Alaska Department of Environmental Conservation
Air Permits Program

TECHNICAL ANALYSIS REPORT

For the terms and conditions of
Minor Permit AQ0110MSS01 Revision 1

Issued to Golden Valley Electric Association
For the North Pole Power Plant

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 AQ0110MSS01 Revision 1 to Golden Valley Electric Association (GVEA) for the North Pole Power Plant. On September 8, 2017, the US Environmental Protection Agency (EPA) reclassified the Fairbanks North Star Borough (FNSB) area as a Serious Nonattainment Area (NAA) effective June 9, 2017, with regard to nonattainment of the 2006 24-hour $PM_{2.5}$ National Ambient Air Quality Standards (NAAQS).[7] According to 40 C.F.R. 51.1010, the state shall identify, adopt, and implement best available control measures (BACM) and best available control technology (BACT) on sources of direct $PM_{2.5}$ emissions and sources of emissions of $PM_{2.5}$ plan precursors (NO_x, SO_2, NH_3, VOCs) located in any Serious $PM_{2.5}$ nonattainment area. Major stationary sources[8] are subject to site-specific review for BACT. Those emission sources that are not classified as major stationary sources and subject to BACT are subject to BACM requirements.

The North Pole Power Plant is a major stationary source located within the FNSB. To comply with BACM and BACT requirements, GVEA submitted an application for Minor Permit AQ0110MSS01 on June 9, 2020, under AS 46.14.130(c)(2), because the Department found that public health or air quality effects provide a reasonable basis to regulate the stationary source. The Department issued Minor Permit AQ0110MSS01 on April 22, 2021, which focused exclusively on fuel limits to control SO_2 emissions.

On December 15, 2023, the Department sent GVEA a notice of intent to revoke and reissue Minor Permit AQ0110MSS01 (and AQ0110TVP04 Revision 1) under AS 46.14.280(a)(2). With the re-issuance as Minor Permit AQ0110MSS01 Rev. 1, the Department maintains AS 46.14.130(c)(2) as the basis for the permit issuance, because the Department finds that public health or air quality effects still provide a reasonable basis to regulate the stationary source. This finding for the FNSB NAA SIP is contained in the State Air Quality Control Plan adopted on November 19, 2019, with amendments adopted on November 18, 2020.[9]

The Department is preparing a new comprehensive SIP 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 AQ0110MSS01 for the sole purpose of implementing SO_2 controls identified in the FNSB NAA SIP for the North Pole Power Plant, The Department now finds 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 $PM_{2.5}$ Serious Area and 189(d) Plan*[10] published in the *Federal Register* on December 5,

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

[8] Per 40 C.F.R. 51.165(a)(1)(iv)(A)(1)(vii) and (viii), a major stationary source in any serious nonattainment area for $PM_{2.5}$ is any stationary source with emissions at least 70 TPY of $PM_{2.5}$ or any individual $PM_{2.5}$ precursor. SO_2 is a precursor to $PM_{2.5}$.

[9] See Footnote 7.

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

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 the North Pole Power Plant.

Therefore, with the reissuance of Minor Permit AQ0110MSS01 Rev. 1, the Department has rescinded all of the previous BACT/BACM SO_2 requirements in Section 3 of Minor Permit AQ0110MSS01 that originated from the FNSB NAA SIP, and has replaced them with the $PM_{2.5}$ requirements from Table 7.7-15 of the State Air Quality Control Plan Vol. II: III.D.7.07 - Control Strategies Chapter and from the Final North Pole Power Plant BACT Determination[11] (located on PDF pages 2,030 through 2,074 of Part 4 of Appendix III.D.7.07 Control Strategies Chapter), adopted November 19, 2019, amendments adopted November 19, 2020. Additionally, 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 Zehnder Facility in order to satisfy certain Clean Air Act requirements. The EPA letter recommended that Minor Permit AQ0109MSS01 Rev. 1 be revised to contain conditions to ensure that the reporting obligations of the minor permit are independent of the operating permit. In light of the EPA's disapproval comments and August 23, 2024 letter, the Department has also included additional MR&R requirements in this minor permit revision 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.

