Pages 13 through 15, Appendix A, Table A-1: This table contains several errors and discrepancies. Please ensure that this table is consistent with the information provided in previous comments, as well as the Title V permit renewal application amendment materials submitted to ADEC in January 2021. Please ensure the total assessable PTE value is correct in the final permit. DU concerns on this table include but are not limited to the following items.

a. EUs 1 through 6 – $PM_{2.5}$ emissions from the coal-fired boilers are incorrectly calculated as 11.59 tpy instead of 115.9 tpy.

b. Engines (various) – $PM_{2.5}$ emission factors for engines certified to Tier 2 through Tier 4 should include the 1.25 not-to-exceed multiplier per 40 CFR 60.4212(c), 40 CFR 1039.101(e) and ADEC policy.

c. All emissions units – Please confirm that emission factors for each emissions unit for each pollutant are correct and consistent with the 2019 and 2021 Title V permit renewal application materials.

d. EUs 9 through 37 – The emergency engines are each listed with an operating limit of 100 hr/yr. Emissions from the emergency engines are calculated at 100 hr/yr instead of 500 hr/yr. While the SIP limits non-emergency operation of these engines to 100 hr/yr, the PTE for emergency engines should continue to be calculated at 500 hr/yr in accordance with EPA guidance.

e. Engines (various) – Please ensure that the proper EU ID, nomenclature, description, and ratings are provided for the engines, as addressed in previous comments. These concerns include but are not limited to the following items.

   i. EUs 9 through 33a and EU 37 are "emergency generator engines." EUs 34 through 36 are "emergency pump engines."

   ii. EU 37 is the correct EU ID, not EU 37a.

   iii. The correct rating for each of EU 30a and 32a is 91 hp.

f. Use of the same emission factor for $PM_{2.5}$ and PM_{10}. As presented in the 2019 and 2021 Title V permit renewal application materials, certain emissions units have different emission factors for PM_{10} compared to $PM_{2.5}$.

g. EUs 7a through 7c, 51a, 51b, and 52. The "current operating limits" given in this table for these emissions units are not operating limits in the permit. These values appear to be the basis for actual emission calculations and are not necessarily accurate for calculating PTE.

Response: *The $PM_{2.5}$ PTE for EU IDs 1 through 6 is corrected to 115.9 tpy as requested.*

The Department revised the $PM_{2.5}$ emission factors for EU IDs 8, 14, 30a, 32a, 33a, 35, 36a, and 37 to include the 1.25 not-to-exceed multiplier in accordance with the Comments 11, 14, and 16 and as noted below in Section C - Additional Corrections Made by the Department, items 4 and 5.

The comment regarding all emissions units does not clearly identify any change that is needed for a specific unit or the reason a specific change is needed. However, the Department updated TAR Table 6 and Table A-1, taking into consideration the updates provided in the January 2021

Title V permit renewal application amendment materials, as well as, the updated E.F.s for the new replacement unit, EU ID 36a, and EU ID 35.

A note is added to Table A-1 for the 100 hr/yr non-emergency limit. PTE for the emergency engines is calculated using 500 hours of operation and the PTE values are revised in Table A-1.

EU IDs, nomenclature, descriptions, and ratings for engines are revised as necessary in Table A-1. See related response to Comment 3.

Values for PM_{10} are added to Table A-1 for EU IDs 1 through 6. Total PM_{10} PTE is added to Table A-1.

Notes are added to Table A-1 to address the limits listed for EU IDs 7a through 7c, 51a, 51b, and 52.

B. Comments from Patrice Lee on behalf of Citizens for Clean Air

1. Fort Wainwright is pivotal to the mission of the Army. A redundant secure supply of power with no constraint to the Army's mission is a necessity. As long as the Fairbanks North Star Borough nonattainment area remains out of compliance with the Clean Air Act, the Army cannot carry out missions that add to the further non compliance with the federal Clean Air Act. This places some aspects of the Army's mission in jeopardy. It also further endangers military staff, their families, and civilians in the area. Ilness caused by breathing dirty air causes an additional burden on these people and adds cost to running the military.

Ft. Wainwright needs to update its power source and putting in a clean power source such as deep geothermal, for which Ft. Wainwright is particularly well suited, could provide enough power for both the military and surrounding communities. Such a facility could eliminate the need for wood, coal, and diesel fueled power which could eliminate the majority of our air pollution. It may be necessary for ADEC to push/support the non-polluting energy projects that can produce the baseload power needed for military and civilian use in our community. Plans such as this should be coordinated with the military, private industry, and our local leaders. Trying to heat homes, run businesses and secure our military without a change in how we produce power that is clean, baseload, and renewable or long-lasting is a losing battle using the fossil fuels and our old, out-dated technologies. Alaska should take a leading role in supporting viable baseload power in order to meet our needs. Ft. Wainwright is more critical than other power plants because of its central location, and military importance.

Response: *The Department's Air Quality Minor Permit AQ1121MSS04 Rev. 1 is being issued to implement $PM_{2.5}$ controls identified in Table 7.7-44 of the updated State Air Quality Control Plan Vol II: III.D.7.7 Control Strategies document with forthcoming adoption expected in 2024. While the Department supports efforts to increase clean power generation in the State of Alaska, these comments are outside the scope of this permitting exercise. Therefore, the Department is not addressing this comment.*

C. Additional Corrections Made by the Department

The Department also made the following corrections not mentioned in the comments:

1. **Abbreviations and Acronyms:** Added COMS in the list.

2. **EU IDs 7A, 7B, 7C, 29A, 30A, 31A, 32A, 33A, 36A, 51A, and 51B:** The Department has changed the EU IDs capital letter suffixes A, B, and C to small letters a, b, and c, respectively, to be consistent with the EU nomenclature in Title V permit and the upcoming 2024 final SIP.

3. **Condition 5:** Revised subtitle to "**Coal-fired Boilers Emissions Limit."**

4. **EU ID 36a:** DU submitted an off-permit change notification dated July 26, 2024 for the replacement of EU ID 36 with EU ID 36a. This change is reflected in Table A of the minor permit. However, the notification states, "The Caterpillar engine drives a generator which provides emergency electrical power to an electric pump and lift station at Building 3563 in the event of a power outage." Therefore, "Emergency Pump Engine" is replaced with "Emergency Generator Engine" in Table A.

   EU ID 36a is rated at 161 horsepower (120 kilowatts) and must comply with the Tier 3 emission standards in 40 CFR 60 Subpart IIII (40 CFR 1039, Appendix I). Therefore, the $PM_{2.5}$ BACT limit for EU ID 36a in Table 4 of the minor permit is revised to 0.375 g/kW-hr in accordance with Table 3 to 40 CFR 1039, Appendix I and the not-to-exceed standard specified in 40 CFR 60.4212(c).

5. **Statement of Basis (SOB), Table A-1:** The Department revised the SO_2 emission factors in Table A-1 for EU IDs 9, 22, 23, and 34 to reflect a fuel sulfur content of 0.5 percent by weight because these units are not required to use ultra-low sulfur diesel.