Alaska Department of Environmental Conservation
Air Permits Program

TECHNICAL ANALYSIS REPORT

For the terms and conditions of

Minor Permit AQ0236MSS03 Revision 2

Issued to U.S. Army Garrison
For the USAG Alaska Fort Wainwright

Preliminary – September 20, 2024

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1. INTRODUCTION

This Technical Analysis Report (TAR) provides the Alaska Department of Environmental Conservation's (Department's) basis for issuing Minor Permit No. AQ0236MSS03 Revision 2 to U.S. Army Garrison (USAG) for the USAG Alaska Fort Wainwright (FWA). Originally, USAG requested the permit under AS 46.14.130(c)(2) because the Department finds that public health or air quality effects provide a reasonable basis to regulate the stationary source. This finding is contained in the State Air Quality Control Plan adopted on November 19, 2019.[5]

The designation of the Fairbanks North Star Borough (FNSB) nonattainment area as "Serious" with regard to nonattainment area (NAA) of the 2006 24-hour $PM_{2.5}$ National Ambient Air Quality Standards (NAAQS) was published in Federal Register Vol. 82, No. 89, May 10, 2017, pages 21703-21706. CAA section 189(b)(1)(B) and 40 C.F.R. §51.1010 describe the Serious area attainment plan requirements for best available control measures (BACM). Large stationary sources are a subgroup of emissions sources that are given special attention in the required BACM analysis. Per federal requirement, the Department evaluated all point sources with emissions greater than 70 TPY of $PM_{2.5}$ or for any individual $PM_{2.5}$ precursor (NO_x, SO_2, NH_3, VOCs). The conditions contained in this permit are those required in Table 7.7-11 of the Amendments to: State Air Quality Control Plan Vol II: III.D.7.7 Control Strategies document; adopted November 19, 2019.[5]

On July 30, 2024, the Department sent USAG a notice of intent to revoke and reissue Minor Permit No. AQ0236MSS03 Revision 1 under AS 46.14.280(a)(2). With the reissuance as Minor Permit No. AQ0236MSS03 Revision 2, the Department finds that public health or air quality effects still provide a reasonable basis to regulate the stationary source under AS 46.14.130(c)(2). This finding is contained in the State Air Quality Control Plans adopted on November 19, 2019, for the $PM_{2.5}$ Serious Nonattainment area (NAA), and July 5, 2022, for Regional Haze.

The Department is preparing a new comprehensive State Implementation Plan (SIP) to address the FNSB NAA with a new determination that SO_2 BACT limits for major stationary sources are, at this point, not required to satisfy the State's obligations under the Clean Air Act requirements for stationary sources in the NAA. This new determination is predicated on the SO_2 precursor demonstration allowed under 40 C.F.R. 51.1010(a)(2)(iii).

Given that the Department originally issued Minor Permit No. AQ0236MSS03 for the sole purpose of implementing SO_2 controls identified in the FNSB NAA SIP for the of the USAG FWA, the Department later found no underlying basis for issuing such permit. Additionally, the EPA's *Air Plan Partial Approval and Partial Disapproval; AK, Fairbanks North Star Borough; 2006 24-hour PM2.5 Serious Area and 189(d) Plan*[6] published in the *Federal Register* on December 5, 2023 *(*88 *Fed. Reg.* 84658*)* disapproved the lack of monitoring, recordkeeping, and reporting (MR&R) initially proposed by the Department for $PM_{2.5}$ emissions from USAG FWA.

Therefore, with the reissuance of Minor Permit No. AQ0236MSS03 Revision 2, the Department has rescinded all of the BACT requirements related to SO_2 in Section 3 of Minor Permit No. AQ0236MSS03 Revision 1, and replaced that section with the $PM_{2.5}$ requirements from Table

[5] Background and detailed information regarding Fairbanks $PM_{2.5}$ State Implementation Plan (SIP) can be found at http://dec.alaska.gov/air/anpms/communities/fbks-pm2-5-serious-sip/.

[6] The EPA's Air Plan Partial Approval and Partial Disapproval; AK, Fairbanks North Star Borough; 2006 24-hr $PM_{2.5}$ Serious Area and 189(d) Plan can be found at https://www.regulations.gov/document/EPA-R10-OAR-2022-0115-0426.

7.7-11 of the of the State Air Quality Control Plan Vol. II: III.D.7.07 - Control Strategies Chapter and from the Final Fort Wainwright BACT Determination (located on PDF pages 488 through 543 of Part 2 of Appendix III.D.7.07 Control Strategies Chapter), adopted November 19, 2019, amendments adopted November 19, 2020. In light of EPA's disapproval comments, the Department included additional MR&R requirements into this permit to make the SIP requirements enforceable. Section 3 of this minor permit will be incorporated into the Department's upcoming final SIP submittal as an appendix to the Control Strategies Chapter.

The reissuance of Minor Permit AQ0236MSS03 Rev. 2 is under AS 46.14.130(c)(2), because the Department still finds that public health or air quality effects provide a reasonable basis to regulate the stationary source. After on-going discussions between the Department and EPA Region 10 regarding the FNSB NAA SIP requirements, on August 23, 2024, EPA's NAA Project Lead Matt Jentgen sent the Department a letter recommending certain requirements be contained in the Department's NAA minor permit for the USAG FWA in order to satisfy certain Clean Air Act requirements. The EPA letter recommended that the minor permits pertaining to the FNSB $PM_{2.5}$ SIP contain conditions to ensure that the reporting obligations of the minor permit are independent of the operating permit.

2. STATIONARY SOURCE DESCRIPTION

FWA is federally owned facility managed by USAG. It is located on the eastern edge of Fairbanks, within the North Star Borough, in interior Alaska. The installation includes the main post, a range complex, and two maneuver areas. The emission units (EUs) covered by this permit are owned and operated by the permittee, USAG. The EUs located within the military installation include units such as boilers and generators that are owned and operated by the FWA. The FWA Central Heating and Power Plant (CHPP), also located within the installation footprint, is owned and operated by a private utility company, Doyon Utilities, LLC (DU). The two entities, DU and USAG, comprise a single stationary source operating under two permits.