With the issuance of Minor Permit AQ0110MSS01 Rev. 1, the North Pole Power Plant's potential SO_2 emissions will revert to the levels in place upon the issuance of AQ0110MSS01 before the SO_2 limits went into effect on June 9, 2021. 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 emissions increase under 40 C.F.R. 52.21(b).

2. STATIONARY SOURCE DESCRIPTION

The North Pole Power Plant is an electric utility owned and operated by GEVA under Operating Permit AQ0110TVP04 Rev. 1 and is classified under SIC code 4911 – Electric Services. The stationary source is an electric generating facility that provides power to the GVEA grid. The EU inventory consists of two fuel oil-fired turbines, two dual fuel-fired turbines (one is not yet installed), one emergency diesel-fired generator, and two propane-fired boilers.

3. APPLICATION DESCRIPTION

The Department is processing Minor Permit AQ0110MSS01 Rev. 1 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 GVEA a notice of intent to revoke and reissue Minor Permit AQ0110MSS01 and AQ0110TVP04 Rev. 1 under AS 46.14.280(a)(2), on December 15, 2023. Minor Permit AQ0110MSS01 Rev. 1 includes the $PM_{2.5}$ requirements from the FNSB Serious NAA SIP.

4. CLASSIFICATION FINDINGS

[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/.

The Department finds that:

1. Minor Permit AQ0110MSS01 Rev. 1 is classified under AS 46.14.130(c)(2) because of a finding by the Department that public health or air quality effects provide a reasonable basis to regulate the stationary source. This finding is contained in the FNSB NAA SIP adopted on November 19, 2019,[12] with amendments adopted on November 18, 2020.

5. EMISSIONS SUMMARY

Table 6, shows the emissions summary and permit applicability with assessable emissions from the stationary source. Emission factors and detailed calculations are provided in Table A-1 of Appendix A.

A summary of the potential to emit (PTE) and assessable PTE, as determined by the Department, is shown in Table 6 below.

Table 6 - Emissions Summary and Permit Applicability, tons per year (TPY)

Parameter	NO_x	CO	VOC	$PM_{2.5/10}$[1]	SO_2	Total
Upon Issuance of AQ0110MSS01						
Stationary Source PTE	3,971	49	4	102	2,531[2]	6,657
Assessable Emissions[3]	3,971	49	0[4]	102	2,531[2]	6,653[2]
June 9, 2021 (per AQ0110MSS01)						
Stationary Source PTE[1]	3,971	49	4	102	2,359	6,485
Assessable Emissions[3]	3,971	49	0[4]	102	2,359	6,481[2]
October 1, 2023 (per AQ0110MSS01)						
Stationary Source PTE	3,971	49	4	102	1,577	5,703
Assessable Emissions[3]	3,971	49	0[4]	102	1,577	5,699[2]
Upon AQ0110MSS01 Rev. 1 issuance						
Stationary Source PTE	3,970.9	49.1	4.1	102.4	2,530.6[2]	6,663.8[2,5]
Assessable Emissions[3]	3,970.9	49.1	4.1	102.4	2,530.6[2]	6,663.8[2,5]

Notes:

1. PM_{10} emissions include $PM_{2.5}$ emissions and both values are assumed to be equal.
2. Note that with the issuance of Minor Permit AQ0110MSS01 Rev. 1, the source's SO_2 PTE reverts to the original PTE in place upon the issuance of AQ0110MSS01 before the SO_2 limits went into effect on June 9, 2021. 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 emissions increase under 40 C.F.R. 52.21(b). See Section 1 of the TAR for further details.
3. Assessable emissions include fugitive emissions but do not include nonroad engines.
4. When AQ0110MSS01 was issued, the Department did not include individual criteria pollutants below 10 TPY in assessable emissions.
5. The total assessable emissions under AQ0110MSS01 Rev. 1 includes assessable HAPs of 6.7 tons (the remaining HAPs are accounted for as VOC emissions) which were not included in AQ0110MSS01.

6. REVISIONS TO PERMIT CONDITIONS

Table 7 below lists the requirements carried over from Minor Permit AQ0110MSS01 into Minor Permit AQ0110MSS01 Revision 1.

