

Appendix III.K.13.F Part 2

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Golden Valley Electric Association (GVEA) Healy Power Plant

2012 EPA Complaint and Consent Degree

2018 – Alaska Department of Environmental Conservation Air Quality Permit No:
AQ0173TVP03

2013 – Emissions Inventory – GVEA North Pole and Zehnder Power Plants Spreadsheets

FY2017 – Assessable Emission Estimates

Revised 2016 Point Source Emission Inventory

2017 Point Source Triennial Emission Inventory

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Emission Unit 5

Emission Unit 7

2019 Point Source Emission Inventory

Healy Power Plant Emission Inventory Spreadsheets

JBER Utilities

JBER Utilities 2017 Emissions Inventory Spreadsheet

JBER Emissions Spreadsheet

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IN THE UNITED STATES DISTRICT COURT
 FOR THE DISTRICT OF ALASKA

UNITED STATES OF AMERICA,

Plaintiff

v.

GOLDEN VALLEY ELECTRIC ASSOCIATION
 and ALASKA INDUSTRIAL DEVELOPMENT
 AND EXPORT AUTHORITY,

Defendants.

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) Civil Action No. 4:12-cv-00025-RRB
) Consent Decree
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CONSENT DECREE

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WHEREAS, Plaintiff, the United States of America (“the United States”), on behalf of the United States Environmental Protection Agency (“EPA”), is concurrently filing a Complaint and Consent Decree, for injunctive relief pursuant to Section 167 of the Clean Air Act (“Act” or “CAA”), 42 U.S.C. §7477, to prevent Golden Valley Electric Association, Inc. (“GVEA”) and/or the Alaska Industrial Development and Export Authority (“AIDEA”) (collectively the “Defendants”) from violating the Prevention of Significant Deterioration (“PSD”) provisions of Part C of Subchapter I of the Act, 42 U.S.C. §§ 7470-7492, and the federally enforceable Alaska State Implementation Plan (“SIP”);

WHEREAS, Unit 1 at the Healy Power Plant in Healy, Alaska is a nominal 25 megawatt (“MW”) coal-fired electric generating unit owned and operated by GVEA;

WHEREAS, Unit 2 at the Healy Power Plant, the Healy Clean Coal Project (“HCCP” or “Unit 2”) is a nominal 50 MW coal-fired electric generating unit that is currently owned by AIDEA, with GVEA acting as the operator of the unit;

WHEREAS, Unit 2 previously went through PSD review and received an Air Quality Control Permit issued in 1993 and amended in 1994;

WHEREAS, Unit 2 was constructed in 1997 and has not been operated since 1998-1999;

WHEREAS, in its Complaint, the United States alleges, *inter alia*, that Defendants intend to reactivate and/or restart HCCP or Unit 2;

WHEREAS, the Complaint further alleges that the Defendants' project at Unit 2 at the Healy Power Plant, a major emitting facility, would result in the construction of a new source or, in the alternative, a major modification of an existing source without obtaining the necessary

permits under the Act and installing and operating the state-of-the-art controls necessary under the Act to reduce air pollutants, particularly oxides of nitrogen (“NO_x”) emissions from Unit 2;

WHEREAS, Defendants have denied and continue to deny the violations alleged in the Complaint, maintain that their construction and operation activities at the Healy Power Plant have been and remain fully permitted and in compliance with the Clean Air Act, Defendants are not liable for civil penalties or injunctive relief, and state that they are agreeing to the obligations imposed by this Consent Decree solely to avoid the costs and uncertainties of litigation;

WHEREAS, Defendants do not admit any liability to the United States or any other person, and nothing herein shall constitute an admission of liability;

WHEREAS, the Parties agree that nothing in this Consent Decree shall constitute an admission of liability in this or any other proceeding;

WHEREAS, GVEA is a small, not-for-profit rural electric power generating cooperative serving approximately 44,000 meters and with an approximate peak demand of 220 megawatts;

WHEREAS, GVEA serves the Alaskan Interior where, because of extreme climate conditions, prudent utility practice is to conduct construction and maintenance on generating and transmission facilities during summer months and where dispatch schedules may be impacted by extreme climate during winter months;

WHEREAS, GVEA is an isolated power generating system operating without connection to an interstate transmission grid;

WHEREAS, GVEA is generally not directed to supply power on an emergency basis by any governmental agency or regulatory authority, nor is GVEA subject to a Regional Transmission Organization or Independent System Operator;

WHEREAS, GVEA must supply electricity to the Alaskan Interior, particularly during the winter months, to protect against the loss of life and destruction of property under extreme climate conditions regardless of system upsets and malfunctions;

WHEREAS, the Parties recognize that the restart activities for Unit 2 may require up to 18 months to complete;

WHEREAS, pursuant to terms of this Consent Decree, the Defendants are taking a number of actions to mitigate emissions from the restart of Unit 2 including emission reductions at Unit 1 of the Healy Power Plant and a stove changeout project;

WHEREAS, the Parties recognize that EPA is currently reviewing the Regional Haze SIP submittal from Alaska and that EPA may consider the enforceable conditions in this Consent Decree when it takes final action on that SIP submission;

WHEREAS, the Parties believe that the emission limits established under this Consent Decree are enforceable limits for purposes of Best Available Retrofit Technology (“BART”) and the Regional Haze SIP in Alaska;

WHEREAS, the Parties have agreed, and this Court by entering this Consent Decree finds, that this Consent Decree has been negotiated in good faith and at arm’s length and that this Consent Decree is fair, reasonable, in the public interest, and consistent with the goals of the Act;

NOW, THEREFORE, with the consent of the Parties, it is hereby ORDERED, ADJUDGED, AND DECREED as follows:

I. JURISDICTION AND VENUE

1. This Court has jurisdiction over this action, the subject matter herein, and the Parties consenting hereto, pursuant to 28 U.S.C. §§ 1331, 1345, 1355, and 1367, and pursuant to Section 167 of the Act, 42 U.S.C. § 7477. Venue is proper under Section 167 of

the Act, 42 U.S.C. § 7477 and under 28 U.S.C. § 1391(b) and (c). For purposes of this Consent Decree, any action to enforce this Consent Decree, and the underlying Complaint, the Defendants consent to the Court's jurisdiction over this action, to the Court's jurisdiction over the Defendants, and to venue in this district. The Defendants consent to and shall not challenge entry of this Consent Decree or this Court's jurisdiction to enter and enforce this Consent Decree.

2. For purposes of this Consent Decree, Defendants agree that the Complaint states claims upon which relief may be granted pursuant to the PSD program.

II. APPLICABILITY

3. Subject to Section XX (Sales or Transfers of Operational or Ownership Interests), the provisions of this Consent Decree apply to and are binding upon the Parties, their successors and assigns, and upon the Defendants' directors, officers, employees, servants, and agents.

4. Defendants shall provide a copy of this Consent Decree to all officers, employees, and agents whose duties might reasonably include compliance with any provision of this Consent Decree, as well as to any vendors, suppliers, consultants, contractors, agents, and any other company or other organization retained to perform any of the work required by this Consent Decree. Notwithstanding any retention of contractors, subcontractors, or agents to perform any work required under this Consent Decree, the Defendants shall be responsible for ensuring that all work is performed in accordance with the requirements of this Consent Decree. In any action to enforce this Consent Decree, subject to Section XV (Force Majeure), Defendants shall not assert as a defense the failure of its officers, directors,

employees, servants, agents, or contractors to take actions necessary to comply with this Consent Decree.

III. DEFINITIONS

5. Every term expressly defined by this Section shall have the meaning given that term herein. Every other term used in this Consent Decree that is also a term used under the Act or in a federal regulation implementing the Act shall mean in this Consent Decree what such term means under the Act or those regulations.

6. A “30-Day Rolling Average NO_x Emission Rate” for a Unit shall be expressed in lb/mmBTU and calculated in accordance with the following procedure: first, sum the total pounds of NO_x emitted from the Unit during the current Unit Operating Day and the previous 29 Unit Operating Days; second, sum the total heat input to the Unit in mmBTU during the current Unit Operating Day and the previous 29 Unit Operating Days; and third, divide the total number of pounds of NO_x emitted during the 30 Unit Operating Days by the total heat input during the 30 Unit Operating Days. A new 30-Day Rolling Average NO_x Emission Rate shall be calculated for each new Unit Operating Day. Each 30-Day Rolling Average NO_x Emission Rate shall include all emissions that occur during all periods within any Unit Operating Day, including emissions from startup, shutdown, and Malfunction.

7. A “30-Day Rolling Average PM Emission Rate” for a Unit shall be expressed in lb/mmBTU and calculated in accordance with the following procedure: first, sum the total pounds of PM emitted from the Unit during the current Unit Operating Day and the previous 29 Unit Operating Days; second, sum the total heat input to the Unit in mmBTU during the current Unit Operating Day and the previous 29 Unit Operating Days; and third, divide the total number of pounds of PM emitted during the 30 Unit Operating Days by the total heat

input during the 30 Unit Operating Days. A new 30-Day Rolling Average PM Emission Rate shall be calculated for each new Unit Operating Day. Each 30-Day Rolling Average PM Emission Rate shall include all emissions that occur during all periods within any Unit Operating Day, including emissions from startup, shutdown, and Malfunction.

8. A “30-Day Rolling Average SO₂ Emission Rate” for a Unit shall be expressed in lb/mmBTU and calculated in accordance with the following procedure: first, sum the total pounds of SO₂ emitted from the Unit during the current Unit Operating Day and the previous 29 Unit Operating Days; second, sum the total heat input to the Unit in mmBTU during the current Unit Operating Day and the previous 29 Unit Operating Days; and third, divide the total number of pounds of SO₂ emitted during the 30 Unit Operating Days by the total heat input during the 30 Unit Operating Days. A new 30-Day Rolling Average SO₂ Emission Rate shall be calculated for each new Unit Operating Day. Each 30-Day Rolling Average SO₂ Emission Rate shall include all emissions that occur during all periods within any Unit Operating Day, including emissions from startup, shutdown, and Malfunction.

9. “AIDEA” means the Alaska Industrial Development and Export Authority.

10. “Alaska SIP” means the Alaska State Implementation Plan, and any amendments thereto, as approved by EPA pursuant to Section 110 of the Act, 42 U.S.C. § 7410.

11. “Baghouse” means a full stream (fabric filter or membrane) particulate emissions control device.

12. “CEMS” or “Continuous Emission Monitoring System,” means, for obligations involving the monitoring of NO_x, SO₂, and PM emissions under this Consent Decree, the devices defined, installed and maintained as specified by 40 C.F.R. Parts 60 and flow

monitoring devices necessary to calculate compliance with the Unit 1 and Unit 2 Annual Tonnage Limitation.

13. “Clean Air Act” or “Act” or “CAA” means the federal Clean Air Act, 42 U.S.C. §§ 7401-7671q, and its implementing regulations.

14. “Complaint” means the complaint filed by the United States in this action.

15. “Consent Decree” means this Consent Decree.

16. “Continuously Operate” or “Continuous Operation” means that when a pollution control technology or combustion control is required to be used at a Unit pursuant to this Consent Decree (including, but not limited to, SCR, SNCR, SDA, DSI, Baghouse or TRW Slagging Combustor), it shall be operated at all times such Unit is in operation, except as otherwise provided by Section XV (Force Majeure), so as to minimize emissions to the greatest extent practicable, consistent with the technological limitations, manufacturers’ specifications, and good engineering and maintenance practices for such equipment and the Unit.

17. “Date of Entry” means the date this Consent Decree is approved or signed by the United States District Court Judge.

18. “Date of Lodging” means the date this Consent Decree is filed for lodging with the Clerk of the Court for the United States District Court for the District of Alaska.

19. “Day” means calendar day unless otherwise specified in this Consent Decree. In computing any period of time under this Consent Decree, where the last day would fall on a Saturday, Sunday or federal holiday, the period shall run until the close of business on the next business day.

20. “Defendants” means GVEA and AIDEA.

21. “Dry Sorbent Injection” or “DSI” means an add-on air pollution control system in which sorbent (e.g., Trona, hydrated lime, sodium carbonate, etc.) is injected into the flue gas stream upstream of a PM Control Device to react with and neutralize acid gases (such as SO₂ and hydrogen chloride) in the exhaust stream forming a dry powder material that may be removed in a primary or secondary PM Control Device.

22. “Emission Rate” for a given pollutant means the number of pounds of that pollutant emitted per million British thermal units of heat input (lb/mmBTU), measured in accordance with this Consent Decree.

23. “Environmental Mitigation Project” or “Project” means the project set forth in Section IX of this Consent Decree.

24. “EPA” means the United States Environmental Protection Agency.

25. “First Fires Coal” or “First Firing of Coal” means the first day after which any coal of any type or quantity is combusted in Unit 2.

26. “Fossil Fuel” means any hydrocarbon fuel, including coal, petroleum coke, petroleum oil, or natural gas.

27. “GVEA” means Golden Valley Electric Association, Inc., and its wholly owned subsidiaries.

28. “Healy Power Plant” means, solely for purposes of this Consent Decree, the Healy Power Plant, consisting of the following pulverized coal-fired boilers designated as Unit 1 (nominally 25 MW) and Unit 2 (nominally 50 MW) and related emission control equipment, which is located in Healy, Alaska.

29. “lb/mmBTU” means pound per million British thermal units.

30. “Malfunction” means a failure to operate in a normal or usual manner by any air pollution control equipment, process equipment, or a process, which is sudden, infrequent, and not reasonably preventable. Failures that are caused in part by poor maintenance or careless operation are not Malfunctions.

31. “Month” shall mean calendar month unless otherwise specified in this Consent Decree.

32. “Netting” shall mean the process of determining whether a particular physical change or change in the method of operation of a major stationary source results in a “net emissions increase,” as that term is defined at 40 C.F.R. § 52.21(b)(3)(i) and in the Alaska SIP.

33. “NO_x” means oxides of nitrogen, measured in accordance with the provisions of this Consent Decree.

34. “Operational or Ownership Interest” means part or all of AIDEA's or GVEA's legal or equitable ownership interest in any Unit (“Ownership Interest”) or the right to be the operator (as that term is used and interpreted under the Act) of any Unit.

35. “Parties” means the United States of America on behalf of EPA, AIDEA and GVEA. “Party” means one of the named “Parties.”

36. “PM” means total filterable particulate matter, measured in accordance with the provisions of this Consent Decree.

37. “PM CEMS” or “PM Continuous Emission Monitoring System” means, for obligations involving the monitoring of PM emissions under this Consent Decree, the equipment that samples, analyzes, measures, and provides, by readings taken at frequent intervals, an electronic and/or paper record of PM emissions.

38. “PM Control Device” means any device, including but not limited to, a Baghouse, which reduces emissions of PM.

39. “PM Emission Rate” means the number of pounds of PM emitted per million BTU of heat input (lb/mmBTU).

40. “Prevention of Significant Deterioration” or “PSD” means the New Source Review program within the meaning of Part C of Subchapter I of the Act, 42 U.S.C. §§ 7470-7492 and 40 C.F.R. Part 52, and corresponding provisions of the federally enforceable Alaska SIP.

41. “Project Dollars” means Defendants’ expenditures and payments incurred or made in carrying out the Environmental Mitigation Project identified in Section IX (Environmental Mitigation Project) of this Consent Decree to the extent that such expenditures or payments both: (a) comply with the requirements set forth in Section IX of this Consent Decree, and (b) constitute Defendants’ direct payments for such projects, or Defendants’ external costs for contractors, vendors, and equipment.

42. “Regional Haze State Implementation Plan” or “Regional Haze SIP” means the State Implementation Plan developed pursuant to section 169A and 169B of the CAA , 42 U.S.C. §§ 7491 and 7492-7492 and 40 C.F.R. §§ 50.308 and 50.309.

43. “Retire” means that GVEA shall permanently shut down and cease to operate Unit 1 such that it cannot legally burn any fuel nor produce any steam for electricity production and that GVEA shall comply with applicable state and federal requirements for permanently retiring a coal-fired electric generating unit, including removing Unit 1 from Alaska’s air emissions inventory and amending all applicable permits so as to reflect the permanent shutdown status of Unit 1.

44. “SCR” or “Selective Catalytic Reduction” means an air pollution control device for reducing NO_x emissions in which ammonia (NH₃) is added to the flue gas and then passed through layers of a catalyst material. The ammonia and NO_x in the flue gas stream react on the surface of the catalyst, forming nitrogen (N₂) and water vapor.

45. “SDA” or “Spray Dry Absorber” means the flue gas desulfurization equipment used for removing SO₂ and other acid gases from the flue gas and is currently installed on Unit 2.

46. “SNCR” or “Selective Non-Catalytic Reduction” means a pollution control device for the reduction of NO_x emissions through the use of selective non-catalytic reduction technology that utilizes ammonia or urea injection (or an equivalent reagent as approved by EPA) into the boiler.

47. “SO₂” means sulfur dioxide, measured in accordance with the provisions of this Consent Decree.

48. “State” means the State of Alaska.

49. “Title V Permit” means the Final Air Quality Control Permit No. AQ0173TVPO2 issued by the Alaska Department of Environmental Conservation to GVEA on February 3, 2012 pursuant to Subchapter V of the Act, 42 U.S.C. §§ 7661-7661e.

50. “Unit 1” means the Foster-Wheeler Boiler pulverized coal-fired steam generator including emission control equipment owned and operated by GVEA.

51. “Unit 2” means the TRW Integrated Entrained Combustion System pulverized coal-fired steam generator, including emission control equipment, that is currently owned by AIDEA.

52. “Unit 1 and Unit 2 Annual Tonnage Limitation” means the sum of the tons of pollutant in question emitted from Unit 1 and Unit 2 including, without limitation, all tons of that pollutant emitted during periods of startup, shutdown, and Malfunction, in the designated year.

53. “United States” means the United States of America, acting on behalf of EPA.

54. “Unit Operating Day” means, for Unit 1, any day on which Unit 1 fires Fossil Fuel and for Unit 2, any day on which Unit 2 fires Fossil Fuel.

IV. CIVIL PENALTY

55. Within 30 days after the Date of Entry of this Consent Decree, GVEA, on behalf of Defendants, shall pay to the United States a civil penalty in the amount of \$115,000.00. The civil penalty shall be paid by Electronic Funds Transfer (“EFT”) to the United States Department of Justice, in accordance with current EFT procedures, referencing DOJ Case Number 90-5-2-1-10615, the civil action case name and case number assigned to this case. The costs of such EFT shall be GVEA’s responsibility. Payment shall be made in accordance with instructions provided to GVEA by the Financial Litigation Unit of the U.S. Attorney’s Office for the District of Alaska. At the time of payment, GVEA shall provide notice of payment, referencing the DOJ Case Number, and the civil action case name and case number, to the Department of Justice and to EPA in accordance with Section XIX (Notices) of this Consent Decree.

56. Failure to timely pay the civil penalty shall subject GVEA to interest accruing from the date payment is due until the date payment is made at the rate prescribed by 28 U.S.C. § 1961, and shall render GVEA liable for all charges, costs, fees, and penalties established by law for the benefit of a creditor or of the United States in securing payment.

57. Payments made pursuant to this Section are penalties within the meaning of Section 162(f) of the Internal Revenue Code, 26 U.S.C. § 162(f), and are not tax-deductible expenditures for purposes of federal law.