3. APPLICATION DESCRIPTION

The Department is processing Minor Permit No. AQ0236MSS03 Revision 2 under the Department's revoke and reissuance procedures under AS 46.14.280(a)(2), and therefore, no permit application was submitted by the Permittee. The Department sent USAG a notice of intent to revoke and reissue Minor Permit No. AQ0236MSS03 Revision 1 under AS 46.12.280(a)(2) on July 30, 2024. Minor Permit No. AQ0236MSS03 Revision 2 includes the $PM_{2.5}$ requirements from the FNSB Serious NAA SIP.

With the issuance of Minor Permit No. AQ0236MSS03 Revision 2, the changes in the USAG FWA PTE are not considered 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), because the PTE under this permit revision, including the potential SO_2 emissions, is lower than the PTE in Operating Permit AQ0236TVP04, issued on June 11, 2020, prior to the original issuance of AQ0236MSS03.

4. CLASSIFICATION FINDINGS

The Department finds that:

1. Minor Permit No. AQ0236MSS03 Revision 2 is classified under AS 46.14.130(c)(2) because the Department finds that public health or air quality effects provide a reasonable

basis to regulate the stationary source. This finding is contained in the State Air Quality Control Plan adopted on November 19, 2019.[7]

5. EMISSIONS SUMMARY AND PERMIT APPLICABILITY

Table 7 shows the emissions summary and permit applicability with assessable emissions from the stationary source. Emission factors and detailed calculations are provided in Appendix A.

A summary of the potential to emit (PTE) and assessable PTE, as determined by the Department, is shown in Table 7 below.

Table 7 – Emissions Summary and Permit Applicability, tons per year (TPY)

Parameter	NOx	CO	VOC	$PM_{2.5}/PM_{10}$[1]	SO_2
Current PTE (Minor Permit No. AQ0236MSS03 Revision 1)	76.87	28.31	15.83	49.28	5.16
PTE (After issuance of Minor Permit No. AQ0236MSS03 Revision 2), add replacement EU ID 60a and new EUs IDs 67 and 68.	81.74	18.35	15.31	51.43	39.98
Assessable Emissions[2]	81.74	18.35	15.31	51.43	39.98
Total Assessable[2]	206.81				

Notes:

1. $PM_{2.5}$ and PM_{10} emissions are conservatively estimated to be equal to total PM emissions.
2. The differences in assessable emissions upon the issuance of Minor Permit No. AQ0236MSS03 Rev. 2, compared to the USAG Alaska Fort Wainwright's assessable emissions prior to the issuance of Minor Permit No. AQ0236MSS03 Rev. 1, is that the Department now counts individual criteria pollutants below 10 TPY.

The Department changed the PTE of the stationary source by addressing the following:

1. Corrected the NO_x, CO, VOC, and $PM_{2.5/10}$ emission factors for the emergency generators (more and less than 447 kW) to match the EPA AP-42 emission factors in Tables 3.3-1, 3.4-1, and 3.4-2.
2. Adjusted SO_2 EFs based on new $PM_{2.5}$ BACT requirements, reverted EU IDs 8 – 10, 40, and IEU boilers to 0.3 $wt\%S_{fuel}$.
3. Added PTE from new EU IDs 60a, 68, and 69.

6. REVISIONS TO PERMIT CONDITIONS

[7] Background and detailed information regarding Fairbanks $PM_{2.5}$ State Implementation Plan (SIP) can be found at http://dec.alaska.gov/air/anpms/communities/fbks-pm2-5-serious-sip/.

Table 8 below lists the requirements carried over from Minor Permit No. AQ0236MSS03 Revision 1 into Minor Permit No. AQ0236MSS03 Revision 2.

Table 8 – Comparison of Minor Permit No. AQ0236MSS03 Revision 1 to Minor Permit No. AQ0236MSS03 Revision 2 Conditions[8]

Minor Permit AQ0236MSS03 Rev. 1 Condition No.	Description of Requirement	Minor Permit AQ0236MSS03 Rev. 2 Condition No.	How Condition was Revised
Table 1	Emissions Unit Inventory	Table 1	Updated emission inventory, by adding EU ID 60a that replaces EU ID 60 and added EU IDs 68 and 69.
None	Assessable Emissions	4	Updated to remove "in quantities 10 tons per year or greater" to match the revision made in 18 AAC 50.410, effective September 7, 2022. Updated the assessable potential to emit in Condition 3.1 to the value as specified in Table 7. Updated PTE to correct emission factors for the emergency engines and new EU IDs 60a, 68, and 69.
Section 3	FNSB NAA SIP Requirements: SO_2 BACT requirements for EU IDs 8 – 13, 26 – 40, and 50 – 67	None	The existing SO_2 BACT conditions whose basis stemmed from the FNSB NAA SIP were removed in their entirety because the Department has rescinded the previous SO_2 BACT section from this SIP and is now relying on a precursor demonstration to show that SO_2 controls are not needed for attaining the standard, as allowed under the $PM_{2.5}$ NAAQS Final SIP Requirements Rule.[9]
None	FNSB NAA SIP Requirements: $PM_{2.5}$ Limits on EU IDs 8 – 10 and 40	6	Included new $PM_{2.5}$ requirements for EU IDs 8 – 10, and 40 from Table 7.7-11 of the State Air Quality Control Plan Vol. II: III.D.7.7 - Control Strategies Chapter, and from the Final North Pole Power Plant BACT Determination (located on PDF pages 488 through 543 of Part 2 of Appendix III.D.7.07 Control Strategies Chapter), adopted November 19, 2019, amendments adopted November 19, 2020.[10] Note that the emissions limit in Table 2 for boiler EU IDs 8 through 10, and 40 has been corrected from

[8] This table does not include all the standard and general conditions.
[9] https://www.gpo.gov/fdsys/pkg/FR-2016-08-24/pdf/2016-18768.pdf.
[10] Background and detailed information regarding Fairbanks $PM_{2.5}$ State Implementation Plan (SIP) can be found at http://dec.alaska.gov/air/anpms/communities/fbks-pm2-5-serious-sip/.