[12] 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 7 - Comparison of AQ0110MSS01 to AQ0110MSS01 Revision 1 Conditions[13]

Permit AQ0110MSS01 Condition No.	Description of Requirement	Permit AQ0110MSS01 Rev. 1 Condition No.	How Condition was Revised
None	SPC I – Emission Fees (Fee Requirements & Assessable Emissions)	3 & 4	Included Standard Permit Condition (SPC) I – Emission Fees, as new Conditions 3 and 4 to update the language for paying emissions "in quantities 10 tons per year or greater" to match the revision made in 18 AAC 50.410, effective September 7, 2022. The assessable potential to emit in Condition 3.1 has been updated to the value in Table 6 above, to reflect this permit issuance.
3 - 5	FNSB NAA SIP SO_2 Requirements: Emission Limits on EU IDs 1, 2, 5, 6, and 7	None	The existing SO_2 limits 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.[14]
None	FNSB NAA SIP $PM_{2.5}$ Requirements: Emission Limits on EU IDs 1 & 2	5	Included new $PM_{2.5}$ requirements for EU IDs 1 and 2 from Table 7.7-15 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 2,030 through 2,074 of Part 4 of Appendix III.D.7.07 Control Strategies Chapter), adopted November 19, 2019, amendments adopted November 19, 2020.[15] Also included MR&R requirements to satisfy additional SIP inclusion conditions recommended by EPA Region 10 in a letter dated August 23, 2024.

[13] This table does not include all standard and general conditions.
[14] https://www.gpo.gov/fdsys/pkg/FR-2016-08-24/pdf/2016-18768.pdf.
[15] 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/.

None	FNSB NAA SIP $PM_{2.5}$ Requirements: Emission Limits on EU IDs 5 & 6	6	Included new $PM_{2.5}$ requirements for EU IDs 5 and 6 from Table 7.7-15 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 2,030 through 2,074 of Part 4 of Appendix III.D.7.07 Control Strategies Chapter), adopted November 19, 2019, amendments adopted November 19, 2020. [16] Condition 6.2 requires the Permittee to comply with Conditions 16.1 through 16.4 of Construction Permit AQ0110CPT01 Rev. 1, issued March 3, 2006, which has been adopted into this minor permit. 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 $PM_{2.5}$ Requirements: Emission Limits on EU ID 7	7	Included new $PM_{2.5}$ requirements for EU ID 7 from Table 7.7-15 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 2,030 through 2,074 of Part 4 of Appendix III.D.7.07 Control Strategies Chapter), adopted November 19, 2019, amendments adopted November 19, 2020. [17] Also included MR&R requirements to satisfy additional SIP inclusion conditions recommended by EPA Region 10 in a letter dated August 23, 2024.

[16] 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/.

[17] See Footnote 16.

None	FNSB NAA SIP $PM_{2.5}$ Requirements: Emission Limits on EU IDs 11 & 12	8	Included new $PM_{2.5}$ requirements for EU IDs 11 and 12 from Table 7.7-15 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 2,030 through 2,074 of Part 4 of Appendix III.D.7.07 Control Strategies Chapter), adopted November 19, 2019, amendments adopted November 19, 2020.[18] 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	11	Included SPC III – Excess Emissions and Permit Deviations, as new Condition 11 in order to add reporting requirements into the minor permit to satisfy additional SIP inclusion conditions recommended by EPA Region 10 in a letter dated August 23, 2024.
None	SPC VII – Operating Reports	12	Included SPC VII – Operating Reports, as new Condition 12 in order to add reporting requirements into the minor permit to satisfy additional SIP inclusion conditions recommended by EPA Region 10 in a letter dated August 23, 2024.
None	Annual Compliance Certification	13	Included the annual compliance certification condition from the Department's Title V template as new Condition 13 in order to add reporting requirements into the minor permit to satisfy additional SIP inclusion conditions recommended 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 20 through 27 in order to add source testing requirements into the minor permit to satisfy additional SIP inclusion conditions recommended by EPA Region 10 in a letter dated August 23, 2024.

[18] See Footnote 16.