V. NO_x EMISSION REDUCTIONS AND CONTROLS

A. Installation, Operation and Performance NO_x Requirements

58. Upon Defendants' First Firing of Coal at Unit 2, Defendants shall achieve and maintain at Unit 2 a 30-Day Rolling Average NO_x Emission Rate of no greater than 0.325 lb/mmBTU.

59. Defendants shall install an SCR at Unit 2 on or before September 30, 2016, or 24 months after Unit 2 First Fires Coal, whichever is later. Continuing thereafter, Defendants shall Continuously Operate such SCR at Unit 2 so that it achieves and maintains a 30-Day Rolling Average NO_x Emission Rate of no greater than 0.080 lb/mmBTU.

60. GVEA shall install an SNCR at Unit 1 on or before September 30, 2015, or 18 months after Unit 2 First Fires Coal, whichever is later. Continuing thereafter, GVEA shall Continuously Operate such SNCR so that it achieves and maintains a 30-Day Rolling Average NO_x Emission Rate of no greater than 0.20 lb/mmBTU until GVEA either retires Unit 1 pursuant to Paragraph 62 or installs an SCR at Unit 1 pursuant to Paragraph 63.

61. On or before December 31, 2022, GVEA shall elect to (a) Retire Unit 1 or (b) install and operate an SCR at Unit 1 (or an alternative control technology approved by EPA) as provided in Paragraph 63. GVEA shall provide Notice of such election pursuant to Section XIX (Notices).

62. If GVEA elects to Retire Unit 1 pursuant to Paragraph 61, GVEA shall Retire Unit 1 by no later than December 31, 2024.

63. If GVEA elects to continue to operate Unit 1 pursuant to Paragraph 61, then GVEA shall install an SCR at Unit 1 (or an alternative control technology approved by EPA) commencing on December 31, 2024. Continuing thereafter, GVEA shall Continuously Operate such SCR (or alternative control technology approved by EPA) so that it achieves and maintains a 30-Day Rolling Average NO_x Emission Rate of no greater than 0.070 lb/mmBTU.

B. Unit 1 and Unit 2 Annual NO_x Tonnage Limitation

64. Unit 1 and Unit 2 shall operate so as not to exceed the following Unit 1 and Unit 2 Annual NO_x Tonnage Limitation:

For Each 12-Month Period, Beginning on January 1st, within the Dates Specified Below:	Unit 1 and Unit 2 Annual NO_x Tonnage Limitation:
For the first full year of operation following installation of SNCR on Unit 1	1,239
For the first full year of operation following installation of SCR on Unit 2 through 2024	533
For the first full year of operation following installation of SCR on Unit 1	352
For the first full year of operation following retirement of Unit 1	231

C. Monitoring of NO_x Emissions

In determining a 30-Day Rolling Average NO_x Emission Rate, Defendants shall use NO_x emission data obtained from a CEMS in accordance with the procedures of 40 C.F.R. Part 60, and flow monitoring devices necessary to calculate compliance with the Unit 1 and Unit 2 Annual Tonnage Limitation.

VI. SO₂ EMISSION REDUCTIONS AND CONTROLS

A. Installation, Operation and Performance SO₂ Requirements

65. Commencing on the Day that Unit 2 First Fires Coal, and continuing thereafter, Defendants shall Continuously Operate the existing SDA on Unit 2 so that it achieves and maintains a 30-Day Rolling Average SO₂ Emission Rate of no greater than 0.10 lb/mmBTU.

66. Commencing September 30, 2015 or 18 months after Unit 2 First Fires Coal, whichever is later, and continuing thereafter, Defendants shall Continuously Operate the existing DSI at Unit 1 so that it achieves and maintains a 30-Day Rolling Average SO₂ Emission Rate of no greater than 0.30 lb/mmBTU.

B. Unit 1 and Unit 2 Annual SO₂ Tonnage Limitation

67. Unit 1 and Unit 2 shall operate so as not to exceed the following Unit 1 and Unit 2 Annual SO₂ Tonnage Limitation:

For Each 12-Month Period, Beginning on January 1st, within the Dates Specified Below:	Unit 1 and Unit 2 Annual SO₂ Tonnage Limitation:
January 1, 2016 and continuing each 12-month period thereafter	701
If Unit 1 is Retired pursuant to Paragraph 62: January 1 of the first calendar year after the retirement and continuing each 12-month period thereafter	248

C. Monitoring of SO₂ Emissions

68. In determining a 30-Day Rolling Average SO₂ Emission Rate, Defendants shall use SO₂ emission data obtained from a CEMS in accordance with the procedures of 40 C.F.R. Part 60, and flow monitoring devices necessary to calculate the Unit 1 and Unit 2 Annual Tonnage Limitation.

VII. PM EMISSION REDUCTIONS AND CONTROLS**A. Optimization of Baghouses**

69. Commencing upon the Date of Entry of this Consent Decree for Unit 1, and continuing thereafter, GVEA shall Continuously Operate the Baghouse on Unit 1.

70. Except as required during correlation testing under 40 C.F.R. Part 60, Appendix B, Performance Specification 11, and Quality Assurance Requirements under Appendix F, Procedure 2, as required by this Consent Decree, GVEA for Unit 1 and Defendants for Unit 2 shall Continuously Operate, at a minimum, to the extent practicable: each compartment of the Baghouse for Unit 1 and Unit 2 (regardless of whether those actions are needed to comply with opacity limits); repair any failed Baghouse compartment at the next planned Unit outage (or unplanned outage of sufficient length); and maintain and replace bags on each Baghouse for Unit 1 and Unit 2 as needed to maximize collection efficiency, where applicable.

B. Operation and Performance Requirements for PM Controls

71. Commencing on the Day that Unit 2 First Fires Coal, Defendants shall Continuously Operate the existing Baghouse at Unit 2 so that it achieves and maintains a 30-Day Rolling Average Filterable PM Emission Rate of no greater than 0.0200 lb/mmBTU.

72. Commencing September 30, 2015 or 18 months after Unit 2 First Fires Coal, whichever is later, GVEA shall Continuously Operate the existing Baghouse at Unit 1 so that it achieves and maintains a 30-Day Rolling Average Filterable PM Emission Rate of no greater than 0.0200 lb/mmBTU.

C. PM CEMS

73. Defendants with respect to Unit 2 and GVEA with respect to Unit 1, shall install, correlate, maintain, and operate PM CEMS on Units 1 and 2 as specified below. The PM CEMS shall be comprised of a continuous particle mass monitor measuring filterable particulate matter concentration, directly or indirectly, on an hourly average basis and a diluent monitor used to convert the concentration to units expressed in lb/mmBTU. The PM CEMS installed at Unit 2 must be appropriate for the anticipated stack conditions and capable of measuring filterable PM concentrations on an hourly average basis. Defendants shall maintain, in an electronic database that maintains data for at least five years, the hourly average emission values of all PM CEMS in lb/mmBTU. Except for periods of monitor malfunction, maintenance, repair, calibration, or testing as identified in Defendants' PM CEMS protocols prepared pursuant to Paragraphs 77 and 78, GVEA shall Continuously Operate the PM CEMS at all times when the Unit it serves is operating.

74. Not later than upon First Firing of Coal in Unit 2, Defendants on Unit 2 and GCEA on Unit 1 shall install, correlate, maintain, and operate PM CEMS on Unit 1 and Unit 2 in accordance with 40 C.F.R. Part 60, Appendix B, Performance Specification 11.

75. Within 180 days of the Date of Entry, Defendants shall submit to EPA a plan for the installation and correlation of the PM CEMS.

76. Within 365 days of the Date of Entry, Defendants shall submit to EPA a Quality Assurance/Quality Control ("QA/QC") protocol that shall be followed for such PM CEMS.

77. In developing both the plan for installation and correlation of the PM CEMS and the QA/QC protocol, Defendants shall use the criteria set forth in 40 C.F.R. Part 60, Appendix B, Performance Specification 11, and Appendix F, Procedure 2. After PM CEMS

is installed, Defendants shall thereafter operate the PM CEMS in accordance with the plan and QA/QC protocol.

78. By no later than the Day Unit 2 First Fires Coal, except for periods of monitor malfunction, maintenance, repair, calibration, or testing as identified in Defendants' PM CEMS protocols prepared pursuant to Paragraphs 77 and 78, Defendants shall install, correlate, maintain, and Continuously Operate the PM CEMS when the Unit it serves is operating, conduct performance specification tests on the PM CEMS, and demonstrate compliance with the PM CEMS installation and correlation plans submitted to EPA. Defendants shall report, pursuant to Section XII (Periodic Reporting), the data recorded by the PM CEMS during Unit operation, expressed in lb/mmBTU on a rolling average 30-day basis in compact disc- electronic format to EPA and identify in the report any PM emission rates in excess of the applicable PM Emission Rate and any concentrations measured by the PM CEMS that are greater than 125% of the highest PM concentration level used in the most recent correlation testing performed pursuant to Performance Specification 11 in 40 C.F.R. Part 60, Appendix B.

D. General PM Provisions-

79. Compliance with the PM Emission Rates established by this Consent Decree shall be determined using CEMS data obtained in accordance with Paragraphs 78 and 79. Data from PM CEMS shall be used to monitor compliance with PM Emission Rates established by this Consent Decree on a continuous basis.

80. Nothing in this Consent Decree is intended to, or shall, alter or waive any applicable law (including but not limited to any defenses, entitlements, challenges, or

clarifications related to the Credible Evidence Rule, 62 Fed. Reg. 8314 (Feb. 24, 1997)) concerning the use of data for any purpose under the Act.

VIII. PROHIBITION ON NETTING CREDITS OR OFFSETS

81. Except as provided in Paragraph 83, emission reductions that result from actions to be taken by Defendants after the Date of Entry of this Consent Decree to comply with the requirements of this Consent Decree shall not be considered as a creditable contemporaneous emission decrease for the purpose of obtaining a Netting credit or offset under the Act's Nonattainment NSR and PSD programs.

82. The limitations on the generation and use of Netting credits and offsets set forth in the previous Paragraph do not apply to emission reductions achieved by Unit 1 and Unit 2 that are greater than those required under this Consent Decree. For purposes of this Paragraph, emission reductions from Unit 1 and Unit 2 are greater than those required under this Consent Decree if they result from such Unit's compliance with federally-enforceable emission limits that are more stringent than those limits imposed on the Unit under this Consent Decree and under applicable provisions of the Act or the Alaska SIP. Nothing in this Consent Decree is intended to preclude the emission reductions generated under this Consent Decree from being considered by EPA or the applicable state for the purposes of: attainment demonstrations submitted pursuant to Section 110 of the Act, 42 U.S.C. § 7410; determining impacts on National Ambient Air Quality Standards, PSD increment, or air quality related values, including visibility, in a Class I area; Best Available Retrofit Technology ("BART") determinations pursuant to Section 169A(g)(2) of the CAA, 42 U.S.C. § 7491(g)(2); and reasonable progress portions of the Alaska Regional Haze State Implementation Plan.

IX. ENVIRONMENTAL MITIGATION PROJECT

83. GVEA, on behalf of Defendants, shall fund as an Environmental Mitigation Project a change out program for solid-fuel burning devices, including wood or coal stoves, wood or coal-fired furnaces, wood or coal-fired hydronic heaters, or fireplace inserts (“Stove Change Out Project” or “Stove Project”) in compliance with the approved plans and schedules for such Project and the other terms of this Consent Decree.

84. GVEA shall spend a total of \$250,000 in Project Dollars on a Stove Change Out Project for municipalities in Interior Alaska, specifically the Fairbanks North Star Borough and Denali Borough (collectively “the Boroughs”). GVEA shall spend no less than \$175,000 of the Project Dollars by providing funds to the Fairbanks North Star Borough Air Quality Division (“FNSB”) for the express purpose of funding FNSB’s existing Change Out Program for solid-fuel burning devices such as stoves (“FNSB Program”). GVEA shall spend no less than \$75,000 in Project Dollars on a Stove Project for the Denali Borough (“Denali”) that meets the requirements of the FNSB Program. After providing notification to EPA pursuant to Section XIX (Notices), the allocation of Project Dollars between FNSB and Denali may be changed by GVEA if one of the Boroughs is unwilling or unable to spend Project Dollars on the Stove Change Out Project in compliance with the terms and conditions of this Consent Decree.

85. To the extent that a Borough is willing to participate in the Stove Change Out Project under this Consent Decree, GVEA shall provide to the United States within 90 days of the Date of Entry of this Consent Decree a certification from that participating Borough stating that: the Borough shall spend all of its Project Dollars provided by GVEA exclusively and solely on the Project; the Borough shall limit the use of its Project Dollars

for administrative costs associated with the Stove Project to no greater than 10% of the Project Dollars GVEA provides; the Borough shall implement the Stove Project consistent with the materials available on EPA's website at <http://www.epa.gov/burnwise>; the Borough shall prepare true and accurate reports for GVEA's use in complying with this Consent Decree, to the extent GVEA requests the Borough to do so; and the Borough shall direct Project Dollars to the Stove Change Out Project, such that all Project Dollars, to the best of the Borough's ability, are expended by no later than December 31, 2014 or twenty-four (24) months following the Date of Entry of this Consent Decree whichever is later.

86. GVEA shall pay \$87,500 to FNSB and \$37,500 to Denali within 120 days of the Date of Entry of this Consent Decree for the Implementation of the Change Out Program, consistent with this Consent Decree and the Boroughs' certifications. Within 365 days of the Date of Entry of this Consent Decree, GVEA shall pay \$87,500 of Project Dollars to FNSB and \$37,500 in Project Dollars to Denali. GVEA shall not include its own personnel costs as a credit or offset for the Project Dollars to be paid to the Boroughs to implement the Stove Project.

87. All plans and reports prepared by GVEA pursuant to the requirements of this Section IX of the Consent Decree and required to be submitted to EPA shall be publicly available from GVEA without charge.

88. While GVEA intends to have the Stove Change Out Project carried out by the Boroughs, GVEA acknowledges that GVEA will receive credit for the expenditure of such funds as Project Dollars only if GVEA demonstrates that the funds have been actually spent by the Boroughs, and that such expenditures met all requirements of this Consent Decree. Nothing in this settlement shall be construed to prohibit a contractual allocation of liability

between the Boroughs and GVEA, should the Boroughs fail to spend the Project Dollars in accordance with the certification that it provided to the Parties to this Consent Decree.

89. Beginning one hundred eighty (180) days from the Date of Entry of this Consent Decree, and continually annually thereafter until completion of the Project, GVEA shall provide EPA with written reports (which may be prepared by the Boroughs) detailing the progress of the Stove Project, including an accounting of Project Dollars spent to date.

90. Within 60 Days following the completion of the Project required under this Consent Decree GVEA shall submit to the United States a report, which may be prepared by the Boroughs, that documents: the date that the Stove Project was completed, i.e., when all of the Project Dollars were spent by the Boroughs; the results of implementing the Stove Project, including the emission reductions or other environmental benefits achieved; and the Project Dollars expended by the Boroughs in implementing the Stove Project.

X. MERCURY

91. GVEA stipulates that Unit 1 and Unit 2 at the Healy Power Plant shall comply with the requirements for mercury emissions from existing coal-fired electric generating units established by the National Emission Standards for Hazardous Air Pollutants From Coal and Oil-Fired Electric Utility Steam Generating Units, 40 C.F.R. Part 63, Subpart UUUUU (the "MATS Rule").

92. GVEA shall make available to the National Park Service ("NPS") the results of any mercury emissions monitoring required by law conducted on Unit 1 and Unit 2 within 45 days of receiving a request for such data from the NPS.

93. Nothing in this Consent Decree shall be construed or interpreted to relieve GVEA of any requirements in the MATS Rule that may otherwise apply to Unit 1 or Unit 2 of the

Healy Power Plant, including requirements that might apply to emissions of other hazardous air pollutants from Unit 1 or Unit 2.

XI. RESOLUTION OF CIVIL CLAIMS

94. Entry of this Consent Decree shall resolve all civil claims of the United States against AIDEA and GVEA that are (1) alleged in the Complaint, specifically claims under Section 167 of the Act, 42 U.S.C. § 7477, that arise from the proposed modification, proposed restart, and/or proposed reactivation of Unit 2 at the Healy Power Plant, and (2) claims that arise, prior to the Date of Lodging of this Consent Decree, from the proposed modification, proposed restart, and/or proposed reactivation of Unit 2 at the Healy Power Plant under any or all of: (a) Part C and D of Subchapter I of the Act, 42 U.S.C. §§ 7470-7492, 7501-7515, and the implementing PSD and Nonattainment NSR provisions of the Alaska SIP; (b) Section 111 of the Act, 42 U.S.C. § 7411, and 40 C.F.R. § 60.14; and (c) Title V of the Act, 42 U.S.C. § 7661-7661f, but only to the extent that such Title V claims are based on Defendants' failure to obtain terms in the Title V Permit that reflect applicable requirements imposed under Part C or D of Subchapter I of the Act, 42 U.S.C. §§ 7470-7492, 7501-7515, and the implementing PSD and Nonattainment NSR provisions of the Alaska SIP.

XII. PERIODIC REPORTING

95. After the Date of Entry of this Consent Decree, GVEA for Unit 1 and Defendants for Unit 2 shall submit to the United States a periodic report, within 60 Days after the end of each half of the calendar year (January through June and July through December). The report shall include the following information:

- a. all information necessary to determine compliance during the reporting period with: all applicable 30-Day Rolling Average NO_x Emission Rates and 30-Day Rolling Average SO₂ Emission Rates; all applicable PM Emission Rates; all applicable Unit 1 and Unit 2 Annual Tonnage Limitations; the obligation to monitor NO_x, SO₂, and PM emissions; and the obligation to optimize PM emission controls;
- b. the schedule for the installation or upgrade and commencement of operation of new or upgraded pollution control devices required by this Consent Decree, including the nature and cause of any actual or anticipated delays, and any steps taken by Defendants to mitigate such delay;
- c. the date on which Unit 2 First Fires Coal;
- d. all affirmative defenses asserted pursuant to Paragraphs 110 through 118 during the period covered by the progress report; and
- e. an identification of all periods when any pollution control device required by this Consent Decree to Continuously Operate did not Continuously Operate, the reason(s) for the equipment not operating, and the basis for Defendants' compliance or non-compliance with the Continuous Operation requirements of this Consent Decree.

96. In any periodic report submitted pursuant to this Section XII, Defendants may incorporate by reference information previously submitted under its Title V permitting requirements, provided that Defendants attach the Title V Permit report (or the pertinent portions of such report) and provide a specific reference to the provisions of the Title V Permit report that are responsive to the information required in the periodic report.

97. In addition to the reports required pursuant to this Section XII, if Defendants violate or deviate from any provision of this Consent Decree, Defendants shall submit to United States a report on the violation or deviation within 10 business days after Defendants knew or by the exercise of due diligence should have known of the event. In the report, Defendants shall explain the cause or causes of the violation or deviation and any measures taken or to be taken by Defendants to cure the reported violation or deviation or to prevent such violation or deviation in the future. If at any time, the provisions of this Consent Decree are included in Title V Permits, consistent with the requirements for such inclusion in this Consent Decree, then the deviation reports required under applicable Title V regulations shall be deemed to satisfy all the requirements of this Paragraph.