Minor Permit AQ0236MSS03 Rev. 1 Condition No.	Description of Requirement	Minor Permit AQ0236MSS03 Rev. 2 Condition No.	How Condition was Revised
			0.012 lb/MMBtu in the previous SIP to 0.016 lb/MMBtu in the upcoming SIP submittal because these boilers are considered "commercial" under EPA's AP-42 Table 1.3-7 and not "industrial" under Table 1.3-6. Also included MR&R requirements to satisfy additional SIP inclusion conditions recommended by EPA Region 10 in a letter dated August 23, 2024.
None	FNSB NAA SIP Requirements: $PM_{2.5}$ Limits on EU IDs 50, 51, and 53	7	Included new $PM_{2.5}$ requirements for EU IDs 50, 51, and 53 from Table 7.7-11 of the State Air Quality Control Plan Vol. II: III.D.7.7 - Control Strategies Chapter, and from the Final North Pole Power Plant BACT Determination (located on PDF pages 488 through 543 of Part 2 of Appendix III.D.7.07 Control Strategies Chapter), adopted November 19, 2019, amendments adopted November 19, 2020.[11] Also included MR&R requirements to satisfy additional SIP inclusion conditions recommended by EPA Region 10 in a letter dated August 23, 2024.
None	FNSB NAA SIP Requirements: $PM_{2.5}$ Limits on EU IDs 11 – 13	8	Included new $PM_{2.5}$ requirements for EU IDs 11 – 13 from Table 7.7-11 of the State Air Quality Control Plan Vol. II: III.D.7.7 - Control Strategies Chapter, and from the Final North Pole Power Plant BACT Determination (located on PDF pages 488 through 543 of Part 2 of Appendix III.D.7.07 Control Strategies Chapter), adopted November 19, 2019, amendments adopted November 19, 2020.[12] Also included MR&R requirements to satisfy additional SIP inclusion conditions recommended by EPA Region 10 in a letter dated August 23, 2024.
None	FNSB NAA SIP Requirements: $PM_{2.5}$ Limits on EU ID 54	9	Included new $PM_{2.5}$ requirements for EU ID 9 from Table 7.7-11 of the State Air Quality Control Plan Vol. II: III.D.7.7 - Control Strategies Chapter,

[11] Background and detailed information regarding Fairbanks $PM_{2.5}$ State Implementation Plan (SIP) can be found at http://dec.alaska.gov/air/anpms/communities/fbks-pm2-5-serious-sip/.
[12] See Footnote 11.

Minor Permit AQ0236MSS03 Rev. 1 Condition No.	Description of Requirement	Minor Permit AQ0236MSS03 Rev. 2 Condition No.	How Condition was Revised
			and from the Final North Pole Power Plant BACT Determination (located on PDF pages 488 through 543 of Part 2 of Appendix III.D.7.07 Control Strategies Chapter), adopted November 19, 2019, amendments adopted November 19, 2020.[13] Also included MR&R requirements to satisfy additional SIP inclusion conditions recommended by EPA Region 10 in a letter dated August 23, 2024.
None	FNSB NAA SIP Requirements: $PM_{2.5}$ Limits on EU IDs 26 – 39, 52, and 55 – 69	10	Included new $PM_{2.5}$ requirements for EU IDs 26 – 39, 52, and 55 – 69 from Table 7.7-11 of the State Air Quality Control Plan Vol. II: III.D.7.7 - Control Strategies Chapter, and from the Final North Pole Power Plant BACT Determination (located on PDF pages 488 through 543 of Part 2 of Appendix III.D.7.07 Control Strategies Chapter), adopted November 19, 2019, amendments adopted November 19, 2020.[14] Note that new generators EU IDs 60a, 68, and 69 were also added to this section to be included in the next SIP submittal. Also included MR&R requirements to satisfy additional SIP inclusion conditions recommended by EPA Region 10 in a letter dated August 23, 2024.
None	SPC III – Excess Emissions and Permit Deviations	13	Included SPC III – Excess Emissions and Permit Deviations, as new Condition 13 in order to add reporting requirements into the minor permit to satisfy additional SIP inclusion conditions requested by EPA Region 10 in a letter dated August 23, 2024.
None	SPC VII – Operating Reports	14	Included SPC VII – Operating Reports, as new Condition 14 in order to add reporting requirements into the minor permit to satisfy additional SIP inclusion conditions requested by EPA Region 10 in a letter dated August 23, 2024.

[13] Background and detailed information regarding Fairbanks $PM_{2.5}$ State Implementation Plan (SIP) can be found at http://dec.alaska.gov/air/anpms/communities/fbks-pm2-5-serious-sip/.
[14] See Footnote 13.

Minor Permit AQ0236MSS03 Rev. 1 Condition No.	Description of Requirement	Minor Permit AQ0236MSS03 Rev. 2 Condition No.	How Condition was Revised
None	Annual Compliance Certification	15	Included the annual compliance certification condition from the Department's Title V template as new Condition 15 in order to add reporting requirements into the minor permit to satisfy additional SIP inclusion conditions requested by EPA Region 10 in a letter dated August 23, 2024.
None	General Source Test Requirements	Section 6	Included the general source test requirement conditions from the Department's Title V template as new Conditions 16 through 24 in order to add source testing requirements into the minor permit to satisfy additional SIP inclusion conditions requested by EPA Region 10 in a letter dated August 23, 2024.

7. PERMIT ADMINISTRATION

Minor Permit No. AQ0236MSS03 Revision 2 does not contradict conditions in Operating Permit No. AQ0236TVP04 issued to FWA. Therefore, USAG may operate under the terms and conditions of Minor Permit No. AQ0236MSS03 Revision 2 upon issuance.

8. PERMIT CONDITIONS

The bases for the standard and general conditions imposed in Minor Permit No. AQ0236MSS03 Revision 2 are described below.