None	Notification Form	Section 8	Included the notification form that goes along with SPC III – Excess Emissions and Permit Deviations in order to add reporting requirements into the minor permit to satisfy additional SIP inclusion conditions recommended by EPA Region 10 in a letter dated August 23, 2024.

7. PERMIT ADMINISTRATION

Minor Permit AQ0110MSS01 Rev. 1 contradicts conditions in the Title V operating permit AQ0110TVP04 Revision 1 issued to the North Pole Power Plant. Therefore, GVEA may not operate under the terms and conditions of Minor Permit AQ0110MSS01 Rev. 1 until Operating Permit AQ0110TVP04 Rev. 2 becomes effective.

8. PERMIT CONDITIONS

The bases for the standard and general conditions imposed in Minor Permit AQ0110MSS01 Rev. 1 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. The Cover page also states that Conditions 16 through 16.4b of Construction Permit AQ0110CPT01 Rev. 1 have been adopted into this minor 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 used the Standard Permit Condition (SPC) I language for Minor Permit. 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 5 through 8 provide enforceable terms and conditions intended to satisfy the $PM_{2.5}$ requirements from Table 7.7-15 of the State Air Quality Control Plan Vol II: III.D.7.7 Control

Strategies document and from the Final North Pole Power Plant BACT Determination[19] (located on PDF pages 2,030 through 2,074 of Part 4 of Appendix III.D.7.07 Control Strategies Chapter), adopted November 19, 2019, amendments adopted November 19, 2020 (FNSB NAA SIP). In light of the EPA's disapproval comments, the Department has also included additional MR&R requirements to make these SIP requirements enforceable. This permit section will be included in the Department's upcoming SIP submittal as an additional appendix to the control strategies chapter.

Condition 5 and Table 2 provide the $PM_{2.5}$ BACT control and emissions limit identified in the FNSB NAA SIP for the simple cycle gas turbine EU IDs 1 and 2. This includes an emissions limit of 0.012 lb/MMBtu over a 3-hour averaging period, the requirement to combust only low ash (distillate) fuel, and the requirement to maintain good combustion practices at all times the EUs are in operation. The Department included a one-time source test on at least one of EU IDs 1 and 2 in Condition 5.1a to demonstrate compliance with the $PM_{2.5}$ emissions limit in Table 2, as well as, to establish combustion settings that demonstrate compliance with the BACT $PM_{2.5}$ emissions limit. The combustion settings parameters would include, but not limited to, average CO and O_2 concentrations in the flue gas, that may be used as compliance bases for good combustion practices by comparing results of the portable handheld combustion analyzer for CO and O_2 concentrations in the flue gas during normal operations. Condition 5.1b requires the Permittee to report the compliance status with the $PM_{2.5}$ emissions limit in Table 2 with each annual compliance certification described in Condition 13. Condition 5.1c includes MR&R requirements to demonstrate compliance with the requirement to combust only low ash (distillate) fuel. Condition 5.1d requires the Permittee to perform regular maintenance according to the manufacturer's and the operator's maintenance procedures and keep records of the maintenance performed. The Department included additional reporting in Condition 5.1d beyond Standard Permit Condition 6 – Good Air pollution Control, in order to satisfy additional SIP requirements requested by EPA In addition, the Permittee is also required to operate the EUs consistent with manufacturer's recommended combustion settings (such as maximum CO and excess air in flue gas) or those established during the source test conducted to demonstrate compliance with the BACT emissions limit. Under the good combustion practices requirements of Condition 5.1d, the Department included a requirement to check and report the CO and O_2 concentrations in the flue gas using a portable handheld combustion analyzer, as CO and O_2 concentrations are key operational parameters set during combustion equipment tuning that affects PM emissions. The condition requires CO and O_2 monitoring frequency of at least once during or within 30 days after the end of a calendar quarter that the EU operates. The 30-day allowance after the end of a calendar quarter is provided to address the Permittee's concern when an emergency operation at the end of a calendar quarter may occur and timely compliance could present a challenge. Note that for intermittently used EUs, it is not the Department's intent to require the Permittee to start up an EU just to perform CO and O_2 monitoring. Condition 5.2 requires the Permittee to comply with Condition 6.1d(ii), the 1,600 TPY combined NO_x emissions limit for EU IDs 1, 5, and 6, listed in Condition 16.1a of Construction Permit AQ0110CPT01 Rev. 1. The Permittee is required to include a statement in each operating