98. Each of Defendants' reports shall be signed by the Responsible Official as defined in Title V of the Act for the Healy Power Plant, as appropriate, and shall contain the following certification:

This information was prepared either by me or under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my evaluation, or the direction and my inquiry of the person(s) who manage the system, or the person(s) directly responsible for gathering the information, I hereby certify under penalty of law that, to the best of my knowledge and belief, this information is true, accurate, and complete. I understand that there are significant penalties for submitting false, inaccurate, or misleading information to the United States.

XIII. REVIEW AND APPROVAL OF SUBMITTALS

99. Defendants shall submit each plan, report, or other submission required by this Consent Decree to United States whenever such a document is required to be submitted for review or approval pursuant to this Consent Decree. To the extent EPA approval is required, EPA may approve the submittal or decline to approve it and provide written comments

explaining the basis for declining such approval as soon as reasonably practicable. Within 60 Days of receiving written comments from EPA, Defendants shall either: (a) revise the submittal consistent with the written comments and provide the revised submittal to EPA; or (b) submit the matter for dispute resolution, including the period of informal negotiations, under Section XVI (Dispute Resolution) of this Consent Decree.

100. Upon receipt of EPA's final approval of the submittal, or upon completion of the submittal pursuant to dispute resolution, Defendants shall implement the approved submittal in accordance with the schedule specified therein or another EPA-approved schedule or as resolved at the completion of the Dispute Resolution process.

XIV. STIPULATED PENALTIES

101. For any failure by Defendants to comply with the terms of this Consent Decree, and subject to the provisions of Sections XV (Force Majeure) and XVI (Dispute Resolution), Defendants shall pay, within 30 Days after receipt of written demand to Defendants by the United States, the following stipulated penalties to the United States:

Consent Decree Violation	Stipulated Penalty
a. Failure to pay the civil penalty as specified in Section IV (Civil Penalty) of this Consent Decree	\$5,000 per Day
b. Failure to comply with any applicable 30-Day Rolling Average NO _x Emission Rate, 30-Day Rolling Average SO ₂ Emission Rate, or 30-Day Rolling Average PM Emission Rate	\$1,250 per Day per violation where the violation is less than 5% in excess of the lb/mmBTU limits \$2,500 per Day per violation where the violation is equal to or greater than 5% but less than 10% in excess of the lb/mmBTU limits \$5,000 per Day per violation where the violation is equal to or greater than 10% in excess of the lb/mmBTU limits
c. Failure to comply with the applicable Unit 1 and Unit 2 Annual NO _x Tonnage Limitation established by this Consent Decree	\$2,500 per ton for first 100 tons, \$5,000 per ton for each additional ton above 100 tons, plus the payment of \$2,500 per ton for an amount of tons equal to two times the number of tons of NO _x emitted that exceeded the Unit 1 and Unit 2 Annual NO _x Tonnage Limitation on Units 1 and 2
d. Failure to comply with the applicable Unit 1 and Unit 2 Annual Tonnage Limitation for SO ₂ required by this Consent Decree	\$2,500 per ton for the first 100 tons over the limit, and \$5,000 per ton for each additional ton over the limit, plus the payment of \$1,250 per ton for an amount of tons equal to two times the number of tons of SO ₂ emitted that exceeded the Unit 1 and Unit 2 Annual Tonnage Limitation on Units 1 and 2

e. Failure to install and commence Continuous Operation, or Continuously Operate an NO _x , SO ₂ , or PM control device as required under this Consent Decree	\$5,000 per Day per violation during the first 30 Days; \$19,000 per Day per violation thereafter
f. Failure to Retire Unit 1, if elected, as required under this Consent Decree	\$5,000 per Day during the first 30 Days; \$19,000 per Day thereafter
g. Failure to install or operate NO _x , SO ₂ , and/or PM CEMS as required in this Consent Decree	\$500 per Day per violation
h. Failure to apply for any permit required by Section XVII (Permits)	\$500 per Day per violation
i. Failure to timely submit, modify, or implement, as approved, the reports, plans, studies, analyses, protocols, or other submittals required by this Consent Decree	\$375 per Day per violation during the first 10 Days; \$500 per Day per violation thereafter
j. Failure to optimize Baghouses as required by Paragraph 71	\$500 per Day per violation
k. Any other violation of this Consent Decree	\$500 per Day per violation

102. Violation of any limit based on a 30-Day rolling average constitutes 30 Days of violation but where such a violation (for the same pollutant and from the same Unit) recurs within periods less than 30 Days, Defendants shall not be obligated to pay a daily stipulated penalty for any Day of the recurrence for which a stipulated penalty has already been paid.

103. All stipulated penalties shall begin to accrue on the Day after the performance is due or on the Day a violation occurs, whichever is applicable, and shall continue to accrue until performance is satisfactorily completed or until the violation ceases, whichever is applicable. Nothing in this Consent Decree shall prevent the simultaneous accrual of separate stipulated penalties for separate violations of this Consent Decree. Notwithstanding any other provision of this Consent Decree, the United States may, in its

unreviewable discretion, waive all or any part of any stipulated penalties which may have accrued pursuant to this Consent Decree.

104. Defendants shall pay all stipulated penalties to the United States within 30 Days of receipt of written demand to Defendants from the United States, and shall continue to make such payments every 30 Days thereafter until the violation(s) no longer continues, unless Defendants elect within 20 Days of receipt of written demand to Defendants from the United States to dispute the accrual of stipulated penalties in accordance with the provisions in Section XVI (Dispute Resolution) of this Consent Decree.

105. Stipulated penalties shall continue to accrue as provided in accordance with Paragraph 104 during any dispute, with interest on accrued stipulated penalties payable and calculated at the rate established by the Secretary of the Treasury, pursuant to 28 U.S.C. § 1961, but need not be paid until the following:

- a. If the dispute is resolved by agreement, or by a decision of the United States pursuant to Section XVI (Dispute Resolution) of this Consent Decree that is not appealed to the Court, accrued stipulated penalties agreed or determined to be owing, together with accrued interest, shall be paid within 30 Days of the effective date of the agreement or of the receipt of the United States' decision;
- b. If the dispute is appealed to the Court and the United States prevails in whole or in part, Defendants shall, within 30 Days of receipt of the Court's decision or order, pay all accrued stipulated penalties determined by the Court to be owing, together with interest accrued on such penalties determined by the Court to be owing, except as provided in Subparagraph c, below;

- c. If the Court's decision is appealed by either Party, Defendants shall, within 15 Days of receipt of the final appellate court decision, pay all accrued stipulated penalties determined to be owing, together with interest accrued on such stipulated penalties determined to be owing by the appellate court.

Notwithstanding any other provision of this Consent Decree, the accrued stipulated penalties agreed by the United States and Defendants, or determined by the United States through Dispute Resolution, to be owing may be less than the stipulated penalty amounts set forth in Paragraph 102.

106. All monetary stipulated penalties shall be paid in the manner set forth in Section IV (Civil Penalty) of this Consent Decree.

107. Should Defendants fail to pay stipulated penalties in compliance with the terms of this Consent Decree, the United States shall be entitled to collect interest on such penalties, as provided for in 28 U.S.C. § 1961.

108. The stipulated penalties provided for in this Consent Decree shall be in addition to any other rights, remedies, or sanctions available to the United States by reason of Defendants' failure to comply with any requirement of this Consent Decree or applicable law, except that for any violation of the Act for which this Consent Decree provides for payment of a stipulated penalty, Defendants shall be allowed a credit for stipulated penalties paid against any statutory penalties also imposed for such violation.

109. Affirmative Defense as to Stipulated Penalties for Excess Emissions Occurring During Malfunctions: If any of Defendants' Units exceed an applicable 30-Day Rolling Average Emission Rate for PM, NO_x or SO₂, or fail to meet a Continuously Operate

requirement set forth in this Consent Decree due to a claimed Malfunction, Defendants, bearing the burden of proof by a preponderance of the evidence, have an affirmative defense to stipulated penalties under this Consent Decree if Defendants have complied with the reporting requirements of Paragraphs 115 through 116 and have demonstrated all of the following:

- a. the excess emissions or failure to Continuously Operate was/were caused by a sudden, unavoidable breakdown of technology, beyond Defendants' control;
- b. the excess emissions or failure to Continuously Operate (1) did not stem from any activity or event that could have been foreseen and avoided, or planned for, and (2) could not have been avoided by better operation and maintenance practices in accordance with manufacturers' specifications and recommendations and good engineering and maintenance practices;
- c. to the maximum extent practicable, the air pollution control equipment and processes were maintained and operated in a manner consistent with approved plans, QA/QC procedures, manufacturers' specifications and recommendations, and good engineering and maintenance practices for minimizing emissions;
- d. repairs to equipment and processes were made in an expeditious fashion when such repairs were needed to prevent the exceedance of an emission limit or the shutdown of air pollution control equipment. Off-shift labor and overtime must have been utilized, to the extent practicable, to ensure that such repairs were made as expeditiously as practicable;
- e. the amount and duration of the excess emissions (including any bypass) were minimized to the maximum extent practicable during periods of such emissions,

- and consistent with manufacturers' specifications and recommendations and good engineering and maintenance practices;
- f. all possible steps were taken to minimize the excess emissions in accordance with approved plans, QA/QC protocols, manufacturers' specifications and recommendations, and good engineering and maintenance practices;
 - g. all emission monitoring systems were kept in operation if at all possible and in accordance with approved plans, QA/QC protocols, manufacturers' specifications and recommendations, and good engineering and maintenance practices;
 - h. Defendants' actions in response to the excess emissions were documented by properly signed, contemporaneous operating logs, or other relevant evidence;
 - i. the excess emissions were not part of a recurring pattern indicative of inadequate design, operation, or maintenance; and
 - j. Defendants properly and promptly notified EPA as required by this Consent Decree.

110. To assert an affirmative defense for Malfunction under Paragraph 110, Defendants shall submit actual emissions data for the Day the Malfunction occurred and the 29-Day period following the Day the Malfunction occurred. Defendants may, if they elect, submit emissions data for the same 30-Day period but that excludes the excess emissions.

111. Affirmative Defense as to Stipulated Penalties for Excess Emissions Occurring During Startup and Shutdown: If any of Defendants' Units exceed an applicable 30-Day Rolling Average Emission Rate for PM, NO_x or SO₂ set forth in this Consent Decree due to startup or shutdown, Defendants, bearing the burden of proof by a preponderance of the evidence, have an affirmative defense to stipulated penalties under this Consent Decree,

if Defendants have complied with the reporting requirements of Paragraphs 115 through 116 and have demonstrated all of the following:

- a. the periods of excess emissions that occurred during startup and shutdown were short and infrequent and could not have been prevented through careful planning and design consistent with good engineering and maintenance practices and manufacturers' specifications and recommendations;
- b. the excess emissions were not part of a recurring pattern indicative of inadequate design, operation, or maintenance or which could have been prevented by following manufacturers' specifications and recommendations and good engineering and maintenance practices;
- c. if the excess emissions were caused by a bypass (an intentional diversion of control equipment), then the bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
- d. at all times, the facility was operated in a manner consistent with good engineering and maintenance practices and manufacturers' specifications and recommendations for minimizing emissions;
- e. the frequency and duration of operation in startup or shutdown mode was minimized to the maximum extent practicable and consistent with good engineering and maintenance practices and manufacturers' specifications and recommendations;
- f. all possible steps were taken to minimize the excess emissions in accordance with approved plans, QA/QC protocols, manufacturers' specifications and recommendations, and good engineering and maintenance practices;

- g. all emissions monitoring systems were kept in operation if at all possible and in accordance with approved plans, QA/QC protocols, manufacturers' specifications and recommendations, and good engineering and maintenance practices;
- h. Defendants' actions during the period of excess emissions were documented by properly signed, contemporaneous operating logs, or other relevant evidence; and
- i. Defendants properly and promptly notified EPA as required by this Consent Decree.

112. To assert an affirmative defense for startup or shutdown under Paragraph 112, Defendants shall submit actual emissions data for the Day the excess emissions from startup or shutdown occurred and the 29-Day period following the Day the excess emissions from startup or shutdown occurred. Defendants may, if elected, submit emissions data for the same 30-Day period but that excludes the excess emissions.

113. If excess emissions occurred due to a Malfunction during routine startup and shutdown, then those instances shall be treated as other Malfunctions subject to Paragraph 110.

114. For an affirmative defense under Paragraphs 110 and 112, Defendants, bearing the burden of proof, shall demonstrate, through submission of the data and information under the reporting provisions of this Section, that all reasonable and practicable measures in accordance with good engineering and maintenance practices and within Defendants' control were implemented to prevent the occurrence of the excess emissions.

115. Defendants shall provide notice to United States in writing of Defendants' intent to assert an affirmative defense for Malfunction, startup, or shutdown under Paragraphs 110 and 112, as soon as practicable, but in no event later than 21 Days following

the date of the Malfunction, startup or shutdown. This notice shall be submitted pursuant to the provisions of Section XIX (Notices). The notice shall contain:

- a. the identity of each stack or other emission point where the excess emissions occurred;
- b. the magnitude of the excess emissions expressed in lb/mmBTU and the operating data and calculations used in determining the magnitude of the excess emissions;
- c. the time and duration or expected duration of the excess emissions or failure to Continuously Operate;
- d. the identity of the equipment causing the excess emissions or failure to Continuously Operate;
- e. the nature and suspected cause of the excess emissions or failure to Continuously Operate;
- f. the steps taken, if the excess emissions or failure to Continuously Operate were the result of a Malfunction, to remedy the Malfunction and the steps taken or planned to prevent the recurrence of the Malfunction;
- g. the steps that were or are being taken to limit the excess emissions or limit the duration of the failure to Continuously Operate; and
- h. if applicable, a list of the steps taken to comply with permit conditions governing Unit operation during periods of startup, shutdown, and/or Malfunction.

116. A Malfunction, startup, or shutdown shall not constitute a Force Majeure Event unless the Malfunction, startup, or shutdown also meets the definition of a Force Majeure Event, as provided in Section XV (Force Majeure).

117. The affirmative defense provided herein is only an affirmative defense to stipulated penalties for violations of this Consent Decree, and not a defense to any civil or administrative action for injunctive relief.

XV. FORCE MAJEURE

118. For purposes of this Consent Decree, a “Force Majeure Event” shall mean an event that has been or will be caused by circumstances beyond the control of Defendants, its contractors, or any entity controlled by Defendants that delays compliance with any provision of this Consent Decree or otherwise causes a violation of any provision of this Consent Decree despite Defendants’ best efforts to fulfill the obligation. “Best efforts to fulfill the obligation” include using the best efforts to anticipate any potential Force Majeure Event and to address the effects of any such event (a) as it is occurring and (b) after it has occurred, such that the delay and any adverse environmental effect of the delay or violation is minimized to the greatest extent possible.

119. Notice of Force Majeure Events. If any event occurs or has occurred that may delay compliance with or otherwise cause a violation of any obligation under this Consent Decree, as to which Defendants intend to assert a claim of Force Majeure, Defendants shall notify United States in writing as soon as practicable, but in no event later than 21 Days following the date Defendants first knew, or by the exercise of due diligence should have known, that the event caused or may cause such delay or violation. In this notice, Defendants shall reference this Paragraph of this Consent Decree and describe the anticipated length of time that the delay or violation may persist; the cause or causes of the delay or violation; all measures taken or to be taken by Defendants to prevent or minimize the delay or violation; the schedule by which Defendants propose to implement those

measures; and Defendants' rationale for attributing the delay or violation to a Force Majeure Event. Defendants shall include with any notice all available documentation supporting the claim that the delay was attributable to a Force Majeure Event. Defendants shall adopt all reasonable measures to avoid or minimize such delays or violations. Defendants shall be deemed to know of any circumstance which Defendants, its contractors, or any entity controlled by Defendants knew or should have known.

120. Failure to Give Notice. If Defendants fail to comply with the notice requirements of this Section, the United States may void Defendants' claim for Force Majeure as to the specific event for which Defendants have failed to comply with such notice requirement.

121. United States' Response. The United States shall notify Defendants in writing regarding Defendants' claim of Force Majeure within 30 Days after receipt of the notice provided in Paragraph 120. If the United States agrees that a delay in performance has been or will be caused by a Force Majeure Event, the United States and Defendants shall stipulate to an extension of deadline(s) for performance of the affected compliance requirement(s) by a period equal to the delay actually caused by the event. In such circumstances, an appropriate modification shall be made pursuant to Section XXIII (Modification) of this Consent Decree.

122. Disagreement. If the United States does not accept Defendants' claim of Force Majeure, or if the United States and Defendants cannot agree on the length of the delay actually caused by the Force Majeure Event, the matter shall be resolved in accordance with Section XVI (Dispute Resolution) of this Consent Decree.

123. Burden of Proof. In any dispute regarding Force Majeure, Defendants shall bear the burden of proving that any delay in performance or any other violation of any requirement of this Consent Decree was caused by or will be caused by a Force Majeure Event. Defendants shall also bear the burden of proving by a preponderance of the evidence that Defendants gave the notice required by this Section and the burden of proving the anticipated duration and extent of any delay(s) attributable to a Force Majeure Event. An extension of one compliance date based on a particular event may, but will not necessarily, result in an extension of a subsequent compliance date.

124. Events Excluded. Unanticipated or increased costs or expenses associated with the performance of Defendants' obligations under this Consent Decree shall not constitute a Force Majeure Event. Force Majeure also does not include Defendants' financial inability to perform any obligation under this Consent Decree.

125. Potential Force Majeure Events. The Parties agree that, depending upon the circumstances related to an event and the Defendants' response to such circumstances, the kinds of events listed below are among those that could qualify as Force Majeure Events within the meaning of this Section: construction, labor, or equipment delays; Malfunction of a Unit or emission control or monitoring device; unanticipated coal supply or pollution control reagent delivery interruptions; acts of God; acts of war or terrorism; the need of Defendants to supply electricity in response to a system-wide (state-wide or regional) emergency that temporarily precludes compliance with an Emission Rate, a Tonnage Limitation, or the duty to Continuously Operate a NO_x, SO₂, or PM control device. Depending upon the circumstances and Defendants' response to such circumstances, failure of a permitting authority to issue a necessary permit in a timely fashion may constitute a

Force Majeure Event where the failure of the permitting authority to act is beyond the control of Defendants and Defendants have taken all steps available to obtain the necessary permit, including without limitation, submitting a complete permit application, responding to requests for additional information by the permitting authority in a timely fashion, and accepting lawful permit terms and conditions after expeditiously exhausting any legal rights to appeal terms and conditions imposed by the permitting authority.

126. As part of the resolution of any matter submitted to this Court under Section XVI (Dispute Resolution) regarding a claim of Force Majeure, the United States and Defendants by agreement, or this Court by order, may in appropriate circumstances extend or modify the schedule for completion of work under this Consent Decree to account for the delay in the work that occurred as a result of any delay agreed to by the United States or approved by the Court. Defendants shall be liable for stipulated penalties pursuant to Section XIV (Stipulated Penalties) for its failure thereafter to complete the work in accordance with the extended or modified schedule (provided that Defendants shall not be precluded from making a further claim of Force Majeure with regard to meeting any such extended or modified schedule).