Cover Page

18 AAC 50.544(a)(1) requires the Department to identify the stationary source, Permittee, and contact information. The Department provided this information on the cover page of the permit.

Section 1: Emissions Unit Inventory

The EUs authorized and/or restricted by this permit are listed in Table 1 of the permit. Unless otherwise noted in the permit, the information in Table 1 is for identification purposes only. Condition 1 is a general requirement to comply with AS 46.14 and 18 AAC 50 when installing a replacement EU.

Section 2: Fee Requirements

18 AAC 50.544(a)(2) requires the Department to include a requirement to pay fees in accordance with 18 AAC 50.400 – 18 AAC 50.499 in each minor permit issued under 18 AAC 50.542. The Department incorporated this requirement as Conditions 3 through 5. The Department used the Standard Permit Condition (SPC) I language for Minor Permit AQ0236MSS03 Revision 2. However, the Department modified the condition by removing the requirement to only pay for emissions of each air pollutant in quantities of 10 tons per

year or greater, to be consistent with the updates to the emission fees in 18 AAC 50.410(a) that went into effect September 7, 2022. The Department is in the process of incorporating these updates into SPC I.

Section 3: State Implementation Plan (SIP) Requirements

Conditions 6 through 10, $PM_{2.5}$ BACT Requirements

Conditions 6 through 10 provide enforceable terms and conditions intended to satisfy the requirements from Table 7.7-11 of the of the State Air Quality Control Plan Vol. II: III.D.7.07 - Control Strategies Chapter,[15] and from the Final Fort Wainwright BACT Determination[15] (located on PDF pages 488 through 543 of Part 2 of Appendix III.D.7.07 Control Strategies Chapter), adopted November 19, 2019, amendments adopted November 19, 2020. Note that the emissions limit in Table 2 for boiler EU IDs 8 through 10, and 40 has been corrected from 0.012 lb/MMBtu, which was used in the previous SIP, to 0.016 lb/MMBtu in the upcoming SIP submittal because these boilers are considered "commercial" under EPA's AP-42 Table 1.3-7 and not "industrial" under Table 1.3-6. In light of the EPA's disapproval comments, the Department has also included additional MR&R to make the SIP requirements enforceable. These additional MR&R will be included in the Department's upcoming SIP submittal as an additional appendix to the control strategies chapter. This permit section will be included in the Department's upcoming SIP submittal as an additional appendix to the control strategies chapter.

Condition 6 and Table 2 provide the $PM_{2.5}$ BACT control and emissions limit identified in the SIP for the diesel-fired boilers, EU IDs 8 – 10 and 40. This includes an emissions limit of 0.016 lb/MMBtu over a 3-hour averaging period, the requirement to maintain good combustion practices at all times the EUs are in operation (Condition 6.1.a), and limited operation of 600 hours per rolling 12-month period for EU IDs 8 – 10 (Condition 6.2.a) with corresponding MR&R to make the requirements enforceable. Condition 6.1.c contains the requirement to report the summary of the maintenance records in Condition 6.1.a(ii) and Condition 6.2.b contains the requirement to report the operating records in Condition 6.2.a. Condition 6.1.b requires the Permittee to report the compliance status with the emissions limit in Table 2 with each annual compliance certification described in Condition 15. In order to satisfy additional SIP inclusion conditions recommended by EPA Region 10 in a letter dated August 23, 2024, the Department included additional MR&R to ensure that the reporting obligations of the minor permit are independent of the operating permit.

Condition 7 and Table 3 provide the $PM_{2.5}$ BACT control and emissions limit identified in the SIP for the diesel-fired engines, EU IDs 50, 51, and 53. This includes an emissions limit of 0.15 g/hp-hr, the requirement to maintain good combustion practices at all times the EUs are in operation, and the operational limit of 100 hours per rolling 12-month period for each of EU IDs 50, 51, and 53. The Department included new good combustion practices (Condition 7.1.a), ULSD fuel requirements (Condition 7.1.b), and operational limit of 100 hours of non-emergency use per rolling 12-month period (Condition 7.1.c) with corresponding MR&R to make the requirements enforceable. Condition 7.1.d contains the requirement to report the

[15] Background and detailed information regarding Fairbanks PM2.5 State Implementation Plan (SIP) can be found at http://dec.alaska.gov/air/anpms/communities/fbks-pm2-5-serious-sip/.

summary of the maintenance records in Condition 7.1.a(ii), the fuel receipt records required in Condition 7.1.b(i), and the operating records in Condition 7.1.c(i)(B)(2). Condition 7.1.e requires the Permittee to report the compliance status with the emissions limit in Table 3 with each annual compliance certification described in Condition 15. These requirements will demonstrate compliance with Condition 7. In order to satisfy additional SIP inclusion conditions recommended by EPA Region 10 in a letter dated August 23, 2024, the Department included additional MR&R to ensure that the reporting obligations of the minor permit are independent of the operating permit.

Condition 8 and Table 4 provide the $PM_{2.5}$ BACT control and emissions limit identified in the SIP for the diesel-fired engines, EU IDs 11 – 13. This includes an emissions limit of 0.32 g/hp-hr, the requirement to maintain good combustion practices at all times the EUs are in operation by complying with the State's GAPCP condition, (Condition 8.1.a), ULSD fuel requirements (Condition 8.1.b), and operational limit of 600 hours per rolling 12-month period for EU IDs 11 – 13 (Condition 8.1.c) with corresponding MR&R to make the requirements enforceable. Condition 8.1.d contains the requirement to report the summary of the maintenance records in Condition 8.1.a(ii), the fuel receipt records required in Condition 8.1.b(i), and the operating records in Condition 8.1.c(ii)(B). Condition 8.1.e requires the Permittee to report the compliance status with the emissions limit in Table 4 with each annual compliance certification described in Condition 15. These requirements will demonstrate compliance with Condition 8. In order to satisfy additional SIP inclusion conditions recommended by EPA Region 10 in a letter dated August 23, 2024, the Department included additional MR&R to ensure that the reporting obligations of the minor permit are independent of the operating permit.