[19] 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/.

report required by Operating Permit AQ0110TVP04 Revision 2, affirming that the Permittee complied with the combined NO_x limit for EU IDs 1, 5, and 6 found in Condition 16.1a of Construction Permit AQ0110CPT01 Rev. 1. To ensure compliance with Condition 6.1d(ii), the Permittee is required to perform the MR&R required by Conditions 16.1 through 16.4 of Construction Permit AQ0110CPT01 Rev. 1.

Condition 6 and Table 3 provide the $PM_{2.5}$ BACT control and emissions limit identified in the FNSB NAA SIP for the combined cycle gas turbine EU IDs 5 and 6. This includes an emissions limit of 0.012 lb/MMBtu over a 3-hour averaging period, the requirement to combust only low ash (distillate) fuel, and the requirement to maintain good combustion practices at all times the EUs are in operation. The Department included a one-time source test on at least one of EU IDs 5 and 6 in Condition 6.1a to demonstrate compliance with the $PM_{2.5}$ emissions limit in Table 3, as well as, to establish combustion settings that demonstrate compliance with the BACT $PM_{2.5}$ emissions limit. The combustion settings parameters would include, but not limited to, average CO and O_2 concentrations in the flue gas, that may be used as compliance bases for good combustion practices by comparing results of the portable handheld combustion analyzer for CO and O_2 concentrations in the flue gas during normal operations. Condition 6.1b requires the Permittee to report the compliance status with the $PM_{2.5}$ emissions limit in Table 3 with each annual compliance certification described in Condition 13. Condition 6.1c includes MR&R requirements to demonstrate compliance with the requirement to combust only low ash (distillate) fuel. Condition 6.1c requires the Permittee to perform regular maintenance according to the manufacturer's and the operator's maintenance procedures and keep records of the maintenance performed. The Department included additional reporting in Condition 6.1c beyond Standard Permit Condition 6 – Good Air pollution Control, in order to satisfy additional SIP requirements requested by EPA. In addition, the Permittee is also required to operate the EUs consistent with manufacturer's recommended combustion settings (such as maximum CO and excess air in flue gas) or those established during the source test conducted to demonstrate compliance with the BACT emissions limit. Under the good combustion practices requirements of Condition 6.1c, the Department included a requirement to check and report the CO and O_2 concentrations in the flue gas using a portable handheld combustion analyzer, as CO and O_2 concentrations are key operational parameters set during combustion equipment tuning that affects PM emissions. The condition requires CO and O_2 monitoring frequency of at least once during or within 30 days after the end of a calendar quarter that the EU operates. The 30-day allowance after the end of a calendar quarter is provided to address the Permittee's concern when an emergency operation at the end of a calendar quarter may occur and timely compliance could present a challenge. Note that for intermittently used EUs, it is not the Department's intent to require the Permittee to start up an EU just to perform CO and O_2 monitoring. Condition 6.2 requires the Permittee to comply with Conditions 16.1 through 16.4 of Construction Permit AQ0110CPT01 Rev. 1, issued March 3, 2006, which has been adopted into this minor permit. The Permittee is required to include a statement in each operating report required by Operating Permit AQ0110TVP04 Revision 2, affirming that the Permittee complied with the combined NO_x limit for EU IDs 1, 5, and 6 found in Condition 16.1a of Construction Permit AQ0110CPT01 Rev. 1. To ensure compliance with Condition 6.1d(ii), the Permittee is required to perform the MR&R required by Conditions 16.1 through 16.4 of Construction Permit AQ0110CPT01 Rev. 1.