XVI. DISPUTE RESOLUTION

127. The dispute resolution procedure provided by this Section shall be available to resolve all disputes arising under this Consent Decree, provided that the Party invoking such procedure has first made a good faith attempt to resolve the matter with the other Party. The provisions of this Section XVI shall be the sole and exclusive mechanism to resolve disputes arising under or with respect to this Consent Decree.

128. The dispute resolution procedure required herein shall be invoked by one Party giving written notice to the other Party advising of a dispute pursuant to this Section. The notice shall describe the nature of the dispute and shall state the noticing Party's position with regard to such dispute. The Party receiving such a notice shall acknowledge receipt of the notice, and the Parties in dispute shall expeditiously schedule a meeting to discuss the dispute informally not later than 14 Days following receipt of such notice.

129. Disputes submitted to dispute resolution under this Section shall, in the first instance, be the subject of informal negotiations between the Parties. Such period of informal negotiations shall not extend beyond 30 Days from the date of the first meeting between the Parties' representatives unless they agree in writing to shorten or extend this period.

130. If the Parties are unable to reach agreement during the informal negotiation period, the United States shall provide AIDEA and GVEA with a written summary of their position regarding the dispute. The written position provided by the United States shall be considered binding unless, within 45 Days thereafter, Defendants seek judicial resolution of the dispute by filing a petition with this Court. The United States may submit a response to the petition within 45 Days of filing.

131. This court shall not draw any inferences nor establish any presumptions adverse to either Party as a result of invocation of this Section or the Parties' inability to reach agreement.

132. The time periods set out in this Section may be shortened or lengthened upon motion to the Court of one of the Parties to the dispute, explaining the Party's basis for seeking such a scheduling modification.

133. The invocation of dispute resolution procedures shall not, by itself, extend, postpone, or affect any obligation of Defendants under this Consent Decree, unless and until final resolution of the dispute so provides. As part of the resolution of any dispute under this Section, in appropriate circumstances the Parties may agree, or this Court may order, an extension or modification of the schedule for the completion of the activities required under this Consent Decree to account for the delay that occurred as a result of dispute resolution. Defendants shall be liable for stipulated penalties pursuant to Section XIV (Stipulated Penalties) for their failure thereafter to complete the work in accordance with the extended or modified schedule.

XVII. PERMITS

134. Unless expressly stated otherwise in this Consent Decree, in any instance where otherwise applicable law or this Consent Decree requires GVEA to secure a permit to authorize construction or operation of any device, including all preconstruction, construction, and operating permits required under State law, GVEA shall make such application in a timely manner. EPA will use best efforts to review expeditiously, to the extent applicable, all permit applications submitted by GVEA to meet the requirements of this Consent Decree.

135. When permits are required, GVEA shall complete and submit applications for such permits to the applicable State agency to allow sufficient time for all legally required processing and review of the permit request, including requests for additional information by the applicable State agency. Any failure by GVEA to submit a timely permit application for a GVEA Unit, as required by permitting requirements under state and/or federal regulations, shall bar any use by GVEA of Section XV (Force Majeure) of this Consent Decree where a Force Majeure claim is based on permitting delays.

136. Notwithstanding the reference to Defendants' Title V Permit in this Consent Decree, the enforcement of such permit shall be in accordance with its own terms and the Act and its implementing regulations, and nothing in this Decree shall be construed to relax any terms and conditions in the Title V Permit. Defendants' Title V Permit shall not be enforceable under this Consent Decree, although any term or limit established by or under this Consent Decree shall be enforceable under this Consent Decree regardless of whether such term has or will become part of a Title V Permit, subject to the terms of Section XXVII (Conditional Termination of Enforcement Under Consent Decree) of this Consent Decree.

137. Within 180 Days after the Date of Entry of this Consent Decree, Defendants shall apply to modify the Title V Permit, to include a schedule for all Unit-specific and plant-specific performance, operational, maintenance, and control technology requirements established by this Consent Decree including, but not limited to, any (a) 30-Day Rolling Average NO_x Emission Rate, (b) 30-Day Rolling Average SO₂ Emission Rate, (c) Unit 1 and Unit 2 Annual Tonnage Limitation, (d) 30-Day Rolling Average filterable PM Emission Rate, (e) installation of controls; and (f) Retirement of any Unit as required or elected under this Consent Decree.

138. Within 365 days from the Date of Entry of this Consent Decree, Defendants shall either apply to permanently include the requirements and limitations enumerated in this Consent Decree into a federally enforceable non-Title V permit or request a site-specific revision to the Alaska SIP to include the requirements and limitations enumerated in this Consent Decree. The permit application or Alaska SIP revision request shall require compliance with the following: any applicable (a) 30-Day Rolling Average NO_x Emission Rate; (b) 30-Day Rolling Average SO₂ Emission Rate; (c) Unit 1 and Unit 2

Annual Tonnage Limitations; (d) 30 Day Rolling Average filterable PM Emission Rate; (e) installation of controls; and (f) the Retirement of any Unit as required or elected under this Consent Decree.

139. Defendants shall provide the United States with a copy of each application for a federally enforceable permit or Alaska SIP revision submitted pursuant to Paragraph 139, as well as a copy of any permit proposed as a result of such application, to allow for timely participation in any public comment opportunity.

140. Prior to conditional termination of enforcement through this Consent Decree, Defendants shall obtain enforceable provisions in its Title V permits that incorporate all Unit-specific performance, operational, maintenance, and control technology requirements established by this Consent Decree including, but not limited to, any (a) 30-Day Rolling Average NO_x Emission Rate; (b) 30-Day Rolling Average SO₂ Emission Rate; (c) Unit 1 and Unit 2 Annual Tonnage Limitations; (d) 30-Day Rolling Average filterable PM Emission Rate; (e) installation of controls; and (f) the election to retire or retrofit any Unit as required or elected under this Decree.

141. If AIDEA proposes to sell or transfer to GVEA part or all of its Operational or Ownership Interest of Unit 2, AIDEA shall comply with the requirements of Section XX (Sales or Transfers of Operational or Ownership Interests) of this Consent Decree with regard to that Operational or Ownership Interest prior to any such sale or transfer.

142. If AIDEA or GVEA proposes to sell or transfer to an entity unrelated to AIDEA and GVEA (“Third Party Purchaser”) part or all of its Operational or Ownership Interest of Units covered under this Consent Decree, AIDEA and GVEA shall comply with

the requirements of Section XX (Sales or Transfers of Operational or Ownership Interests) of this Consent Decree with regard to that Operational or Ownership Interest prior to any such sale or transfer.

XVIII. INFORMATION COLLECTION AND RETENTION

143. Any authorized representative of the United States, including its attorneys, contractors, and consultants, upon presentation of credentials, shall have a right of entry to the Healy Power Plant at any reasonable time for the purpose of:

- a. monitoring the progress of activities required under this Consent Decree;
- b. verifying any data or information submitted to the United States in accordance with the terms of this Consent Decree;
- c. obtaining samples and, upon request, splits of any samples taken by AIDEA or GVEA or its representatives, contractors, or consultants; and
- d. assessing Defendants' compliance with this Consent Decree.

144. From the Date of Entry until five years after the termination of this Consent Decree, Defendants shall retain, and instruct its contractors and agents to preserve, all non-identical copies of all records and documents (including records and documents in electronic form) that are in its or its contractors' or agents' possession or control, and that directly relate to Defendants' performance of their obligations under this Consent Decree. This record retention requirement shall apply regardless of any corporate document retention policy to the contrary. At any time during the information retention period, upon request by the United States, Defendants shall provide copies of any documents, records or other information required to be maintained under this Paragraph.

145. All information and documents submitted by Defendants pursuant to this Consent Decree shall be subject to any requests under applicable law providing public disclosure of documents unless (a) the information and documents are subject to legal privileges or protection or (b) Defendants claims and substantiates in accordance with 40 C.F.R. Part 2 that the information and documents contain confidential business information.

146. Nothing in this Consent Decree shall limit the authority of EPA to conduct tests and right of entry, or right to obtain information under Section 114 of the Act, 42 U.S.C. § 7414, or any other applicable federal laws, regulations, or permits, nor does it limit or affect any duty or obligation of the Defendants to maintain documents, records or other information imposed by applicable federal or state laws, regulations or permits.

XIX. NOTICES

147. Unless otherwise provided herein, whenever notifications, submissions, or communications are required by this Consent Decree, they shall be made in writing and addressed as follows:

As to the United States of America:

(if by mail service)

Chief, Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
P.O. Box 7611, Ben Franklin Station
Washington, DC 20044-7611
DJ# 90-5-2-1-10163

(if by commercial delivery service)

Chief, Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
ENRD Mailroom, Room 2121
601 D Street, NW
Washington, DC 20004

DJ# 90-5-2-1-10163

and

(if by mail service)
Director, Air Enforcement Division
Office of Enforcement and Compliance Assurance
U.S. Environmental Protection Agency
Mail Code 2242A
1200 Pennsylvania Avenue, NW
Washington, DC 20460

(if by commercial delivery service)
Director, Air Enforcement Division
Office of Enforcement and Compliance Assurance
U.S. Environmental Protection Agency
Ariel Rios South Building, Room 1119
1200 Pennsylvania Avenue, NW
Washington, DC 20004

and

Manager of Air/RCRA Compliance Unit
EPA Region 10
Air /RCRA Compliance Unit
U.S.EPA Region 10
1200 Sixth Avenue Ste. 900
Seattle, WA 98101

As to GVEA:
President & CEO
Golden Valley Electric Association, Inc.
PO Box 71249
Fairbanks, AK 99707-1249

and

Vice President of Power Supply Golden Valley Electric
Association, Inc.
PO Box 71249
Fairbanks, AK 99707-1249

As to AIDEA:

Executive Director

Alaska Industrial Development and Export Authority
813 West Northern Lights Blvd.
Anchorage, AK 99503

and

State of Alaska Department of Law
Counsel for the Alaska Industrial Development and
Export Authority
P.O. Box 110300
Juneau, AK 99811

148. All notifications, communications, or submissions made pursuant to this Section shall be sent either by: (a) overnight mail or overnight delivery service with signature required for delivery, (b) certified or registered mail, return receipt requested, or (c) email. All notifications, communications, and transmissions (a) sent by overnight, certified, or registered mail shall be deemed submitted on the date they are postmarked, (b) sent by overnight delivery service shall be deemed submitted on the date they are delivered to the delivery service or (c) sent by email shall be deemed submitted on the date they are electronically transmitted. Defendants may provide the notifications, communications, or submissions made pursuant to this Section electronically or in hard copy.

149. Any Party may change either the notice recipient or the address for providing notices to it by serving the other Parties with a notice setting forth such new notice recipient or address.

XX. SALES OR TRANSFERS OF OPERATIONAL OR OWNERSHIP INTERESTS

150. Prior to any transfer of an ownership or operational interest in Unit 2, Defendants shall remain jointly and severally liable to the United States for the obligations of this Consent Decree unless such obligation is the sole responsibility of GVEA under this

Consent Decree for Unit 1. The United States and the Defendants recognize that AIDEA and GVEA have been in negotiations to transfer ownership of Unit 2 from AIDEA to GVEA. The transfer has not yet occurred. Without further approval of the Court or the United States, AIDEA's obligations and its Party status under this Consent Decree shall immediately terminate upon the sale or transfer of Unit 2 from AIDEA to GVEA, provided that AIDEA and GVEA file a notice with the Court certifying that (1) the transfer has occurred, (2) any accrued stipulated penalties are paid in full, and (3) GVEA shall remain liable to the United States for the obligations of this Consent Decree applicable to the transferred or purchased Operational or Ownership Interest. So long as the requirements of this Consent Decree are met, this Consent Decree shall not be construed to impede the transfer of any Operational or Ownership Interests between GVEA and any Third Party Purchaser. This Consent Decree shall not be construed to prohibit a contractual allocation of the burdens of compliance with this Consent Decree as between AIDEA and GVEA Operational or Ownership Interests.

151. If AIDEA or GVEA proposes to sell or transfer an Operational or Ownership Interest in the Healy Power Plant to another entity (a Third Party Purchaser) AIDEA or GVEA shall advise the Third Party Purchaser in writing of the existence of this Consent Decree prior to such sale or transfer, and shall send a copy of such written notification to the United States pursuant to Section XIX (Notices) of this Consent Decree at least 60 Days before such proposed sale or transfer.

152. No sale or transfer of an Operational or Ownership Interest shall take place before the Third Party Purchaser and the United States have executed, and the Court has approved, a modification pursuant to Section XXIII (Modification) of this Consent Decree making the Third Party Purchaser a party to this Consent Decree and jointly and

severally liable with AIDEA and GVEA for all the requirements of this Consent Decree that may be applicable to the transferred or purchased Operational or Ownership Interests.

153. This Consent Decree shall not be construed to impede the transfer of any Operational or Ownership Interests between AIDEA or GVEA and any Third Party Purchaser so long as the requirements of this Consent Decree are met. This Consent Decree shall not be construed to prohibit a contractual allocation of the burdens of compliance with this Consent Decree as between GVEA and/or AIDEA and any Third Party Purchaser of Operational or Ownership Interests, provided that both AIDEA and/or GVEA and/or such Third Party Purchaser, to the extent they retain any operational or ownership interests, shall remain jointly and severally liable to the United States for the obligations of this Consent Decree applicable to the transferred or purchased Operational or Ownership Interests.

154. If the United States agrees, the United States, the Defendants, and the Third Party Purchaser that has become a party to this Consent Decree pursuant to Paragraph 153 may execute a modification that relieves AIDEA or GVEA of its liability under this Consent Decree for, and makes the Third Party Purchaser liable for, all obligations and liabilities applicable to the purchased or transferred Operational or Ownership Interests. Notwithstanding the foregoing, however, AIDEA and GVEA may not assign, and may not be released from, any obligation under this Consent Decree that is not specific to the purchased or transferred Operational or Ownership Interests, including the obligations set forth in Sections IX (Environmental Mitigation Project) and IV (Civil Penalty). AIDEA and GVEA may propose and the United States may agree to restrict the scope of the joint and several liability of any purchaser or transferee for any obligations of this Consent Decree that are not

specific to the transferred or purchased Operational or Ownership Interests, to the extent such obligations may be adequately separated in an enforceable manner.

155. Paragraphs 152 through 155 of this Consent Decree do not apply if an Ownership Interest is transferred solely as collateral security in order to consummate a financing arrangement (not including a sale-leaseback), so long as AIDEA and GVEA: (a) remain the operator (as that term is used and interpreted under the Act) of the subject Unit(s); (b) remain subject to and liable for all obligations and liabilities of this Consent Decree; and (c) supply the United States with the following certification within 30 Days after the transfer:

“Certification of Change in Ownership Interest Solely for Purpose of Consummating Financing. We, the Chief Executive Officer and General Counsel of [insert name of Owner], hereby jointly certify under Title 18 U.S.C. Section 1001, on our own behalf and on behalf of [insert name of Owner], that any change in [insert name of Owner]’s Ownership Interest in any Unit that is caused by the sale or transfer as collateral security of such Ownership Interest in such Unit(s) pursuant to the financing agreement consummated on [insert applicable date] between [insert name of Owner] and [insert applicable entity]: a) is made solely for the purpose of providing collateral security in order to consummate a financing arrangement; b) does not impair [insert name of Owner]’s ability, legally or otherwise, to comply timely with all terms and provisions of the Consent Decree entered in *United States v. Golden Valley Electric Association et al.*, Civil Action_____; c) does not affect [insert name of Owner]’s operational control of any Unit covered by that Consent Decree in a manner that is inconsistent with [insert name of Owner]’s performance of its obligations under the Consent Decree; and d) in no way affects the status of [insert name of Owner]’s obligations or liabilities under that Consent Decree.”

XXI. EFFECTIVE DATE

156. The effective date of this Consent Decree shall be the Date of Entry.

XII. RETENTION OF JURISDICTION

157. The Court shall retain jurisdiction of this case after entry of this Consent Decree to enforce compliance with the terms and conditions of this Consent Decree and to take any action necessary or appropriate for the interpretation, construction, execution, or

modification of the Consent Decree, or for adjudication of disputes. During the term of this Consent Decree, any Party to this Consent Decree may apply to the Court for any relief necessary to construe or effectuate this Consent Decree.

XIII. MODIFICATION

158. The terms of this Consent Decree may be modified only by a subsequent written agreement signed by United States and Defendants. Where the modification constitutes a material change to any term of this Consent Decree, it shall be effective only upon approval by the Court.

XXIV. GENERAL PROVISIONS

159. When this Consent Decree specifies that Defendants shall achieve and maintain a 30-Day Rolling Average Emission Rate, the Parties expressly recognize that compliance with such 30-Day Rolling Average Emission Rate shall commence immediately upon the date specified and that compliance as of such specified date (e.g., December 30) shall be determined based on data from that date and the 29 prior Unit Operating Days.

160. This Consent Decree is not a permit. Compliance with the terms of this Consent Decree does not guarantee compliance with all applicable federal, state, or local laws or regulations. The emission rates and removal efficiencies set forth herein do not relieve Defendants from any obligation to comply with other state and federal requirements under the Act.

161. This Consent Decree does not apply to any claim(s) of alleged criminal liability.

162. In any subsequent administrative or judicial action initiated by the United States for injunctive relief or civil penalties relating to Unit 1 or Unit 2 as covered by this

Consent Decree, neither AIDEA nor GVEA shall assert any defense or claim based upon principles of waiver, res judicata, collateral estoppel, issue preclusion, claim preclusion, or claim splitting, or any other defense based upon the contention that the claims raised by the United States in the subsequent proceeding were brought, or should have been brought, in the instant case; provided, however, that nothing in this Paragraph is intended to affect the validity of Section XI (Resolution of Civil Claims).

163. Nothing in this Consent Decree shall relieve Defendants of their obligation to comply with all applicable federal, state, and local laws and regulations, including, but not limited to, the Clean Water Act and the National Pollutant Discharge Elimination System (NPDES) implementing regulations, National Ambient Air Quality Standards, the National Emission Standards for Hazardous Air Pollutants From Coal and Oil-Fired Electric Utility Steam Generating Units (Utility MACT or MATS), the Standards of Performance for Fossil-Fuel-Fired Electric Utility, Industrial-Commercial-Institutional, and Small Industrial Commercial-Institutional Steam Generating Units (Utility NSPS), and BART requirements set forth in the Alaska SIP. Nothing in this Consent Decree shall be construed to provide any relief from the emission limits or deadlines for the installation of pollution controls specified in these regulations.

164. Subject to the provisions in Section XI (Resolution of Civil Claims), XIV (Stipulated Penalties), and in Section XVI (Dispute Resolution), nothing contained in this Consent Decree shall be construed to prevent or limit the rights of the United States to obtain penalties or injunctive relief under the Act or other federal, state, or local statutes, regulations, or permits.

165. Nothing in this Consent Decree shall be interpreted or construed to relieve Defendants of their obligations under the Memorandum of Agreement that it signed in 1993 with the U.S. Department of the Interior, National Park Service, concerning the Healy Clean Coal Project, Healy Alaska.

166. Each limit and/or other requirement established by or under this Consent Decree is a separate, independent requirement.