Condition 9 and Table 5 provide the $PM_{2.5}$ BACT control and emissions limit identified in the SIP for the diesel-fired engine, EU ID 54. This includes an emissions limit of 0.32 g/hp-hr, the requirement to maintain good combustion practices at all times the EU is in operation by complying with the State's GAPCP conditions (Condition 9.1.a), ULSD fuel requirements (Condition 9.1.b), and the operational limit of 100 hours of non-emergency use per rolling 12-month period (Condition 9.1.c) with corresponding MR&R to make the requirements enforceable. Condition 9.1.d contains the requirement to report the summary of the maintenance records in Condition 9.1.a(ii), the fuel receipt records required in Condition 9.1.b(i), and the operating records in Condition 9.1.c(i)(B)(2). Condition 9.1.e requires the Permittee to report the compliance status with the emissions limit in Table 5 with each annual compliance certification described in Condition 15. These requirements will demonstrate compliance with Condition 9. In order to satisfy additional SIP inclusion conditions recommended by EPA Region 10 in a letter dated August 23, 2024, the Department included additional MR&R to ensure that the reporting obligations of the minor permit are independent of the operating permit.

Condition 10 and Table 6 provide the $PM_{2.5}$ BACT control and emissions limit identified in the SIP for the small diesel-fired engines, EU IDs 26 – 39, 52, and 55 – 69. This includes an emissions limit of 0.0022 lb/hp-hr (EU IDs 29, 31 – 39, 52, 55, 57, 59, 61, and 63), 0.2 g/kW-hr (EU IDs 26, 28, 30, 60a, 64, 65, 66, and 68), 0.3 g/kW-hr (EU ID 27), 0.4 g/hp-hr (EU ID 56), and 0.4 g/kW-hr (EU IDs 58, 62, 67, and 69). These EUs are required to maintain good combustion practices at all times during operation (Condition 10.1.a), combust ULSD (Condition 10.1.b), and limit the operation as non-emergency to no more than 100 hours

(Condition 10.1.c) with corresponding MR&R to make the requirements enforceable. Condition 10.1.d contains the requirement to report the summary of the maintenance records in Condition 10.1.a(ii), the fuel receipt records required in Condition 10.1.b(i), and the operating records in Condition 10.1.c(i)(B)(2). Condition 10.1.e requires the Permittee to report the compliance status with the emissions limit in Table 6 with each annual compliance certification described in Condition 15. These requirements will demonstrate compliance with Condition 10. In order to satisfy additional SIP inclusion conditions recommended by EPA Region 10 in a letter dated August 23, 2024, the Department included additional MR&R to ensure that the reporting obligations of the minor permit are independent of the operating permit.

Section 4: General Recordkeeping, Reporting, and Certification Requirements

Condition 11, Certification

18 AAC 50.205 requires the Permittee to certify any permit application, report, affirmation, or compliance certification submitted to the Department. This requirement is reiterated as a standard permit condition in 18 AAC 50.345(j). Minor Permit No. AQ0236MSS03 Revision 2 uses the standard condition language, but also expands it by allowing the Permittee to provide electronic signatures.

Condition 12, Submittals

Condition 12 clarifies where the Permittee should send their reports, certifications, and other submittals required by the permit. The Department included this condition from a practical perspective rather than a regulatory obligation.

Condition 13 and Section 8, Excess Emission and Permit Deviation Reports and Notification Form

This condition reiterates the notification requirements in 18 AAC 50.235(a)(2) and 18 AAC 50.240 regarding unavoidable emergencies, malfunctions, and excess emissions. Also, the Permittee is required to notify the Department when emissions or operations deviate from the requirements of the permit. The Department used the language in SPCs III and IV, except as follows:

The Department has modified Condition 13.3 and the Notification Form in Section 8 to reflect the electronic submittal requirements in 18 AAC 50.270 using the Department's online form to submit notification of excess emissions and permit deviations beginning September 7, 2023. The electronic notification form is found at the Division of Air Quality's Air Online Services (AOS) system webpage http://dec.alaska.gov/applications/air/airtoolsweb using the Permittee Portal option. Submittal through other methods may be allowed only upon written Department approval. Beyond as noted, the Department has determined that the standard conditions adequately meet the requirements of 40 C.F.R. 71.6(a)(3).

The Department included Condition 13 in order to add reporting requirements into the minor permit to satisfy additional SIP inclusion conditions requested by EPA Region 10 in a letter dated August 23, 2024.

Condition 14, Operating Reports

The Department mostly used SPC VII language for the operating report condition. However, the Department modified or eliminated the Title V only aspects in order to make the language

applicable for a minor permit. The Department included Condition 14 in order to add reporting requirements into the minor permit to satisfy additional SIP inclusion conditions requested by EPA Region 10 in a letter dated August 23, 2024.

Condition 15, 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 15 in order to add reporting requirements into the minor permit to satisfy additional SIP inclusion conditions requested by EPA Region 10 in a letter dated August 23, 2024.

Conditions 16 – 21, Standard Permit Conditions

18 AAC 50.544(a)(5) requires each minor permit issued under 18 AAC 50.542 to contain the standard permit conditions in 18 AAC 50.345, as applicable. 18 AAC 50.345(a) clarifies that subparts (c)(1) and (2), and (d) through (o), may be applicable for a minor permit.

The Department included all of the minor permit-related standard conditions of 18 AAC 50.345 in Minor Permit AQ0236MSS03 Revision 2. The Department incorporated these standard conditions as follows:

- 18 AAC 50.345(c)(1) and (2) is incorporated as Condition 16 of Section 5 (Standard Permit Conditions);
- 18 AAC 50.345(d) through (h) is incorporated as Conditions 17 through 21, respectively, of Section 5 (Standard Permit Conditions);
- 18 AAC 50.345(k) is incorporated as Condition 22, and 18 AAC 50.345(l) through (o) is incorporated as Conditions 25 through 29, respectively, of Section 6 (General Source Testing Requirements). See the following discussion.