Condition 7 and Table 4 provide the $PM_{2.5}$ BACT control and emissions limit identified in the FNSB NAA SIP for the emergency diesel engine generator EU ID 7. This includes an emissions limit of 0.32 g/hp-hr over a 3-hour averaging period, the requirement to limit operation to no more than 52 hours per 12-month rolling period, which was used as a baseline emissions estimate for BACT based on Condition 6 of Construction Permit AQ0110CPT01 Rev. 1, the requirement to construct and maintain a positive crankcase ventilation system, and the requirement to maintain good combustion practices at all times the EUs are in operation. In order to satisfy additional SIP inclusion conditions recommended by EPA Region 10 in a letter dated August 23, 2024, the Department included new good combustion practices in Condition 7.1a and engine hour limits Conditions 7.1b and associated MR&R to ensure that the reporting obligations of the minor permit are independent of the operating permit.

Condition 8 and Table 5 provide the $PM_{2.5}$ BACT control and emissions limit identified in the FNSB NAA SIP for the propane-fired boilers EU IDs 11 and 12. This includes an emissions limit of 0.008 lb/MMBtu over a 3-hour averaging period, the requirement to maintain good combustion practices at all times the EUs are in operation, and the requirement to only use propane as fuel. In order to satisfy additional SIP inclusion conditions recommended by EPA Region 10 in a letter dated August 23, 2024, the Department included new good combustion practices in Condition 8.1a and associated MR&R to ensure that the reporting obligations of the minor permit are independent of the operating permit.

Section 4: Recordkeeping, Reporting, and Certification Requirements

Condition 9, Certification

18 AAC 50.205 requires the Permittee to certify any permit application, report, affirmation, or compliance certification submitted to the Department. The Department used the language in Standard Permit Condition (SPC) XVII. This requirement is reiterated as a standard permit condition in 18 AAC 50.345(j).

Condition 10 Submittals

Condition 10 clarifies where the Permittee should send their reports, certifications, and other submittals required by the permit. The Department used the language in SPC XVII. The Department included this condition from a practical perspective rather than a regulatory obligation.

Condition 11 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 11.3 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 11 in order to add reporting requirements into the minor permit to satisfy additional SIP inclusion conditions recommended by EPA Region 10 in a letter dated August 23, 2024.

Condition 12, Operating Reports

The Department mostly used the 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 12 in order to add reporting requirements into the minor permit to satisfy additional SIP inclusion conditions recommended by EPA Region 10 in a letter dated August 23, 2024.

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 recommended by EPA Region 10 in a letter dated August 23, 2024.

Section 5: Standard Permit Conditions

Conditions 14 – 19, 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 the required minor permit-related standard conditions of 18 AAC 50.345 in Minor Permit AQ0110MSS01 Rev. 1. The Department incorporated these standard conditions as follows:

- 18 AAC 50.345(c)(1) and (2) is incorporated as Condition 14 of Section 5 (Standard Permit Conditions);
- 18 AAC 50.345(d) through (h) is incorporated as Conditions 15 through 19, respectively, of Section 5 (Standard Permit Conditions)

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 21 requires the Permittee to conduct their source tests under conditions that reflects the actual discharge to ambient air; and
- Condition 22 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 recommended 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	Emissions Unit Description	Rating		Annual Operating Hours	EF Units	NO_x		CO		VOC		PM_{10}		$PM_{2.5}$		SO_2	CO_2e[1]
						EF	tpy	EF	tpy	EF	tpy	EF	tpy	EF	tpy	tpy	1,000 tpy
2[2]	GT #2 Simple Cycle Gas Turbine	672	MMBtu/hr	7,992[3]	lb/MMBtu	0.88	2,363.1	0.0033	8.86	0.00041	1.10	0.012	32.22	0.012	32.22	1,356.08	439.43
1[2]	GT #1 Simple Cycle Gas Turbine	672	MMBtu/hr	5,411[4]	lb/MMBtu	0.88		0.0033	6.00	0.00041	0.75	0.012	21.82	0.012	21.82	918.18	297.53
5[5]	GT #3 Combined Cycle Gas Turbine	455	MMBtu/hr	8,760	lb/MMBtu	0.24	1,600[4]	0.0076	15.15	0.00041	0.82	0.012	23.91	0.012	23.91	125.98	301.22
6[5]	GT #4 Combined Cycle Gas Turbine	455	MMBtu/hr	8,760	lb/MMBtu	0.24		0.0076	15.15	0.00041	0.82	0.012	23.91	0.012	23.91	125.98	301.22
7[6]	Diesel Engine Emergency Generator	565	hp	52[7]	g/hp-hr	0.031	0.46	0.0067	0.10	0.0025	0.04	0.0032	0.01	0.0032	0.01	0.012	0.02
11[8]	Building Boiler	5.0	MMBtu/hr	8,760	lb/10^3gal	13	3.13	7.5	1.80	1.0	0.24	0.7	0.17	0.7	0.17	0.18	3.05
12[8]	Building Boiler	5.0	MMBtu/hr	8,760	lb/10^3gal	13	3.13	7.5	1.80	1.0	0.24	0.7	0.17	0.7	0.17	0.18	3.05
N/A	Insignificant Fuel Tanks and Boiler	N/A	N/A	N/A	N/A		1.12		0.28		0.08		0.18		0.18	4.02	1.28
Total Emissions							**3,970.9**		**49.1**		**4.1**		**102.4**		**102.4**	**2,530.6**	**1,346.8**