167. Performance standards, emissions limits, and other quantitative standards set by or under this Consent Decree must be met to the number of significant digits in which the standard or limit is expressed. For example, an Emission Rate of 0.100 is not met if the actual Emission Rate is 0.101. Defendants shall round the fourth significant digit to the nearest third significant digit, or the third significant digit to the nearest second significant digit, depending upon whether the limit is expressed to three or two significant digits. For example, if an actual Emission Rate is 0.1004, that shall be reported as 0.100, and shall be in compliance with an Emission Rate of 0.100, and if an actual Emission Rate is 0.1005, that shall be reported as 0.101, and shall not be in compliance with an Emission Rate of 0.100. Defendants shall report data to the number of significant digits in which the standard or limit is expressed.

168. This Consent Decree does not limit, enlarge, or affect the rights of any Party to this Consent Decree as against any third parties.

169. This Consent Decree constitutes the final, complete, and exclusive agreement and understanding between the Parties with respect to the settlement embodied in this Consent Decree, and supersedes all prior agreements and understandings between the Parties related to the subject matter herein. No document, representation, inducement,

agreement, understanding, or promise constitutes any part of this Consent Decree or the settlement it represents, nor shall they be used in construing the terms of this Consent Decree.

170. Except as provided below, each Party to this action shall bear its own costs and attorneys' fees.

XXV. SIGNATORIES AND SERVICE

171. Each undersigned representative of AIDEA, GVEA and the Assistant Attorney General for the Environment and Natural Resources Division of the United States Department of Justice, certifies that he or she is fully authorized to enter into the terms and conditions of this Consent Decree and to execute and legally bind to this document the Party he or she represents.

172. This Consent Decree may be signed in counterparts, and such counterpart signature pages shall be given full force and effect.

173. Each Party hereby agrees to accept service of process by mail with respect to all matters arising under or relating to this Consent Decree and to waive the formal service requirements set forth in Rule 4 of the Federal Rules of Civil Procedure and any applicable Local Rules of this Court including, but not limited to, service of a summons.

174. Unless otherwise ordered by the Court, the United States agrees that Defendants will not be required to file any answer or other pleading responsive to the United States' concurrently filed Complaint in this matter until and unless the Court expressly declines to enter this Consent Decree, in which case Defendants shall have no less than 45 Days after receiving notice of such express declination to file an answer or other pleading in response to the Complaint.

XXVI. PUBLIC COMMENT/AGENCY REVIEW

175. This Consent Decree shall be lodged with the Court for a period of not less than 30 Days for public notice and comment in accordance with 28 C.F.R. § 50.7. The United States reserves the right to withdraw or withhold its consent if the comments regarding the Consent Decree disclose facts or considerations indicating that the Consent Decree is inappropriate, improper, or inadequate. Defendants consent to entry of this Consent Decree without further notice and agree not to withdraw from or oppose entry of this Consent Decree by the Court or to challenge any provision of this Consent Decree, unless the United States has notified Defendants in writing that it no longer supports entry of this Consent Decree.

XXVII. CONDITIONAL TERMINATION OF ENFORCEMENT UNDER CONSENT DECREE

176. Conditional Termination of Enforcement Through this Consent Decree.

Subject to the provisions of Paragraph 178, after Defendants:

- a. have successfully completed construction, and have maintained operation, of all pollution controls as required by this Consent Decree for a period of two years and have successfully completed all actions necessary to Retire any Unit required or elected to be Retired as required by this Consent Decree; and
- b. have obtained all the final permits and/or site-specific Alaska SIP revisions (i) as required by Section XVII (Permits) of this Consent Decree and (ii) that include as federally enforceable permit terms or Alaska SIP provisions all Unit-specific performance, operational, maintenance, and control technology requirements established by this Consent Decree;

then Defendants may so certify these facts to the United States and this Court. If the United States do not object in writing with specific reasons within 45 Days of receipt of Defendants' certification, then, for any violations of this Consent Decree that occur after the filing of notice, the United States shall pursue enforcement of these requirements through the applicable permits and/or other enforcement authorities and not through this Consent Decree.

177. Resort to Enforcement Under this Consent Decree. Notwithstanding Paragraph 177, if enforcement of a provision in this Consent Decree cannot be pursued by the United States under the Alaska SIP or applicable permit(s) issued pursuant to the Act or its implementing regulations ("CAA Permit"), or if a Consent Decree requirement was intended to be part of the Alaska SIP or CAA Permit but did not become or remain part of such SIP or permit, then such requirement may be enforced under the terms of this Consent Decree at any time.

XXVIII. FINAL JUDGMENT

178. Upon approval and entry of this Consent Decree by the Court, this Consent Decree shall constitute a final judgment between the United States, AIDEA and GVEA.

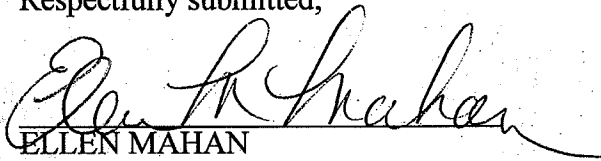
IT IS SO ORDERED this 19th day of November, 2012.

s/RALPH R. BEISTLINE
UNITED STATES DISTRICT JUDGE

Signature Page for *United States of America v. Golden Valley Electric Assoc. et al.* Consent Decree

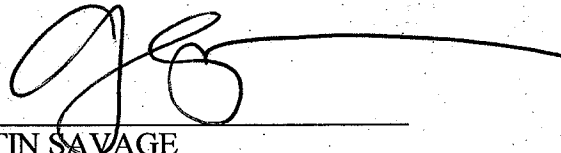
FOR THE UNITED STATES DEPARTMENT OF JUSTICE

Respectfully submitted,



ELLEN MAHAN

Deputy Section Chief
Environmental Enforcement Section
Environment and Natural Resources
Division
United States Department of Justice



JUSTIN SAVAGE

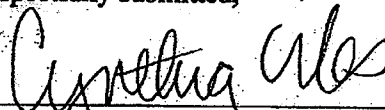
Senior Counsel
Environmental Enforcement Section
Environment and Natural Resources
Division
P.O. Box 7611
Washington, DC 20044-7611
(202) 514-5293

Signature Page for *United States of America v. Golden Valley Electric Assoc. et al* Consent Decree

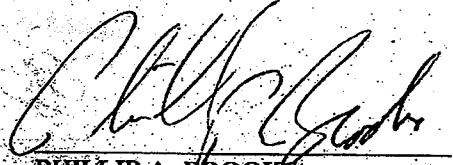
FOR THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Date: 9/27/12

Respectfully submitted,


CYNTHIA GILES
Assistant Administrator
Office of Enforcement and
Compliance Assurance
United States Environmental
Protection Agency

Date: 9/23/12


PHILLIP A. BROOKS
Director, Air Enforcement Division
United States Environmental
Protection Agency

Of Counsel:

SABRINA ARGENTIERI
Attorney-Advisor, Air Enforcement Division
United States Environmental Protection Agency

JULIANE MATTHEWS
Assistant Regional Counsel, Region 10
United States Environmental Protection Agency

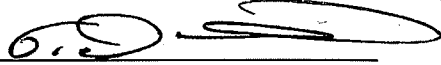
Signature Page for *United States of America v. Golden Valley Electric Assoc. et al.* Consent Decree

FOR GOLDEN VALLEY ELECTRIC ASSOCIATION, INC.

By: 
Cory Borgeson
Interim President & CEO
Golden Valley Electric Association, Inc.

Signature Page for *United States of America v. Golden Valley Electric Assoc. et al.* Consent Decree

FOR ALASKA INDUSTRIAL DEVELOPMENT AND EXPORT AUTHORITY

By: 
Ted Leonard
Executive Director
Alaska Industrial Development and
Export Authority



PO Box 71249, Fairbanks, AK 99707-1249 • (907) 452-1151 • www.gvea.com

Your Touchstone Energy® Cooperative 

March 19, 2015

Nattinee Nipataruedi
State of Alaska Department of Environmental Conservation
Air Permits Program
410 Willoughby Ave, Suite 303
PO Box 11180
Juneau, AK 99811-1800

Email: Nattinee.nipataruedi@alaska.gov

Subject 2013 Emissions Inventory – GVEA North Pole and Zehnder Power Plants

Dear Ms. Nipataruedi:

Please find attached the 2014 Triennial Emission Inventory for Golden Valley Electric Assoc Delta, Healy, North Pole and Zehnder Power Plants. If you have any questions, please contact 451-5627.

Sincerely,

Kristen DuBois
Environmental Officer

cc: Don Caniparoli/CH2M Hill
Louise Brown/CH2M Hill

Enclosures

CERTIFICATION OF TRUTH, ACCURACY, AND COMPLETENESS

"Based on information and belief formed after reasonable inquiry, I certify that the statements in and attached to this document are true, accurate, and complete."

Signature

Lynn N. Thompson
Printed Name

3/19/15
Date

Vice President of Power Supply
Title



ciation's (GVEA)
tact me at (907)

ts and information

March 30, 2022



PO Box 71249, Fairbanks, AK 99707-1249 • (907) 452-1151 • www.gvea.com

Your Touchstone Energy® Cooperative 

RECEIVED

APR 04 2016

ADEC AQ

March 29, 2016

Certified Mail
Return Receipt Requested
7014 3490 0002 1165 8825

ADEC
Air Permits Program
ATTN: Assessable Emissions Estimate
410 Willoughby Ave., Suite 303
PO Box 111800
Juneau, AK 99811-1800

**Subject: Golden Valley Electric Association
FY2017 Assessable Emission Estimates**

Dear Assessable Emissions Technician,

Golden Valley Electric Association (GVEA) submits assessable emission estimates for the following facilities:

Delta Power Plant – AQ0880TVP02
Healy Power Plant – AQ0173MSS01 and AQ0173TVP02 Revision 1
North Pole Power Plant – AQ0110TVP03
Zehnder Facility - AQ0109TVP02

Assessable emission estimates for the Delta Power Plant, North Pole Power Plant, and Zehnder Facility are based on actual emissions from calendar year 2015.

The emission estimate for the Healy Power Plant is based on an alternate calculation method per Condition 12.2d of AQ0173MSS01 and Condition 72.2d of AQ0173TVP02 Revision 1. ADEC approval for the alternative calculation method is attached. Please note that there is not an AP-42 factor available for urea handling, so engineering estimates were used instead.

If you have any questions or would like any additional information please contact me by phone at 907-458-4557 or by email at nmknights@gvea.com. The certification from Lynn Thompson, Vice President of Power Supply follows.

March 30, 2022

Sincerely,

A handwritten signature in blue ink, appearing to read 'Naomi Morton Knight'.

Naomi Morton Knight, P.E.
Environmental Health and Safety Officer

Certification

Based on information and belief formed after reasonable inquiry, I certify that the statements and information in and attached to this document are true, accurate and complete.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Lynn N. Thompson'.

Lynn N. Thompson
Vice President of Power Supply

cc: SLR International

**Golden Valley Electric Association
FY2017 Assessable Emission Estimates**

**Healy Power Plant – AQ0173MSS01
and AQ0173TVP02 Rev 1**

**Table 1. FY2017 Assessable Emissions Summary
Golden Valley Electric Association - Healy Power Plant**

Assessable Emissions - Tons Per Year							
Description	NO_x	CO	PM₁₀	VOC	SO₂	HAPs	Total
Assessable PTE	1,381	1,234	323	23	746	-	3,707

From Condition 12 and Table B-1 of the TAR for Permit AQ0173MSS01 (Worst Case).

	Regulated Air Pollutant Emissions (tons per year)¹					
	NO_x	CO	PM₁₀	VOC	SO₂	HAP
FY2017 Projected Emissions	624.7	953.6	136.9	18.2	688.8	
Total Emissions for Assessable Fee Purposes	625	954	137	18	689	
Use Assessable PTE						0
Assessable Emission Subtotals	625	954	137	18	689	0
Fees Apply to Pollutant?²	Yes	Yes	Yes	Yes	Yes	No
FY2017 Projected Emissions	2,422					
Fee Estimate³	\$104,031					

Notes:

¹ Regulated air pollutant calculations based on emission factors shown in accompanying spreadsheets.

² Fees paid on each pollutant emitted in quantities greater than 10 tpy per 18 AAC 50.410.

³ A fee rate of \$42.95 per ton applies in accordance with 18 AAC 50.410(b)(1).

Table 2. FY2017 Emission Unit Summary
Golden Valley Electric Association - Healy Power Plant

Emission Unit			Operating Scenario	Fuel Type/ Material	Maximum Capacity	2015 Actual Operation	FY2017 Projected Operation
ID	Description	Make/Model					
1	Unit #1	Foster-Wheeler Boiler with ICA Baghouse	Existing Configuration	Coal/ULSD	327 MMBtu/hr	8,065.2 hours	2,952 hours ¹
			With SNCR			N/A	2,280 hours ¹
			With SNCR and 18 months after 1" fire of coal				3,528 hours ¹
2	HCCP	TRW Integrated Entrained Combustion System with SDA and Pulse Jet Fabric Filter	Existing Configuration	Coal/ULSD	658 MMBtu/hr	2,201.0 hours	2,952 hours ²
			With SCR			N/A	5,808 hours ²
3	Auxiliary Heater #1	Cleaver Brooks CB 300-15 Standby Process and Building Heater	Not Applicable	ULSD	12.554 MMBtu/hr ³	14,352.9 gallons	Use 2015 Actual Operation
4	Auxiliary Heater #2	Cleaver Brooks CB 800 Standby Process and Building Heater	Not Applicable	ULSD	23 MMBtu/hr	2,760.8 gallons	Use 2015 Actual Operation
5	Diesel Generator Engine #1	EMD 20-645-E4	Not Applicable	ULSD	2.75 MW	218.4 gallons	Use 2015 Actual Operation
6	Crusher System (Dust Collector #1)	Multiple Components	Not Applicable	Coal	400 ton/hr	N/A	8,760.0 hours ⁴
7	Limestone Storage Silo	Limestone Storage Silo with Baghouse	Not Applicable	Limestone	314 ton/hr	210.8 hours	0 hours ⁵
8	Flyash Storage Silo	Flyash Storage Silo with Baghouse	Not Applicable	Flyash	570 ton/hr	2,195.0 hours	Use 2015 Actual Operation
9	Sodium Bicarbonate Handling System	Mill, Sodium Bicarbonate Silo, and Baghouse	Not Applicable	Sodium Bicarbonate	50 ton/hr	2,195.0 hours	Use 2015 Actual Operation
10	Crusher System (Dust Collector #2)	Multiple Components	Not Applicable	Coal	240 ton/hr	N/A	8,760 hours ⁴
13	Firewater Pump Engine	Caterpillar 3406B	Not Applicable	ULSD	264 hp	15 hours	Use 2015 Actual Operation
TBD	Lime Storage Silo #1	Unknown	Not Applicable	Lime	1,800 acfm	N/A	116 hr/yr ⁵
TBD	Lime Storage Silo #2	Unknown	Not Applicable	Lime	1,800 acfm	N/A	116 hr/yr ⁵
11	Haul Road	Not Applicable	Not Applicable	Fugitive Dust	0.25 mile	8,760 hours	Use 2015 Actual Operation
12	Coal Storage Pile	Not Applicable	Not Applicable	Coal	30 day supply	8,760 hours	Use 2015 Actual Operation
N/A	Ash Pile	Not Applicable	Not Applicable	Flyash, Bottom Ash, and Slag	30 days	8,760 hours	Use 2015 Actual Operation
N/A	AST diesel tanks (2)	Unknown	Not Applicable	ULSD	25,000 gallons	8,760 hours	Use 2015 Actual Operation
N/A	AST diesel tank	Unknown	Not Applicable	ULSD	2,000 gallons	8,760 hours	Use 2015 Actual Operation
N/A	AST diesel tank	Unknown	Not Applicable	ULSD	425 gallons	8,760 hours	Use 2015 Actual Operation
N/A	AST diesel tank	Unknown	Not Applicable	ULSD	300 gallons	8,760 hours	Use 2015 Actual Operation
N/A	Central Vac (3)	Turbo Tron	Not Applicable	Coal	900 acfm ⁷	1,095.0 hours ⁸	Use 2015 Actual Operation

Emission Unit			Operating Scenario	Fuel Type/ Material	Maximum Capacity	2015 Actual Operation	FY2017 Projected Operation
ID	Description	Make/Model					
N/A	Urea Rail Car Unloading Bin Vent Filter	Unknown	Not Applicable	Urea	1,500 acfm	N/A	106 hr/yr ⁹
N/A	Urea Storage Silo A/B Bin Vent Filter	Unknown	Not Applicable	Urea	1,500 acfm	N/A	133 hr/yr ¹⁰
N/A	Urea Conveyor to Dissolver Tank Bin Vent Filter	Unknown	Not Applicable	Urea	400 acfm	N/A	332 hr/yr ¹¹
N/A	Lime Railcar Unloading Bin Vent Filter	Unknown	Not Applicable	Lime	1,500 acfm	N/A	384 hr/yr ⁶
N/A	Sodium Bicarbonate Unloading Portable Baghouse	Unknown	Not Applicable	Sodium Bicarbonate	850 scfm	N/A	133 hr/yr ⁶

Notes:

¹ FY2017 operating hours are projected using the existing configuration from July 1, 2016 through October 31, 2016, the operation of SNCR from October 31, 2016 through February 3, 2017, and the use of SNCR and emission limitations applicable 18 months after the first fire of coal from February 4, 2017 through June 30, 2017.

² FY2017 operating hours are projected using the existing configuration from July 1, 2016 through October 31, 2016, and the operation of SCR from October 31, 2016 through June 30, 2017.

³ The heat input rating of this unit is 12.554 MMBtu/hr as indicated on the nameplate.

⁴ Projected operation of 8,760 hours is assumed for FY2017 because calendar year 2015 operation is not representative of anticipated operation in FY2017.

⁵ The limestone storage silo will not be in service during FY2017. Lime Storage Silo #1 and Lime Storage Silo #2 will be used instead.

⁶ Estimated maximum annual use.

⁷ Engineering estimate.

⁸ Projected operation of 1,095 hours is assumed for FY2017 with each of the three units operating one hour per day.