Section 6, General Source Test Requirements

AS 46.14.180 states that monitoring requirements must be, "based on test methods, analytical procedures, and statistical conventions approved by the federal administrator or the department or otherwise generally accepted as scientifically competent." The Department incorporated this requirement as follows:

- Condition 23 requires the Permittee to conduct their source tests under conditions that reflects the actual discharge to ambient air; and
- Condition 24 requires the Permittee to use specific EPA reference methods when conducting a source test.

Section 6 also includes the previously discussed standard conditions for source testing.

The Department included Section 6 in order to add source testing requirements into the minor permit to satisfy additional SIP inclusion conditions requested by EPA Region 10 in a letter dated August 23, 2024.

APPENDIX A: EMISSIONS CALCULATIONS

Table A-1 presents details of the EUs, their characteristics, and emissions. Potential emissions are estimated using maximum annual operation for all fuel burning equipment as defined in 18 AAC 50.990(39) subject to any operating limits.

Table A-1 – Emissions Summary, in Tons Per Year (TPY)

EU ID	Unit ID/ Description	Maximum Rating or Capacity	Operating Limits	NOx		CO		VOC		$PM_{2.5}/PM_{10}$		SO_2	
				EF[1]	PTE (TPY)	EF[1]	PTE (TPY)	EF[2]	PTE (TPY)	EF[3]	PTE (TPY)	EF[4]	PTE (tpy)
8	Backup Diesel-Fired Boiler 1	19 MMBtu/hr	600 hr/yr combined	20 lbs/1000 gal	0.81	5 lbs/1000 gal	0.20	0.34 lbs/1000 gal	0.014	1.08 lbs/1000 gal	4.40E-02	42.6 lbs/1000 gal	1.73
9	Backup Diesel-Fired Boiler 2	19 MMBtu/hr		20 lbs/1000 gal		5 lbs/1000 gal		0.34 lbs/1000 gal		1.08 lbs/1000 gal		42.6 lbs/1000 gal	
10	Backup Diesel-Fired Boiler 3	19 MMBtu/hr		20 lbs/1000 gal		5 lbs/1000 gal		0.34 lbs/1000 gal		1.08 lbs/1000 gal		42.6 lbs/1000 gal	
11	Backup Diesel-Electric Generator 1	900 kW	600 hr/yr combined	2.40E-02 lb/hp-hr	8.68	5.50E-03 lb/hp-hr	1.99	7.05E-04 lb/hp-hr	0.26	7.00E-04 lb/hp-hr	1.35-E03	1.21E-05 lb/hp-hr	0.004
12	Backup Diesel-Electric Generator 2	900 kW		2.40E-02 lb/hp-hr		5.50E-03 lb/hp-hr		7.05E-04 lb/hp-hr		7.00E-04 lb/hp-hr		1.21E-05 lb/hp-hr	
13	Backup Diesel-Electric Generator 3	900 kW		2.40E-02 lb/hp-hr		5.50E-03 lb/hp-hr		7.05E-04 lb/hp-hr		7.00E-04 lb/hp-hr		1.21E-05 lb/hp-hr	
26	Emergency Generator Building 2132	324 hp	500[5] hr/yr	3.10E-02 lb/hp-hr	2.51	6.68E-03 lb/hp-hr	0.54	2.47E-03 lb/hp-hr	2.00E-01	2.20E-03 lb/hp-hr	1.78E-01	ULSD[6]	0.088

27	Emergency Generator Building 1580	67	hp	500[5]	hr/yr	3.10E-02	lb/hp-hr	0.52	6.68E-03	lb/hp-hr	0.11	2.47E-03	lb/hp-hr	4.14E-02	2.20E-03	lb/hp-hr	3.69E-02	ULSD[6]	0.018
28	Emergency Generator Building 3406	398	hp	500[5]	hr/yr	3.10E-02	lb/hp-hr	3.08	6.68E-03	lb/hp-hr	0.66	2.47E-03	lb/hp-hr	2.46E-01	2.20E-03	lb/hp-hr	2.19E-01	ULSD[6]	0.108
29	Emergency Generator Building 3567	47	hp	500[5]	hr/yr	3.10E-02	lb/hp-hr	0.36	6.68E-03	lb/hp-hr	0.08	2.47E-03	lb/hp-hr	2.90E-02	2.20E-03	lb/hp-hr	2.59E-02	ULSD[6]	0.013
30	Fire Pump Building 2089	275	hp	500[5]	hr/yr	3.10E-02	lb/hp-hr	2.13	6.68E-03	lb/hp-hr	0.46	2.47E-03	lb/hp-hr	1.70E-01	2.20E-03	lb/hp-hr	1.51E-01	ULSD[6]	0.075
31	Fire Pump #1 Building 1572	235	hp	500[5]	hr/yr	3.10E-02	lb/hp-hr	1.82	6.68E-03	lb/hp-hr	0.39	2.47E-03	lb/hp-hr	1.45E-01	2.20E-03	lb/hp-hr	1.29E-01	ULSD[6]	0.064
32	Fire Pump #2 Building 1572	235	hp	500[5]	hr/yr	3.10E-02	lb/hp-hr	1.82	6.68E-03	lb/hp-hr	0.39	2.47E-03	lb/hp-hr	1.45E-01	2.20E-03	lb/hp-hr	1.29E-01	ULSD[6]	0.064
33	Fire Pump #3 Building 1572	235	hp	500[5]	hr/yr	3.10E-02	lb/hp-hr	1.82	6.68E-03	lb/hp-hr	0.39	2.47E-03	lb/hp-hr	1.45E-01	2.20E-03	lb/hp-hr	1.29E-01	ULSD[6]	0.064
34	Fire Pump #4 Building 1572	235	hp	500[5]	hr/yr	3.10E-02	lb/hp-hr	1.82	6.68E-03	lb/hp-hr	0.39	2.47E-03	lb/hp-hr	1.45E-01	2.20E-03	lb/hp-hr	1.29E-01	ULSD[6]	0.064
35	Fire Pump #1 Building 2080	240	hp	500[5]	hr/yr	3.10E-02	lb/hp-hr	1.86	6.68E-03	lb/hp-hr	0.40	2.47E-03	lb/hp-hr	1.48E-01	2.20E-03	lb/hp-hr	1.32E-01	ULSD[6]	0.065
36	Fire Pump #2 Building 2080	240	hp	500[5]	hr/yr	3.10E-02	lb/hp-hr	1.86	6.68E-03	lb/hp-hr	0.40	2.47E-03	lb/hp-hr	1.48E-01	2.20E-03	lb/hp-hr	1.32E-01	ULSD[6]	0.065