Table Notes:

[1] CO_2e emissions for all EUs calculated using the emission factors for burning No. 1 diesel, No. 2 diesel, naphtha, and propane fuel in 40 CFR Part 98: Mandatory Greenhouse Gas Reporting. The total CO_2e emissions rate is calculated with the equation $CO_2(1) + CH_4(25) + N_2O(298)$.

[2] NO_x and CO EF from AP-42 Table 3.1-1 for uncontrolled distillate oil-fired turbines. PM_{10}, $PM_{2.5}$, VOC, and SO_2 EFs are for distillate oil-fired turbines from AP-42 Table 3.1-2a. PM_{10} and $PM_{2.5}$ are the total particulate EF and SO_2 sulfur content of 0.5 percent by weight.

[3] EU ID 2 is limited to 7,992 hours of operation on a 12-month rolling basis per Condition 16.1 of Construction Permit AQ0110TVP01 Rev. 1.

[4] EU IDs 1, 5, and 6 are limited to 1,600 tpy NO_x on a 12-month rolling basis per Condition 16.1a of Construction Permit AQ0110TVP01 Rev. 1. As a result, EU ID 1 can operate no more than 5,411 hours per 12-month rolling period. The potential operation of 5,411 hr/yr was determined as follows:

(NO_x emission limit, 1,600 tpy) x (Conversion, 2,000 lb/ton) / (NO_x emission rate, 0.88 lb/MMBtu) / (Capacity, 672 MMBtu/hr)

[5] NO_x and CO EF from AP-42 Table 3.1-1 for water-steam injection distillate oil-fired turbines. Note that CO EF has a 90% control applied because of oxidation catalyst system. PM_{10} and $PM_{2.5}$ (total particulate matter EF), as well as VOC, and SO_2 EFs are for distillate oil-fired turbines from AP-42 Table 3.1-2a. SO_2 assumes sulfur content of 0.3 percent by weight for 1.5 million gallons per year of start-up operation (Condition 17.1b of AQ0110CPT01 Rev. 1) and 0.05 percent by weight (Condition 17.1b of AQ0110CPT01 Rev. 1) for the remainder of operation in the year totaling 8,302 hours.

[6] NO_x, CO, VOC, PM_{10}, and $PM_{2.5}$ EFs are from AP-42 Table 3.3-1 for diesel fired engines. SO_2 EF from AP-42 Table 3.4-1 for diesel fired engines assuming a sulfur content of 0.1 percent by weight (Condition 5 of AQ0110CPT01 Rev. 1).

[7] EU ID 7 is limited to 52 hours of operation on a 12-month rolling basis per Condition 6 of Construction Permit AQ0110CPT01 Rev. 1.

[8] NO_x, CO, VOC, PM_{10}, $PM_{2.5}$, and SO_2 EFs are from AP-42 Table 1.5-1 for propane combustion. SO_2 EF assuming a sulfur content of 120 ppmv (Condition 7 of AQ0110CPT01 Rev. 1) converted using 16 ppmv sulfur = 1 gr/100 scf.