⁹ The estimated maximum annual use is 160 hr/yr. This emission unit will not be used until the SCR system is in service. Projected FY2017 operating hours were determined as follows:

Projected FY2017 Hours = (160 hr/yr) x (5,808 hours during FY2017 with SCR system in service) / (8,760 hours during FY2017)

¹⁰ The estimated maximum annual use is 200 hr/yr. This emission unit will not be used until the SCR system is in service. Projected FY2017 operating hours were determined as follows:

Projected FY2017 Hours = (200 hr/yr) x (5,808 hours during FY2017 with SCR system in service) / (8,760 hours during FY2017)

¹¹ The estimated maximum annual use is 500 hr/yr. This emission unit will not be used until the SCR system is in service. Projected FY2017 operating hours were determined as follows:

Projected FY2017 Hours = (500 hr/yr) x (5,808 hours during FY2017 with SCR system in service) / (8,760 hours during FY2017)

Table 3. FY2017 Assessable Emission Calculations - Oxides of Nitrogen (NO_x) Emissions
Golden Valley Electric Association - Healy Power Plant

Emission Unit		Maximum Capacity	Operating Scenario	Fuel Type/ Material	Factor Reference	NO _x Emission Factor	FY2017 Projected Operation	FY2017 Projected NO _x Emissions
ID	Description							
1	Unit #1	327 MMBtu/hr	Existing Configuration	Coal/ULSD	2015 CEMS Data	93 lb/hr	2,952 hours	137 tpy
			With SNCR		Consent Decree	0.20 lb/MMBtu	2,280 hours	75 tpy
			With SNCR and 18 months after 1st fire of coal				3,528 hours	115 tpy
2	HCCP	658 MMBtu/hr	Existing Configuration	Coal/ULSD	Proportion based on 2015 Actual Emissions	See note ¹	2,952 hours	144 tpy ¹
3	Auxiliary Heater #1	12.6 MMBtu/hr	Not Applicable	ULSD	AP-42 Table 1.3-1	20 lb/10 ³ gal	14,353 gallons	0.1 tpy
4	Auxiliary Heater #2	23.0 MMBtu/hr	Not Applicable	ULSD	AP-42 Table 1.3-1	20 lb/10 ³ gal	2,761 gallons	0.03 tpy
5	Diesel Generator Engine #1	2.75 MW	Not Applicable	ULSD	AP-42 Table 3.4-1	3.2 lb/MMBtu	218 gallons	0.05 tpy
6	Crusher System (Dust Collector #1)	400 ton/hr	Not Applicable	Coal	N/A	N/A	8,760 hours	0 tpy
7	Limestone Storage Silo	314 ton/hr	Not Applicable	Limestone	N/A	N/A	211 hours	0 tpy
8	Flyash Storage Silo	570 ton/hr	Not Applicable	Flyash	N/A	N/A	2,195 hours	0 tpy
9	Sodium Bicarbonate Handling System	50 ton/hr	Not Applicable	Sodium Bicarbonate	N/A	N/A	2,195 hours	0 tpy
10	Crusher System (Dust Collector #2)	240.0 ton/hr	Not Applicable	Coal	N/A	N/A	8,760 hours	0 tpy
13	Firewater Pump Engine	264 hp	Not Applicable	ULSD	AP-42 Table 3.3-1	0.031 g/hp-hr	15 hours	1.4E-04 tpy
TBD	Lime Storage Silo #1	1,800 acfm	Not Applicable	Lime	N/A	N/A	116 hours	0 tpy
TBD	Lime Storage Silo #2	1,800 acfm	Not Applicable	Lime	N/A	N/A	116 hours	0 tpy
11	Haul Road	0.25 mile	Not Applicable	Fugitive Dust	N/A	N/A	8,760 hours	0 tpy
12	Coal Storage Pile	30 day supply	Not Applicable	Coal	N/A	N/A	8,760 hours	0 tpy
N/A	Ash Pile	30 days	Not Applicable	Flyash, Bottom Ash, and Slag	N/A	N/A	8,760 hours	0 tpy
N/A	AST diesel tanks (2)	25,000 gallons	Not Applicable	ULSD	N/A	N/A	8,760 hours	0 tpy
N/A	AST diesel tank	2,000 gallons	Not Applicable	ULSD	N/A	N/A	8,760 hours	0 tpy
N/A	AST diesel tank	425 gallons	Not Applicable	ULSD	N/A	N/A	8,760 hours	0 tpy
N/A	AST diesel tank	300 gallons	Not Applicable	ULSD	N/A	N/A	8,760 hours	0 tpy
N/A	Central Vac (3)	900 acfm	Not Applicable	Coal	N/A	N/A	1,095 hours	0 tpy
N/A	Urea Rail Car Unloading Bin Vent Filter	1,500 acfm	Not Applicable	Urea	N/A	N/A	106 hours	0 tpy
N/A	Urea Storage Silo A/B Bin Vent Filter	1,500 acfm	Not Applicable	Urea	N/A	N/A	133 hours	0 tpy
N/A	Urea Conveyor to Dissolver Tank Bin Vent Filter	400 acfm	Not Applicable	Urea	N/A	N/A	332 hours	0 tpy
N/A	Lime Railcar Unloading Bin Vent Filter	1,500 acfm	Not Applicable	Lime	N/A	N/A	384 hours	0 tpy
N/A	Sodium Bicarbonate Unloading Portable Baghouse	850 scfm	Not Applicable	Sodium Bicarbonate	N/A	N/A	133 hours	0 tpy
Total Emissions - NO_x								624.7 tpy

Sample Calculations:

Boiler Emissions, tpy = (Emission factor, lb/hr) x (Operation, hr/yr) / (2,000 lb/ton)
 Boiler Emissions, tpy = (Emission factor, lb/MMBtu) x (Capacity, MMBtu/hr) x (Operation, hr/yr) / (2,000 lb/ton)
 Heater Emissions, tpy = (Emission factor, lb/10³ gal) / (Conversion, 1,000 gal/10³ gal) x (Operation, gal/yr) / (2,000 lb/ton)
 Generator Engine Emissions, tpy = (Emission factor, lb/MMBtu) x (Heat Value, Btu/gal) / (Conversion, 1,000,000 Btu/MMBtu) x (Fuel Consumption, gal/yr) / (2,000 lb/ton)
 Firewater Pump Engine Emissions, tpy = (Emission factor, g/hp-hr) x (Capacity, hp) / (Conversion, 453.59237 g/lb) x (Operation, hr/yr) / (2,000 lb/ton)
 HHV No. 2 Diesel = 133,549 Btu/gal (average of 4/27/2015 fuel tests)

¹ Estimated 2016 emissions were determined as follows:

Estimated Emissions, tpy = (2015 Annual Emissions, tpy) / (2015 Annual Operating Hours, hours) * (2016 Estimated Operating Hours, hours)
 EU ID 2 2015 Annual NO_x Emissions = 107.6 tpy, from 2H 2015 FOR (See Table 2 for 2015 Annual Operating Hours)

Table 4. FY2017 Assessable Emission Calculations - Carbon Monoxide (CO) Emissions
Golden Valley Electric Association - Healy Power Plant

Emission Unit		Maximum Capacity	Operating Scenario	Fuel Type/ Material	Factor Reference	CO Emission Factor	FY2017 Projected Operation	FY2017 Projected CO Emissions
ID	Description							
1	Unit #1	327 MMBtu/hr	Existing Configuration	Coal/ULSD	2015 CEMS Data	86.1 lb/hr	2,952 hours	127 tpy
			With SNCR				2,280 hours	98 tpy
			With SNCR and 18 months after 1st fire of coal				3,528 hours	152 tpy
2	HCCP	658 MMBtu/hr	Existing Configuration With SCR	Coal/ULSD	AQ173TVP02, Table B	0.20 lb/MMBtu	2,952 hours	194 tpy
3	Auxiliary Heater #1	12.6 MMBtu/hr	Not Applicable	ULSD	AP-42 Table 1.3-1	5 lb/10 ³ gal	5,808 hours	382 tpy
4	Auxiliary Heater #2	23 MMBtu/hr	Not Applicable	ULSD	AP-42 Table 1.3-1	5 lb/10 ³ gal	14,353 gallons	0.0 tpy
5	Diesel Generator Engine #1	2.75 MW	Not Applicable	ULSD	AP-42 Table 3.4-1	0.85 lb/MMBtu	2,761 gallons	0.01 tpy
6	Crusher System (Dust Collector #1)	400 ton/hr	Not Applicable	Coal	N/A	N/A	218 gallons	0.01 tpy
7	Limestone Storage Silo	314 ton/hr	Not Applicable	Limestone	N/A	N/A	8,760 hours	0 tpy
8	Flyash Storage Silo	570 ton/hr	Not Applicable	Flyash	N/A	N/A	211 hours	0 tpy
9	Sodium Bicarbonate Handling System	50 ton/hr	Not Applicable	Sodium Bicarbonate	N/A	N/A	2,195 hours	0 tpy
10	Crusher System (Dust Collector #2)	240 ton/hr	Not Applicable	Coal	N/A	N/A	2,195 hours	0 tpy
13	Firewater Pump Engine	264 hp	Not Applicable	ULSD	AP-42 Table 3.3-1	6.68E-03 g/hp-hr	8,760 hours	0 tpy
TBD	Lime Storage Silo #1	1,800 acfm	Not Applicable	Lime	N/A	N/A	15 hours	2.9E-05 tpy
TBD	Lime Storage Silo #2	1,800 acfm	Not Applicable	Lime	N/A	N/A	116 hours	0 tpy
11	Haul Road	0.25 mile	Not Applicable	Fugitive Dust	N/A	N/A	116 hours	0 tpy
12	Coal Storage Pile	30 day supply	Not Applicable	Coal	N/A	N/A	8,760 hours	0 tpy
N/A	Ash Pile	30 days	Not Applicable	Flyash, Bottom Ash, and Slag	N/A	N/A	8,760 hours	0 tpy
N/A	AST diesel tanks (2)	25,000 gallons	Not Applicable	ULSD	N/A	N/A	8,760 hours	0 tpy
N/A	AST diesel tank	2,000 gallons	Not Applicable	ULSD	N/A	N/A	8,760 hours	0 tpy
N/A	AST diesel tank	425 gallons	Not Applicable	ULSD	N/A	N/A	8,760 hours	0 tpy
N/A	AST diesel tank	300 gallons	Not Applicable	ULSD	N/A	N/A	8,760 hours	0 tpy
N/A	Central Vac (3)	900 acfm	Not Applicable	Coal	N/A	N/A	8,760 hours	0 tpy
N/A	Urea Rail Car Unloading Bin Vent Filter	1,500 acfm	Not Applicable	Urea	N/A	N/A	1,095 hours	0 tpy
N/A	Urea Storage Silo A/B Bin Vent Filter	1,500 acfm	Not Applicable	Urea	N/A	N/A	106 hours	0 tpy
N/A	Urea Conveyor to Dissolver Tank Bin Vent Filter	400 acfm	Not Applicable	Urea	N/A	N/A	133 hours	0 tpy
N/A	Lime Railcar Unloading Bin Vent Filter	1,500 acfm	Not Applicable	Lime	N/A	N/A	332 hours	0 tpy
N/A	Sodium Bicarbonate Unloading Portable Baghouse	850 scfm	Not Applicable	Sodium Bicarbonate	N/A	N/A	384 hours	0 tpy
Total Emissions - CO								953.6 tpy

Sample Calculations:

Boiler Emissions, tpy= (Emission factor, lb/hr) x (Operation, hr/yr) / (2,000 lb/ton)

Boiler Emissions, tpy= (Emission factor, lb/MMBtu) x (Capacity, MMBtu/hr) x (Operation, hr/yr) / (2,000 lb/ton)

Heater Emissions, tpy= (Emission factor, lb/10³gal) / (Conversion, 1,000 gal/10³gal) x (Operation, gal/yr) / (2,000 lb/ton)

Generator Engine Emissions, tpy= (Emission factor, lb/MMBtu) x (Heat Value, Btu/gal) / (Conversion, 1,000,000 Btu/MMBtu) x (Fuel Consumption, gal/yr) / (2,000 lb/ton)

Firewater Pump Engine Emissions, tpy= (Emission factor, g/hp-hr) x (Capacity, hp) / (Conversion, 453.59237 g/lb) x (Operation, hr/yr) / (2,000 lb/ton)

HHV No. 2 Diesel= 133,549 Btu/gal (average of 4/27/2015 fuel tests)

Table 5. FY2017 Assessable Emission Calculations - Particulate Matter (PM₁₀) Emissions
Golden Valley Electric Association - Healy Power Plant

ID	Emission Unit	Maximum Capacity	Operating Scenario	Fuel Type/ Material	Factor Reference	PM ₁₀ Emission Factor	FY2017 Projected Operation	FY2017 Projected PM ₁₀ Emissions
	Description							
1	Unit #1	327 MMBtu/hr	Existing Configuration	Coal/ULSD	2015 CEMS Data	0.883 lb/hr	2,952 hours	1.3 tpy
			With SNCR				2,280 hours	1.0 tpy
			With SNCR and 18 months after 1st fire of coal				3,528 hours	1.6 tpy
2	HCCP	658 MMBtu/hr	Existing Configuration	Coal/ULSD	Tables C-12 and C-13 of Minor Permit Application for AQ0173MSS01	0.04 lb/MMBtu	2,952 hours	39 tpy
			with SCR				5,808 hours	76 tpy
3	Auxiliary Heater #1	12.6 MMBtu/hr	Not Applicable	ULSD	AP-42, Table 1.3-2	1.3 lb/10 ³ gal	14,353 gallons	1.2 tpy
4	Auxiliary Heater #2	23 MMBtu/hr	Not Applicable	ULSD	AP-42, Table 1.3-2	1.3 lb/10 ³ gal	2,761 gallons	0.2 tpy
5	Diesel Generator Engine #1	2.75 MW	Not Applicable	ULSD	AP-42 Table 3.4-1	0.1 lb/MMBtu	218 gallons	1.5E-03 tpy
6	Crusher System (Dust Collector #1)	400 ton/hr	Not Applicable	Coal	AQ0173TVP02, Table B	2.05 lb/hr	8,760 hours	9.0 tpy
7	Limestone Storage Silo	314 ton/hr	Not Applicable	Limestone	AQ0173TVP02, Table B	0.14 lb/hr	0 hours	0 tpy
8	Flyash Storage Silo	570 ton/hr	Not Applicable	Flyash	AQ0173TVP02, Table B	0.86 lb/hr	2,195.0 hours	0.9 tpy
9	Sodium Bicarbonate Handling System	50 ton/hr	Not Applicable	Sodium Bicarbonate	AQ0173TVP02, Table B	3.43 lb/hr	2,195.0 hours	3.8 tpy
10	Crusher System (Dust Collector #2)	240 ton/hr	Not Applicable	Coal	AQ0173TVP02, Table B	0.02 lb/hr	8,760 hours	0.1 tpy
13	Firewater Pump Engine	264 hp	Not Applicable	ULSD	AP-42 Table 3.3-1	2.2E-03 g/hp-hr	15 hours	9.6E-06 tpy
TBD	Lime Storage Silo #1	1,800 acfm	Not Applicable	Lime	Design Specification	0.005 gr/acf	116 hours	4.5E-03 tpy
TBD	Lime Storage Silo #2	1,800 acfm	Not Applicable	Lime	Design Specification	0.005 gr/acf	116 hours	4.5E-03 tpy
11	Haul Road	0.25 mile	Not Applicable	Fugitive Dust	See Table 5a		8,760 hours	1.4 tpy
12	Coal Storage Pile	30 day supply	Not Applicable	Coal	See Table 5b		8,760 hours	0.7 tpy
N/A	Ash Pile	30 days	Not Applicable	Flyash, Bottom Ash, and Slag	See Table 5c		8,760 hours	0.1 tpy
N/A	AST diesel tanks (2)	25,000 gallons	Not Applicable	ULSD	N/A	N/A	8,760 hours	0 tpy
N/A	AST diesel tank	2,000 gallons	Not Applicable	ULSD	N/A	N/A	8,760 hours	0 tpy
N/A	AST diesel tank	425 gallons	Not Applicable	ULSD	N/A	N/A	8,760 hours	0 tpy
N/A	AST diesel tank	300 gallons	Not Applicable	ULSD	N/A	N/A	8,760 hours	0 tpy
N/A	Central Vac (3)	900 acfm	Not Applicable	Coal	Engineering Estimate	0.05 gr/dcf	1,095 hours	2.1E-01 tpy
N/A	Urea Rail Car Unloading Bin Vent Filter	1,500 acfm	Not Applicable	Urea	Engineering Estimate	0.005 gr/dcf	106 hours	3.4E-03 tpy
N/A	Urea Storage Silo A/B Bin Vent Filter	1,500 acfm	Not Applicable	Urea	Engineering Estimate	0.005 gr/dcf	133 hours	4.3E-03 tpy
N/A	Urea Conveyor to Dissolver Tank Bin Vent Filter	400 acfm	Not Applicable	Urea	Engineering Estimate	0.005 gr/dcf	332 hours	2.8E-03 tpy
N/A	Lime Railcar Unloading Bin Vent Filter	1,500 acfm	Not Applicable	Lime	Engineering Estimate	0.005 gr/dcf	384 hours	1.2E-02 tpy
N/A	Sodium Bicarbonate Unloading Portable Baghouse	850 scfm	Not Applicable	Sodium Bicarbonate	Vendor Data	0.02 gr/acf	133 hours	9.7E-03 tpy
Total Emissions - PM₁₀								136.9 tpy

Sample Calculations:

Boiler Emissions, tpy = (Emission factor, lb/hr) x (Operation, hr/yr) / (2,000 lb/ton)

Boiler Emissions, tpy = (Emission factor, lb/MMBtu) x (Capacity, MMBtu/hr) x (Operation, hr/yr) / (2,000 lb/ton)

Heater Emissions, tpy = (Emission factor, lb/10³ gal) / (Conversion, 1,000 gal/10³ gal) x (Operation, gal/yr) / (2,000 lb/ton)

Generator Engine Emissions, tpy = (Emission factor, lb/MMBtu) x (Heat Value, Btu/gal) / (Conversion, 1,000,000 Btu/MMBtu) x (Fuel Consumption, gal/yr) / (2,000 lb/ton)

Firewater Pump Engine Emissions, tpy = (Emission factor, g/hp-hr) x (Capacity, hp) / (Conversion, 453.59237 g/lb) x (Operation, hr/yr) / (2,000 lb/ton)

Silo/Dust Collector Emissions, tpy = (Emission factor, lb/hr) x (Operation, hr/yr) / (2,000 lb/ton)

Filter/Baghouse Emissions, tpy = (Emission factor, gr/acf) x (Throughput, acfm) x (Operation, hr/yr) x (Conversion, 60 min/hr) / (7,000 gr/lb) / (2,000 lb/ton)

HHV No. 2 Diesel = 133,549 Btu/gal (average of 4/27/2015 fuel tests)

Table 5a. FY2017 Assessable Emission Calculations - Haul Road (EU 11) Particulate Matter (PM₁₀) Emissions
Golden Valley Electric Association - Healy Power Plant

Emission Unit		Factor Reference	PM ₁₀ Emission Factor	FY2017 Projected Operation	FY2017 Projected PM ₁₀ Emissions
ID	Description				
11	Coal Haul - Paved Portion	AP-42, Section 13.2.1	0.72 lb/VMT ^a	775 VMT ^b	0.28 tpy
	Coal Haul - Unpaved Portion	AP-42, Section 13.2.2	0.49 lb/VMT ^c	1,309 VMT ^b	0.32 tpy
	Ash Haul - Paved Portion (Unit 1)	AP-42, Section 13.2.1	0.82 lb/VMT ^d	187 VMT ^e	0.08 tpy
	Ash Haul - Paved Portion (Unit 2)	AP-42, Section 13.2.1	0.82 lb/VMT ^d	624 VMT ^e	0.26 tpy
	Ash Haul - Unpaved Portion (Unit 1)	AP-42, Section 13.2.2	0.55 lb/VMT ^f	364 VMT ^e	0.10 tpy
	Ash Haul - Unpaved Portion (Unit 2)	AP-42, Section 13.2.2	0.55 lb/VMT ^f	1,019 VMT ^e	0.28 tpy
	Lime Delivery - Paved Portion	AP-42, Section 13.2.1	0.82 lb/VMT ^g	35 VMT ^h	1.4E-02 tpy
	Lime Delivery - Unpaved Portion	AP-42, Section 13.2.2	0.55 lb/VMT ^f	35 VMT ^h	9.6E-03 tpy
	Miscellaneous Traffic - Paved Portion	AP-42, Section 13.2.1	1.5E-02 lb/VMT ⁱ	4,839 VMT ^k	0.04 tpy
Total PM₁₀ Emissions					1.4 tpy