37	Fire Pump Building 3498	140	hp	500[5]	hr/yr	3.10E-02	lb/hp-hr	1.09	6.68E-03	lb/hp-hr	0.23	2.47E-03	lb/hp-hr	8.65E-02	2.20E-03	lb/hp-hr	7.70E-02	ULSD[6]		0.038
38	Fire Pump #1 Building 5009	120	hp	500[5]	hr/yr	3.10E-02	lb/hp-hr	0.93	6.68E-03	lb/hp-hr	0.20	2.47E-03	lb/hp-hr	7.41E-02	2.20E-03	lb/hp-hr	6.60E-02	ULSD[6]		0.033
39	Fire Pump #2 Building 5009	120	hp	500[5]	hr/yr	3.10E-02	lb/hp-hr	0.93	6.68E-03	lb/hp-hr	0.20	2.47E-03	lb/hp-hr	7.41E-02	2.20E-03	lb/hp-hr	6.60E-02	ULSD[6]		0.033
40	Boiler BLDG 5007	2.6	MMBtu/hr	8760	hr/yr	20.0	lbs/1000 gal	1.63	5	lbs/1000 gal	0.41	0.34	lbs/1000 gal	0.03	1.08	lbs/1000 gal	8.79E-02	42.6	lbs/1000 gal	3.465
50	Emergency Generator #1 Building 1060	762	hp	500[5]	hr/yr	2.40E-02	lb/hp-hr	4.57	5.50E-03	lb/hp-hr	1.05	7.05E-04	lb/hp-hr	1.34E-01	7.00E-04	lb/hp-hr	0.13	1.21E-05	lb/hp-hr	0.002
51	Emergency Generator #2 Building 1060	762	hp	500[5]	hr/yr	2.40E-02	lb/hp-hr	4.57	5.50E-03	lb/hp-hr	1.05	7.05E-04	lb/hp-hr	1.34E-01	7.00E-04	lb/hp-hr	0.13	1.21E-05	lb/hp-hr	0.002
52	Emergency Generator Building 1193	82	hp	500[5]	hr/yr	3.10E-02	lb/hp-hr	0.64	6.68E-03	lb/hp-hr	0.14	2.47E-03	lb/hp-hr	5.06E-02	2.20E-03	lb/hp-hr	4.51E-02	ULSD[6]		0.042
53	Emergency Generator Building 1555	587	hp	500[5]	hr/yr	3.10E-02	lb/hp-hr	4.55	6.68E-03	lb/hp-hr	0.98	2.47E-03	lb/hp-hr	3.62E-01	2.20E-03	lb/hp-hr	3.23E-01	0.002	lb/hp-hr	0.301
54	Emergency Generator #1 Building 2117	1059	hp	500[5]	hr/yr	2.40E-02	lb/hp-hr	6.35	5.50E-03	lb/hp-hr	1.46	7.05E-04	lb/hp-hr	1.87E-01	7.00E-04	lb/hp-hr	0.19	1.21E-05	lb/hp-hr	0.003
55	Emergency Generator #2 Building 2117	212	hp	500[5]	hr/yr	3.10E-02	lb/hp-hr	1.64	6.68E-03	lb/hp-hr	0.35	2.47E-03	lb/hp-hr	1.31E-01	2.20E-03	lb/hp-hr	1.17E-01	ULSD[6]		0.058
56	Emergency Generator Building 2088	176	hp	500[5]	hr/yr	3.10E-02	lb/hp-hr	1.36	6.68E-03	lb/hp-hr	0.29	2.47E-03	lb/hp-hr	1.09E-01	2.20E-03	lb/hp-hr	9.68E-02	ULSD[6]		0.048

57	Emergency Generator Building 2296	212	hp	500[5]	hr/yr	3.10E-02	lb/hp-hr	1.64	6.68E-03	lb/hp-hr	0.35	2.47E-03	lb/hp-hr	1.31E-01	2.20E-03	lb/hp-hr	1.17E-01	ULSD[6]	0.058
58	Emergency Generator Building 3004	71	hp	500[5]	hr/yr	3.10E-02	lb/hp-hr	0.55	6.68E-03	lb/hp-hr	0.12	2.47E-03	lb/hp-hr	4.38E-02	2.20E-03	lb/hp-hr	3.91E-02	ULSD[6]	0.019
59	Emergency Generator Building 3028	35	hp	500[5]	hr/yr	3.10E-02	lb/hp-hr	0.27	6.68E-03	lb/hp-hr	0.06	2.47E-03	lb/hp-hr	2.16E-02	2.20E-03	lb/hp-hr	1.93E-02	ULSD[6]	0.009
60a	Emergency Generator Building 3407	230	hp	500[5]	hr/yr	3.10E-02	lb/hp-hr	1.78	6.68E-03	lb/hp-hr	0.38	2.47E-03	lb/hp-hr	1.42E-01	2.20E-03	lb/hp-hr	1.27E-01	ULSD[6]	0.063
61	Emergency Generator Building 3703	50	hp	500[5]	hr/yr	3.10E-02	lb/hp-hr	0.39	6.68E-03	lb/hp-hr	0.08	2.47E-03	lb/hp-hr	3.09E-02	2.20E-03	lb/hp-hr	2.75E-02	ULSD[6]	0.017
62	Emergency Generator Building 5108	18	hp	500[5]	hr/yr	3.10E-02	lb/hp-hr	0.14	6.68E-03	lb/hp-hr	0.03	2.47E-03	lb/hp-hr	1.11E-02	2.20E-03	lb/hp-hr	9.90E-03	ULSD[6]	0.005
63	Emergency Generator Building 5108	68	hp	500[5]	hr/yr	3.10E-02	lb/hp-hr	0.53	6.68E-03	lb/hp-hr	0.11	2.47E-03	lb/hp-hr	4.20E-02	2.20E-03	lb/hp-hr	3.74E-02	ULSD[6]	0.018
64	Emergency Generator Building 1054	274	hp	500[5]	hr/yr	3.10E-02	lb/hp-hr	2.12	6.68E-03	lb/hp-hr	0.46	2.47E-03	lb/hp-hr	1.69E-01	2.20E-03	lb/hp-hr	1.51E-01	ULSD[6]	0.074
65	Emergency Generator Building 4390	274	hp	500[5]	hr/yr	3.10E-02	lb/hp-hr	2.12	6.68E-03	lb/hp-hr	0.46	2.47E-03	lb/hp-hr	1.69E-01	2.20E-03	lb/hp-hr	1.51E-01	ULSD[6]	0.074
66	Emergency Generator Building 2121	71	hp	500[5]	hr/yr	3.10E-02	lb/hp-hr	0.55	6.68E-03	lb/hp-hr	0.12	2.47E-03	lb/hp-hr	4.38E-02	2.20E-03	lb/hp-hr	3.91E-02	ULSD[6]	0.019