Notes:

^aPaved coal haul road emission factor from AP-42, Section 13.2.1, Empirical Equation 1, $E = k \times (sL)^{0.91} \times (W)^{1.02}$ lb/VMT where:

k = particle size multiplier	0.0022 lb/VMT for PM ₁₀ from AP-42 Table 13.2.1-1
sL = surface material silt content (haul road)	8.2 g/m ² , from AP-42, Table 13.2.1-3
W = mean vehicle weight	95 tons, estimate - average of full (150 ton) and empty (40 ton) truck
E (uncontrolled) =	1.45 lb/VMT
E (controlled) =	0.72 lb/VMT, assuming 50% control efficiency for pavement cleaning

^bCoal haul road VMT

Haul truck capacity	110 tons, estimate
Unit 1 Capacity	327 MMBtu/hr
Unit 2 Capacity	658 MMBtu/hr
Unit 1 FY2017 Projected Operation	8,760 hr/yr
Unit 2 FY2017 Projected Operation	8,760 hr/yr
Coal heat value	14.8 MMBtu/ton
Unit 1 FY2017 Projected Coal Throughput	194,088.5 tons
Unit 2 FY2017 Projected Coal Throughput	390,551.2 tons
Total FY2017 Coal Throughput	<u>584,639.7 tons</u>

Throughput = (Capacity, MMBtu/hr) x (Operation, hr/yr) / (Coal Heat Value, MMBtu/ton)	
Paved distance from unpaved road to Usibelli property line (round trip)	0.15 miles/trip
Unpaved distance from coal pile to paved road (round trip)	0.25 miles/trip
Approximate distance from Usibelli property line to coal pile (round trip)	0.39 miles/trip
Trips per year	5,314.91 trips per year (Throughput / Haul Truck Capacity)
Paved Road FY2017 VMT =	775.09 miles
Unpaved Road FY2017 VMT =	1,308.59 miles
Vehicle Miles Travelled (VMT) = (Annual coal throughput, tons) / (Haul truck capacity, tons/trip) x (Round trip distance, mi/trip)	

^cUnpaved coal haul road emission factor from AP-42, Section 13.2.2, Empirical Equation 1a, $E = k \times (s/12)^a \times (W/3)^b$ lb/VMT where:

k	1.5 for PM ₁₀
s = surface material silt content (haul road)	5.1 percent, from AP-42, Table 13.2.2-1
W = mean vehicle weight	95 tons, estimate - average of full (150 ton) and empty (40 ton) truck
a (empirical constant)	0.9 from AP-42, Table 13.2.2-2
b (empirical constant)	0.45 from AP-42, Table 13.2.2-2
E (uncontrolled) =	3.29 lb/VMT
E (controlled) =	0.49 lb/VMT, assuming control efficiency of 85% for calcium chloride application

^dPaved ash haul road emission factor from AP-42, Section 13.2.1, Empirical Equation 1, $E = k \times (sL)^{0.91} \times (W)^{1.02}$ lb/VMT where:

k = particle size multiplier	0.0022 lb/VMT for PM ₁₀ from AP-42 Table 13.2.1-1
sL = surface material silt content (haul road)	8.2 g/m ² , from AP-42, Table 13.2.1-3
W = mean vehicle weight	107.5 tons, estimate - average of full (170 ton) and empty (45 ton) truck
E (uncontrolled) =	1.64 lb/VMT
E (controlled) =	0.82 lb/VMT, assuming 50% control efficiency for pavement cleaning

^eAsh haul road VMT

Haul truck capacity	125 tons, estimate
Unit 2 Flyash Disposal Rate	7,620 lb/hr, Heat and Material Balanced for HCCP - March 6, 1998
Unit 2 Slag and Bottom Ash Disposal Rate	16,806 lb/hr, Heat and Material Balanced for HCCP - March 6, 1998
Projected FY2017 Unit 2 Flyash Disposal	33,376 tons
Projected FY2017 Unit 2 Slag and Bottom Ash Disposal	73,610 tons
Projected FY2017 Unit 1 Flyash Disposal	16,586 tons, based on Unit 2 disposal rate of 8.55%
Projected FY2017 Unit 1 Slag and Bottom Ash Disposal	36,581 tons, based on Unit 2 disposal rate of 18.85%
Total Projected FY2017 Ash Disposal Throughput	<u>160,154 tons</u>

Paved distance from unpaved road to Usibelli property line (round trip)	0.15 miles/trip	(for Unit 1 and Unit 2 ash)
Paved distance from Healy Spur Road to HCCP loadout (round trip)	0.34 miles/trip	(for Unit 2 ash only)
Unpaved distance from ash pile to paved road (round trip)	0.28 miles/trip	(for Unit 1 ash only - ash drying area)
Unpaved distance from Healy Spur Road to paved road (round trip)	0.80 miles/trip	(for Unit 2 ash only - ash loadout area of HCCP building)
Trips per year	1,281.23	trips per year (Throughput / Haul Truck Capacity)
Paved Road (Unit 1) FY2017 VMT =	186.85	miles
Paved Road (Unit 2) FY2017 VMT =	623.63	miles
Unpaved Road (Unit 1) FY2017 VMT =	363.99	miles
Unpaved Road (Unit 2) FY2017 VMT =	1,019.16	miles

^fUnpaved ash haul road emission factor from AP-42, Section 13.2.2, Empirical Equation 1a, $E = k \times (s/12)^a \times (W/3)^b$ lb/VMT where:

k	1.5 for PM ₁₀
s = surface material silt content (haul road)	5.1 percent, from AP-42, Table 13.2.2-1
W = mean vehicle weight	122.5 tons, estimate - average of full (135 ton) and empty (110 ton) loader/trailer
a (empirical constant)	0.9 from AP-42, Table 13.2.2-2
b (empirical constant)	0.45 from AP-42, Table 13.2.2-2
E (uncontrolled) =	3.69 lb/VMT
E (controlled) =	0.55 lb/VMT, assuming control efficiency of 85% for calcium chloride application

^gPaved lime haul road emission factor from AP-42, Section 13.2.1, Empirical Equation 1, $E = k \times (sL)^{0.91} \times (W)^{1.02}$ lb/VMT where:

k = particle size multiplier	0.0022 lb/VMT for PM ₁₀ from AP-42 Table 13.2.1-1
sL = surface material silt content (haul road)	8.2 g/m ² , from AP-42, Table 13.2.1-3
W = mean vehicle weight	107.5 tons, estimate - average of full (170 ton) and empty (45 ton) truck
E (uncontrolled) =	1.64 lb/VMT
E (controlled) =	0.82 lb/VMT, assuming 50% control efficiency for pavement cleaning

^hLime haul road VMT

Haul truck capacity	25 tons, estimate
Total Projected FY2017 Lime Throughput	2,900 tons, engineering estimate
Paved distance (round trip)	0.3 miles/trip
Unpaved distance (round trip)	0.3 miles/trip
Approximate distance from Usibelli property line to coal pile (round trip)	0.60 miles/trip
Trips per year	116.00 trips per year (Throughput / Haul Truck Capacity)
Paved Road FY2017 VMT =	34.80 miles
Unpaved Road FY2017 VMT =	34.80 miles
Vehicle Miles Travelled (VMT) = (Annual coal throughput, tons) / (Haul truck capacity, tons/trip) x (Round trip distance, mi/trip)	

^jUnpaved lime haul road emission factor from AP-42, Section 13.2.2, Empirical Equation 1a, $E = k \times (s/12)^a \times (W/3)^b$ lb/VMT where:

k	1.5 for PM ₁₀
s = surface material silt content (haul road)	5.1 percent, from AP-42, Table 13.2.2-1
W = mean vehicle weight	122.5 tons, estimate - average of full (135 ton) and empty (110 ton) loader/trailer
a (empirical constant)	0.9 from AP-42, Table 13.2.2-2
b (empirical constant)	0.45 from AP-42, Table 13.2.2-2
E (uncontrolled) =	3.69 lb/VMT
E (controlled) =	0.55 lb/VMT, assuming control efficiency of 85% for calcium chloride application

^lPaved miscellaneous traffic emission factor from AP-42, Section 13.2.1, Empirical Equation 1, $E = k \times (sL)^{0.91} \times (W)^{1.02}$ lb/VMT where:

k = particle size multiplier	0.0022 lb/VMT for PM ₁₀ from AP-42 Table 13.2.1-1
sL = surface material silt content (haul road)	8.2 g/m ² , from AP-42, Table 13.2.1-3
W = mean vehicle weight	2 tons, estimate
E (uncontrolled) =	3.0E-02 lb/VMT
E (controlled) =	1.5E-02 lb/VMT, assuming 50% control efficiency for pavement cleaning

^kMiscellaneous vehicle VMT

Traffic volume	50 trips per day
Paved distance (round trip)	0.27 miles/trip
Paved Road FY2017 VMT =	4,839 miles

**Table 5b. FY2017 Assessable Emission Calculations - Coal Storage Pile (EU 12) Particulate Matter (PM₁₀) Emissions
Golden Valley Electric Association - Healy Power Plant**

Emission Unit		Factor Reference	PM ₁₀ Emission Factor	FY2017 Projected Operation ^b	FY2017 Projected PM ₁₀ Emissions
ID	Description				
12	Truck drop onto stockpile	AP-42, Section 13.2.4	1.41E-05 lb/ton ^a	584,640 tpy	4.1E-03 tpy
	Front end loader movement - coal pile to grizzly	AP-42, Section 13.2.2	0.44 lb/VMT ^c	3,076 VMT	0.67 tpy
	Stockpile wind erosion	AP-42, Section 13.2.5	16.48 g/m ² -yr ^d	2,000 m ²	0.04 tpy
	Front end loader drop into grizzly	AP-42, Section 13.2.4	1.41E-05 lb/ton ^a	584,640 tpy	4.1E-03 tpy
Total PM₁₀ Emissions					0.72 tpy

Notes:

^aCoal transfer emission factor from AP-42, Section 13.2.4 based on empirical equation $E = k \times 0.0032 \times (U/5)^{1.3} / (M/2)^{1.4}$ lb/ton transferred where:

k	0.35 for PM ₁₀	
U = mean wind speed	3.1 miles/hr	Per www.ncdc.noaa.gov for calendar year 2015, McKinley Airport ASOS (PAIN)
M = coal moisture content	29.34 percent	From 2015 coal proximate analyses

^bAnnual stockpile throughput:

Unit 1 Capacity	327 MMBtu/hr	
Unit 2 Capacity	658 MMBtu/hr	
Unit 1 FY2017 Projected Operation	8,760 hr/yr	
Unit 2 FY2017 Projected Operation	8,760 hr/yr	
Coal heat value	14.8 MMBtu/ton	
Unit 1 FY2017 Projected Coal Throughput	194,088.5 tons	Throughput = (Capacity, MMBtu/hr) x (Operation, hr/yr) / (Coal Heat Value, MMBtu/ton)
Unit 2 FY2017 Projected Coal Throughput	390,551.2 tons	
Total Projected FY2017 Coal Throughput	584,639.7 tons	

^cFront end loader movement emission factor from AP-42, Section 13.2.2, Empirical Equation 1a, $E = k \times (s/12)^a \times (W/3)^b$ lb/VMT where:

k	1.5 for PM ₁₀	
s = surface material silt content (haul road)	8.4 percent, from AP-42, Table 13.2.2-1	
W = mean vehicle weight	27 tons, estimate	
Size of load bucket	8 yd ³	
Density of coal	50 lb/ft ³	
Coal moved per trip	5.4 tons	Coal Moved = (Coal Density, lb/ft ³) x (Conversion, 27 ft ³ /yd ³) x (Bucket size, yd ³) / (Conversion, 2,000 lb/ton)
a (empirical constant)	0.9 from AP-42, Table 13.2.2-2	
b (empirical constant)	0.45 from AP-42, Table 13.2.2-2	
Approximate distance from coal pile to grizzly (round trip)	150 feet	
FY2017 VMT = vehicles miles traveled per year	3,075.76	
E (uncontrolled) =	2.92 lb/VMT	
E (controlled) =	0.44 lb/VMT, assuming control efficiency of 85% for calcium chloride application	

^dFrom AP-42, Section 13.2.5, Industrial Wind Erosion

Coal Pile at GVEA Healy Power Plant

Average Height = 40 ft
Width at Base = 500 ft
Height-to-Base Ratio = 0.080

Estimated from site photos

Engineering estimate

< 0.2. GVEA HPP coal pile can therefore be considered a large relatively flat pile with little penetration into the surface wind layer and a single friction velocity (using Equation (1)) can be used to for the entire surface of the coal pile. Friction velocity is a measure of wind shear stress on the erodible surface.

Surface Area of Active Face = 2,000 m²

Engineering estimate of projected use

AP-42 Section 13.2.5, Equation (2)

Emission factor for wind-generated particulate emissions from mixtures of erodible and nonerodible surface material subject to disturbance, EF

$$EF (g/m^2\text{-yr}) = k \sum_{i=1}^N P_i$$

where

k = particle size multiplier (0.5 for particle size < 10 microns, per table on page 13.2.5-3)

N = number of disturbances per year

P_i = erosion potential corresponding to the fastest mile of wind for the ith period between disturbances, g/m²

AP-42 Section 13.2.5, Equation (3)

Erosion potential function for a dry exposed surface, P

$$P = 58 (u^* - u_{t1}^*)^2 + 25 (u^* - u_{t1}^*)$$

$$P = 0 \text{ for } u^* \leq u_{t1}^*$$

where

u* = friction velocity (m/s)

u_{t1} = threshold friction velocity (m/s)

AP-42 Section 13.2.5, Equation (1)

Friction velocity, u*

$$u^* = 0.4 \times u(z) / \ln(z/z_0)$$

when z > z₀

where

u* = friction velocity (cm/s)

u(z) = wind speed at height z above test surface (cm/s)

z = height above test surface (cm)

z₀ = roughness height, cm

Data:

u(z)		Use maximum wind gust speed recorded at McKinley Airport ASOS for each month in 2015 (see table below)
z	10	meters
N	365	disturbances/year for active face, estimated
	30	average disturbances/month

Month-Year	Uncrusted coal pile ² (Table 13.2.5-2)							Ground Coal (Table 13.2.5-2)						
	Maximum Wind Speed (u(10)) ¹		Wind Direction	Roughness Height (z ₀)	Threshold Friction Velocity (u _t)	Calculated Friction Velocity (u*)	Erosion potential function, P	Roughness Height (z ₀)	Threshold Friction Velocity (u _t)	Calculated Friction Velocity (u*)	Erosion potential function, P	P x N	k	Emission Factor, EF
	mph	m/s	deg	cm	m/s	m/s		cm	m/s	m/s				g/m ² -yr
Jan-15	24	10.7	225	0.3	1.12	0.53	0	0.01	0.55	0.37	0	0		
Feb-15	24	10.7	225	0.3	1.12	0.53	0	0.01	0.55	0.37	0	0		
Mar-15	30	13.4	259	0.3	1.12	0.66	0	0.01	0.55	0.47	0	0		
Apr-15	38	17.0	295	0.3	1.12	0.84	0	0.01	0.55	0.59	1.10	32.97		
May-15	29	13.0	279	0.3	1.12	0.64	0	0.01	0.55	0.45	0	0		
Jun-15	29	13.0	245	0.3	1.12	0.64	0	0.01	0.55	0.45	0	0		
Jul-15	23	10.3	237	0.3	1.12	0.51	0	0.01	0.55	0.36	0	0		
Aug-15	21	9.4	229	0.3	1.12	0.46	0	0.01	0.55	0.33	0	0		
Sep-15	23	10.3	222	0.3	1.12	0.51	0	0.01	0.55	0.36	0	0		
Oct-15	24	10.7	242	0.3	1.12	0.53	0	0.01	0.55	0.37	0	0		
Nov-15	29	13.0	240	0.3	1.12	0.64	0	0.01	0.55	0.45	0	0		
Dec-15	32	14.3	282	0.3	1.12	0.71	0	0.01	0.55	0.50	0	0		
Annual Total							0				1.10	32.97	0.5	16.48

¹ Per www.ncdc.noaa.gov for calendar year 2015, McKinley Airport ASOS (PAIN).

² The erosion potential factor for the uncrusted coal pile is zero for all months. Therefore, wind erosion of the uncrusted coal pile is not a significant source of PM emissions.

**Table 5c. FY2017 Assessable Emission Calculations - Ash Drying Pile Particulate Matter (PM₁₀) Emissions
Golden Valley Electric Association - Healy Power Plant**

Emission Unit		Factor Reference	PM ₁₀ Emission Factor	FY2017 Projected Operation ^b	FY2017 Projected PM ₁₀ Emissions
ID	Description				
N/A	Front end loader movement - ash pile to truck	AP-42, Section 13.2.2	0.44 lb/VMT ^c	233 VMT	0.05 tpy
	Ash pile wind erosion	AP-42, Section 13.2.5	36.02 g/m ² -yr ^d	2,000 m ²	0.08 tpy
	Front end loader drop into truck	AP-42, Section 13.2.4	1.46E-05 lb/ton ^e	53,168 tpy	3.88E-04 tpy
Total PM ₁₀ Emissions					0.13 tpy

Notes:

^aAsh transfer emission factor from AP-42, Section 13.2.4 based on empirical equation $E = k \times 0.0032 \times \{U/5\}^2 / (M/2)^{1.4}$ lb/ton transferred where:

k	0.35 for PM ₁₀	
U = mean wind speed	3.1 miles/hr	Per www.ncdc.noaa.gov for calendar year 2015, McKinley Airport ASOS (PAIN)
M = ash moisture content	17.5 percent, average of slag and bottom ash and fly ash from Heat and Material Balanced for HCCP - March 6, 1998	
E (uncontrolled) =	2.92E-05 lb/ton	
E (controlled) =	1.46E-05 lb/ton, assuming 50% control efficiency because material is wet	

^bAnnual stockpile throughput:

Total FY2017 Unit 1 Ash Disposal Throughput 53,167.8 tons, sum of flyash and slag and bottom ash totals from the footnotes of Table 5a.