67	Emergency Generator Building 3007	274	hp	500[5]	hr/yr	3.10E-02	lb/hp-hr	2.12	6.68E-03	lb/hp-hr	0.46	2.47E-03	lb/hp-hr	1.69E-01	2.20E-03	lb/hp-hr	1.51E-01	ULSD[6]	0.075
68	Emergency Generator Building 3025	324	hp	500[5]	hr/yr	3.10E-02	lb/hp-hr	2.51	6.68E-03	lb/hp-hr	0.54	2.47E-03	lb/hp-hr	2.00E-01	2.20E-03	lb/hp-hr	1.78E-01	ULSD[6]	0.088
69	Emergency Generator Building 3030	86	hp	500[5]	hr/yr	3.10E-02	lb/hp-hr	0.67	6.68E-03	lb/hp-hr	0.14	2.47E-03	lb/hp-hr	5.31E-02	2.20E-03	lb/hp-hr	4.73E-02	ULSD[6]	0.023
IEU	Insignificant EUs - boilers, 31 total	12.67	MMBtu/hr, total	8760	hr/yr	20	lb/1000 gal	7.93	5	lb/1000 gal	1.98	0.34	lb/1000 gal	0.13	1.08	lb/1000 gal	4.28E-01	42.6	lb/1000 gal	16.89
IEU	Insignificant EUs - Other unmodified units							1.04			0.27			10.75			47.14			16.10
Total Potential to Emit (PTE)								**81.74**			**18.35**			**15.31**			**51.43**			**39.98**
Total Overall PTE								**206.81**												

Notes:

1 NOx and CO Emissions Factors (EFs) are from the following: a) EPA AP-42 Table 1.3-1 for EU IDs 8 – 10, 40, and IEU boilers; b) EPA AP-42 Table 3.4-1 for EU IDs 11 through 13, 50, 51, and 54; and c) EPA AP-42 Table 3.3-1 for EU IDs 26 – 39, 52, 53, and 55 – 69.

2 VOC EFs are from the following: a) EPA AP-42 Table 1.3-3 for EU IDs 8 – 10, 40, and IEU boilers; b) EPA AP-42 Table 3.4-1 for EU IDs 11 through 13, 50, 51, and 54; and c) EPA AP-42 Table 3.3-1 for EU IDs 26 through 39, 52, 53, and 55 – 69.

3 $PM_{10}/PM_{2.5}$ EFs are from the following: a) EPA AP-42 Table 1.3-7 (Filterable PM, Distillate Oil – 0.108 lb/1000 gal) for EU IDs 8 – 10, 40, and IEU boilers; b) EPA AP-42 Table 3.4-1 for EU IDs 11 – 13, 50, 51, and 54; and c) EPA AP-42 Table 3.3-1 for EU IDs 26 – 39, 52, 53, and 55 – 69.

4 SO_2 EFs are from the following: a) EPA AP-42 Table 1.3-1 (0.3 weight % sulfur ($wt\%S_{fuel}$)) for EU IDs 8 – 10, 40, and IEU boilers; b) EPA AP-42 Table 3.3-1 (15 ppmw) for EU IDs 26 – 39, 52, 53, and 55 – 69; c) EPA AP-42 Table 3.3-1 (0.5 $wt\%S_{fuel}$) for EU IDs 50, 51, and 54; and d) EPA AP-42 Table 3.4-1 (15 ppmw) for EU IDs 11 – 13, 50, 51, and 54.

5 EU is limited to 100 hours of non-emergency operation per calendar year, PTE hours were derived from the 500 hour limit in US EPA Memorandum Seitz Memo, September 6, 1995, "Calculating Potential to Emit (PTE) for Emergency Generators."

6 The following fuel assumptions were used for SO_2 PTE calculations:

- Diesel heat content: 0.1351 MMBtu/gal
- Diesel engine heat rate: 7,000 Btu/hp-hr
- Diesel fuel density: 7 lb/gal
- Molar mass of S (g/mol) = 32.01 g/mol
- Molar mass of SO_2 (g/mol) 64.06 g/mol
- ULSD sulfur content: 0.0015 weight percent (15 ppmw)
- ULSD heat content: 0.133 MMBtu/gal
- Pounds per ton = 2,000 lbs/ton
- Sample calculation for ULSD (EU ID 29):

$$47\ hp * 500\frac{hr}{yr} * 7{,}000\frac{Btu}{hp-hr} * \frac{1}{135{,}600\frac{Btu}{gal}} * 7\frac{lb}{gal} * \frac{15\ ppmw}{10{,}000} * \frac{64.06\frac{g}{mol-SO_2}}{32.01\frac{g}{mol-S}} * \frac{1}{2000\frac{lb}{ton}} = 0.013\ tons$$