^cFront end loader movement emission factor from AP-42, Section 13.2.2, Empirical Equation 1a, $E = k \times (s/12)^f \times (W/3)^g$ lb/VMT where:

k	1.5 for PM ₁₀	
s = surface material silt content (haul road)	8.4 percent, from AP-42, Table 13.2.2-1	
W = mean vehicle weight	27 tons, estimate	
Size of load bucket	8 yd ³	
Density of ash	60 lb/ft ³ , estimate	
Ash moved per trip	6.48 tons	Ash Moved = (Ash Density, lb/ft ³) x (Conversion, 27 ft ³ /yd ³) x (Bucket size, yd ³) / (Conversion, 2000 lb/ton)
a (empirical constant)	0.9 from AP-42, Table 13.2.2-2	
b (empirical constant)	0.45 from AP-42, Table 13.2.2-2	
E (uncontrolled) =	2.92	
E (controlled) =	0.44	
Approximate distance from ash pile to truck (round trip)	150 feet	
FY2017 VMT = vehicles miles traveled per year	233.09	

^dFrom AP-42, Section 13.2.5, Industrial Wind Erosion

Coal Pile at GVEA Healy Power Plant

Average Height =	20 ft	Estimated from site photos
Width at Base =	250 ft	Engineering estimate
Height-to-Base Ratio =	0.080	< 0.2. Ash pile can therefore be considered a large relatively flat pile with little penetration into the surface wind layer and a single friction velocity (using Equation (1)) can be used to for the entire surface of the ash pile. Friction velocity is a measure of wind shear stress on the erodible surface.
Surface Area of Active Face =	2,000 m ²	Engineering estimate of projected use

AP-42 Section 13.2.5, Equation (2)

Emission factor for wind-generated particulate emissions from mixtures of erodible and nonerodible surface material subject to disturbance, EF

$$EF \text{ (g/m}^2\text{-yr)} = k \sum_{i=1}^N P_i$$

where

k = particle size multiplier (0.5 for particle size < 10 microns, per table on page 13.2.5-3)

N = number of disturbances per year

 P_i = erosion potential corresponding to the fastest mile of wind for the i th period between disturbances, g/m^2

AP-42 Section 13.2.5, Equation (3)

Erosion potential function for a dry exposed surface, P

$$P = 58 (u^* - u_i^*)^2 + 25 (u^* - u_i^*)$$

$$P = 0 \text{ for } u^* \leq u_i^*$$

where

 u^* = friction velocity (m/s) u_i = threshold friction velocity (m/s)

AP-42 Section 13.2.5, Equation (1)

Friction velocity, u^*

$$u^* = 0.4 \times u(z) / \ln(z/z_0) \quad \text{when } z > z_0$$

where

 u^* = friction velocity (cm/s) $u(z)$ = wind speed at height z above test surface (cm/s) z = height above test surface (cm) z_0 = roughness height, cm

Data:

$u(z)$		Use maximum wind gust speed recorded at McKinley Airport ASOS for each month in 2015 (see table below)
z	10	meters
N	12	disturbances/year for active face, estimated
	1	average disturbances/month

Ash pile ² (Table 13.2.5-2)											
Month-Year	Maximum Wind Speed (u(10)) ¹		Wind Direction	Roughness Height (z ₀)	Threshold Friction Velocity (u _t)	Calculated Friction Velocity (u*)	Erosion potential function, P	P x N	k	Emission Factor (uncontrol- led), EF	Emission Factor (controlled), EF ³
	mph	m/s								g/m ² -yr	g/m ² -yr
Jan-15	24	10.7	225	21.0	1.02	1.11	3	2.8			
Feb-15	24	10.7	225	21.0	1.02	1.11	3	2.8			
Mar-15	30	13.4	259	21.0	1.02	1.39	17	17.1			
Apr-15	38	17.0	295	21.0	1.02	1.76	50	50.1			
May-15	29	13.0	279	21.0	1.02	1.34	14	14.1			
Jun-15	29	13.0	245	21.0	1.02	1.34	14	14.1			
Jul-15	23	10.3	237	21.0	1.02	1.06	1	1.2			
Aug-15	21	9.4	229	21.0	1.02	0.97	0	0.0			
Sep-15	23	10.3	222	21.0	1.02	1.06	1	1.2			
Oct-15	24	10.7	242	21.0	1.02	1.11	3	2.8			
Nov-15	29	13.0	240	21.0	1.02	1.34	14	14.1			
Dec-15	32	14.3	282	21.0	1.02	1.48	24	23.9			
Annual Total							144	144.06	0.5	72.03	36.02

¹ Per www.ncdc.noaa.gov for calendar year 2015, McKinley Airport ASOS (PAIN).

² No emission factor exists for ash. Overburden is considered the most representative alternative because it includes both fine (ash) and coarse (slag) particles.

³ Control efficiency of 50% is assumed since material wet.

**Table 6. FY2017 Assessable Emission Calculations - Volatile Organic Compound (VOC) Emissions
Golden Valley Electric Association - Healy Power Plant**

Emission Unit		Maximum Capacity	Operating Scenario	Fuel Type/ Material	Factor Reference	VOC Emission Factor	FY2017 Projected Operation	FY2017 Projected VOC Emissions
ID	Description							
1	Unit #1	327 MMBtu/hr	Existing Configuration With SNCR	Coal/ULSD	AP-42, Table 1.1-19	0.06 lb/ton	2,952 hours	2.0 tpy
			With SNCR and 18 months after 1st fire of coal				2,280 hours	1.5 tpy
							3,528 hours	2.3 tpy
2	HCCP	658 MMBtu/hr	Existing Configuration With SCR	Coal/ULSD	AP-42, Table 1.1-19	0.06 lb/ton	2,952 hours	3.9 tpy
3	Auxiliary Heater #1	12.6 MMBtu/hr3	Not Applicable	ULSD	AP-42, Table 1.3-3	0.556 lb/10 ³ gal	5,808 hours	7.8 tpy
4	Auxiliary Heater #2	23 MMBtu/hr	Not Applicable	ULSD	AP-42, Table 1.3-3	0.556 lb/10 ³ gal	14,353 gallons	0.5 tpy
5	Diesel Generator Engine #1	2.75 MW	Not Applicable	ULSD	AP-42 Table 3.4-1	0.09 lb/MMBtu	2,761 gallons	0.1 tpy
6	Crusher System (Dust Collector #1)	400 ton/hr	Not Applicable	Coal	N/A	N/A	218 gallons	1.3E-03 tpy
7	Limestone Storage Silo	314 ton/hr	Not Applicable	Limestone	N/A	N/A	8,760 hours	0 tpy
8	Flyash Storage Silo	570 ton/hr	Not Applicable	Flyash	N/A	N/A	211 hours	0 tpy
9	Sodium Bicarbonate Handling System	50 ton/hr	Not Applicable	Sodium Bicarbonate	N/A	N/A	2,195 hours	0 tpy
10	Crusher System (Dust Collector #2)	240 ton/hr	Not Applicable	Coal	N/A	N/A	2,195 hours	0 tpy
13	Firewater Pump Engine	264 hp	Not Applicable	ULSD	AP-42 Table 3.3-1	2.51E-03 g/tp-hr	8,760 hours	0 tpy
TBD	Lime Storage Silo #1	1,800 acfm	Not Applicable	Lime	N/A	N/A	15 hours	1.1E-05 tpy
TBD	Lime Storage Silo #2	1,800 acfm	Not Applicable	Lime	N/A	N/A	116 hours	0 tpy
11	Haul Road	0.25 mile	Not Applicable	Fugitive Dust	N/A	N/A	116 hours	0 tpy
12	Coal Storage Pile	30 day supply	Not Applicable	Coal	N/A	N/A	8,760 hours	0 tpy
N/A	AST diesel tanks (2)	25,000 gallons	Not Applicable	ULSD	N/A	N/A	8,760 hours	0 tpy
N/A	AST diesel tank	2,000 gallons	Not Applicable	ULSD	N/A	N/A	8,760 hours	0 tpy
N/A	AST diesel tank	425 gallons	Not Applicable	ULSD	N/A	N/A	8,760 hours	0 tpy
N/A	AST diesel tank	300 gallons	Not Applicable	ULSD	N/A	N/A	8,760 hours	0 tpy
N/A	Central Vac (3)	900 acfm7	Not Applicable	Coal	N/A	N/A	1,095 hours	0 tpy
N/A	Urea Rail Car Unloading Bin Vent Filter	1,500 acfm	Not Applicable	Urea	N/A	N/A	106 hours	0 tpy
N/A	Urea Storage Silo A/B Bin Vent Filter	1,500 acfm	Not Applicable	Urea	N/A	N/A	133 hours	0 tpy
N/A	Urea Conveyor to Dissolver Tank Bin Vent Filter	400 acfm	Not Applicable	Urea	N/A	N/A	332 hours	0 tpy
N/A	Lime Railcar Unloading Bin Vent Filter	1,500 acfm	Not Applicable	Lime	N/A	N/A	384 hours	0 tpy
N/A	Sodium Bicarbonate Unloading Portable Baghouse	850 scfm	Not Applicable	Sodium Bicarbonate	N/A	N/A	133 hours	0 tpy
Total Emissions - VOC								18.2 tpy

Sample Calculations:

Boiler Emissions, tpy= (Emission factor, lb/ton) x (Capacity, MMBtu/hr) x (Operation, hr/yr) / (Heat Value, MMBtu/ton) / (Conversion, 2,000 lb/ton)

Heater Emissions, tpy= (Emission factor, lb/10³gal) / (Conversion 1,000 gal/10³gal) x (Operation, gal/yr) / (2,000 lb/ton)

Generator Engine Emissions, tpy= (Emission factor, lb/MMBtu) x (Heat Value, Btu/gal) / (Conversion, 1,000,000 Btu/MMBtu) x (Fuel Consumption, gal/yr) / (2,000 lb/ton)

Firewater Pump Engine Emissions, tpy= (Emission factor, g/tp-hr) x (Capacity, hp) / (Conversion, 453.59237 g/lb) x (Operation, hr/yr) / (2,000 lb/ton)

HHV No. 2 Diesel= 133,549 Btu/gal (average of 4/27/2015 fuel tests)

Heat Value of Coal= 14.8 MMBtu/ton (average of 2015 coal proximate analyses)

Table 7. FY2017 Assessable Emission Calculations - Sulfur Dioxide (SO₂) Emissions
Golden Valley Electric Association - Healy Power Plant

ID	Emission Unit Description	Maximum Capacity	Operating Scenario	Fuel Type/ Material	Factor Reference	Maximum Fuel Sulfur Content ¹	SO ₂ Emission Factor	FY2017 Projected Operation	FY2017 Projected SO ₂ Emissions
1	Unit #1	327 MMBtu/hr	Existing Configuration With SNCR With SNCR and 18 months after 1st fire of coal	Coal/ULSD	2015 CEMS Data Consent Decree	N/A	105.7 lb/hr 0.30 lb/MMBtu	2,952 hours 2,280 hours 3,528 hours	156 tpy 112 tpy 173 tpy
2	HCCP	658 MMBtu/hr	Existing Configuration With SCR	Coal/ULSD	AQ173TVP02, Table B	N/A	0.086 lb/MMBtu	2,952 hours 5,808 hours	84 tpy 164 tpy
3	Auxiliary Heater #1	12.6 MMBtu/hr	Not Applicable	ULSD	Mass Balance	0.0015 wt. pct. S	0.00020 lb/gal	14,352.9 gallons	1.4E-03 tpy
4	Auxiliary Heater #2	23 MMBtu/hr	Not Applicable	ULSD	Mass Balance	0.0015 wt. pct. S	0.00020 lb/gal	2,760.8 gallons	2.6E-04 tpy
5	Diesel Generator Engine #1	2.75 MW	Not Applicable	ULSD	Mass Balance	0.0015 wt. pct. S	0.00020 lb/gal	218.4 gallons	2.2E-05 tpy
6	Crusher System (Dust Collector #1)	400 ton/hr	Not Applicable	Coal	N/A	N/A	N/A	8,760 hours	0 tpy
7	Limestone Storage Silo	314 ton/hr	Not Applicable	Limestone	N/A	N/A	N/A	211 hours	0 tpy
8	Flyash Storage Silo	570 ton/hr	Not Applicable	Flyash	N/A	N/A	N/A	2,195 hours	0 tpy
9	Sodium Bicarbonate Handling System	50 ton/hr	Not Applicable	Sodium Bicarbonate	N/A	N/A	N/A	2,195 hours	0 tpy
10	Crusher System (Dust Collector #2)	240 ton/hr	Not Applicable	Coal	N/A	N/A	N/A	8,760 hours	0 tpy
13	Firewater Pump Engine	264 hp	Not Applicable	ULSD	Mass Balance	0.0015 wt. pct. S	0.00020 lb/gal	15 hours	2.1E-05 tpy
TBD	Lime Storage Silo #1	1,800 acfm	Not Applicable	Lime Storage Silo #1	N/A	N/A	N/A	116 hours	0 tpy
TBD	Lime Storage Silo #2	1,800 acfm	Not Applicable	Lime Storage Silo #2	N/A	N/A	N/A	116 hours	0 tpy
11	Haul Road	0.25 mile	Not Applicable	Haul Road	N/A	N/A	N/A	8,760 hours	0 tpy
12	Coal Storage Pile	30 day supply	Not Applicable	Coal Storage Pile	N/A	N/A	N/A	8,760 hours	0 tpy
N/A	AST diesel tanks (2)	25,000 gallons	Not Applicable	AST diesel tanks (2)	N/A	N/A	N/A	8,760 hours	0 tpy
N/A	AST diesel tank	2,000 gallons	Not Applicable	AST diesel tank	N/A	N/A	N/A	8,760 hours	0 tpy
N/A	AST diesel tank	425 gallons	Not Applicable	AST diesel tank	N/A	N/A	N/A	8,760 hours	0 tpy
N/A	AST diesel tank	300 gallons	Not Applicable	AST diesel tank	N/A	N/A	N/A	8,760 hours	0 tpy
N/A	Central Vac (3)	900 acfm	Not Applicable	Central Vac (3)	N/A	N/A	N/A	1,095 hours	0 tpy
N/A	Urea Rail Car Unloading Bin Vent Filter	1,500 acfm	Not Applicable	Urea Rail Car Unloading Bin Vent Filter	N/A	N/A	N/A	106 hours	0 tpy
N/A	Urea Storage Silo A/B Bin Vent Filter	1,500 acfm	Not Applicable	Urea Storage Silo A/B Bin Vent Filter	N/A	N/A	N/A	133 hours	0 tpy
N/A	Urea Conveyor to Dissolver Tank Bin Vent Filter	400 acfm	Not Applicable	Urea Conveyor to Dissolver Tank Bin Vent Filter	N/A	N/A	N/A	332 hours	0 tpy
N/A	Lime Railcar Unloading Bin Vent Filter	1,500 acfm	Not Applicable	Lime Railcar Unloading Bin Vent Filter	N/A	N/A	N/A	384 hours	0 tpy
N/A	Sodium Bicarbonate Unloading Portable Baghouse	850 scfm	Not Applicable	Sodium Bicarbonate Unloading Portable Baghouse	N/A	N/A	N/A	133 hours	0 tpy
Total Emissions - SO₂									688.9 tpy

Notes:

Sample Calculations: ²Molar mass ratio is 32 lb S/mol : 64 lb SO₂/molStoichiometry: 1 mol S = 1 mol SO₂Mass Balance Emission Factor, lb/gal = (Molar mass ratio, 2 lb SO₂ : 1 lb S) x (wt pct. S in fuel) x (density of fuel, lb/gal) / 100%

Boiler Emissions, tpy = (Emission factor, lb/hr) x (Operation, hr/yr) / (2,000 lb/ton)

Boiler Emissions, tpy = (Emission factor, lb/MMBtu) x (Capacity, MMBtu/hr) x (Operation, hr/yr) / (2,000 lb/ton)

Heater/Generator Engine Emissions, tpy = (Emission factor, lb/gal) x (Fuel Use gal/yr) / (2,000 lb/ton)

Firewater Pump Engine Emissions, tpy = (Emission factor, lb/gal) x (Brake Specific Fuel Consumption, 7,000 Btu/hp-hr) x (Rating, hp) x (Operation, hr/yr) / (Fuel Heat Value, Btu/gal) / (2,000 lb/ton)

HHV No. 2 Diesel = 133,549 Btu/gal (average of 4/27/2015 fuel tests)

¹ Based on fuel supplier specifications for 2015.² Diesel fuel density is assumed to equal 6.7 lb/gal for ULSD based on April 27, 2015 fuel tests.

Average Data

Plant: Golden Valley Electr

Interval: 1 Hour

Report Period: 01/01/2015 00:00 Through 12/31/2015 23:59

Time Online Criteria: 1 minute(s)

Source
Parameter
Unit

GOLDEN				
CO#/HR (LB/HR)	NOX#/HR (LB/HR)	PM#/HR (LB/HR)	SO2#/HR (LB/HR)	UNIT_ON (MIN)

Average	88.1	93.1	0.883	105.7	59.82
Minimum	0.0	0.0	0.102	-0.6	1.00
Maximum	536.9	132.6	132.442	257.4	60.00
Summation	692,575.5	752,065.6	6,757.176	856,046.7	487,186.00
Included Data Points	8040	8079	7656	8101	8130
Total number of Data Points	8760	8760	8760	8760	8760

F = Unit Offline
E = Exceedance
M = Maintenance
T = Out Of Control

Report Generated: 03/25/16 10:25

C = Calibration
S = Substituted
* = Suspect
U = Startup

Report Version 4.0
HEALY-C

From: "Turner, Thomas E (DEC)" <tom.turner@alaska.gov>
Date: March 10, 2016 at 2:30:33 PM AKST
To: "nmknight@gvea.com" <nmknight@gvea.com>
Cc: "Nipataruedi, Nattinee (DEC)" <nattinee.nipataruedi@alaska.gov>, "Turner, Thomas E (DEC)" <tom.turner@alaska.gov>, "Kuterbach, John F (DEC)" <john.kuterbach@alaska.gov>
Subject: FW: GVEA, Healy Assessable Emissions

Naomi,

It was pleasure to talk with you by phone. As we discussed, GVEA is requesting a modified method for the assessable emissions due to installing SNCR and SCR control equipment which will reduce the NOx emissions for the last 3 months of calendar year 2016 and remaining FY17. GVEA will assess all the pollutant's emissions using actuals... except for the NOx. Please see the comments in Red below are from our phone call.

Based on the e-mail below and phone call, GVEA will use the following method for NOx:

- A. Calculate the NOx based on actuals until the control equipment is in place.
- B. Once the permit required control equipment is in place, then the PTE from the permit will be used for the NOx assessable emission for the remaining months of FY 17.
- C. Due the recent fire, there may be a reduction in operation time into August, however, GVEA will calculated based on operations from July 2016.

Under 18 AAC 50.410; Emission fees , (c) (1) (D) " *other methods and calculations approved by the department* ". This method is acceptable by the regulations and seems reasonable. (Please see attached for quick reference to reg)

Please note: Please provide any back-up for the NOx calculations. Final numbers will depend on verification of the calculations and methods used to determine assessable emissions.

If you have any questions, please contact Tom Turner at 269-8123.

Thank you for your time and continue efforts to protect Alaska's air quality.

Best Regards, Tom

From: Naomi M. Knight [<mailto:nmknight@gvea.com>]
Sent: Monday, March 07, 2016 4:37 PM
To: Turner, Thomas E (DEC) <tom.turner@alaska.gov>; Nipataruedi, Nattinee (DEC) <nattinee.nipataruedi@alaska.gov>
Cc: Jamie Brewer <jbrewer@slrconsulting.com>
Subject: GVEA, Healy Assessable Emissions

GVEA is currently preparing the Assessable Emissions Estimate for the Healy Power Plant (Permit No. AQ0173TVP02, Revision 1) for the State Fiscal Year 2017 (FY2017). GVEA started Unit 2 (EU ID 2) on May 28, 2015, and began firing coal in Unit 2 on August 4, 2015. Unit 2 operated intermittently during the remainder of 2015 with repairs, maintenance, and troubleshooting being undertaken as a result of the unit being brought online after a layup of approximately 15 years. Actual operations of Unit 2 that occurred in calendar year 2015 are not representative of anticipated FY2017 emissions. FY2017 emissions from both Unit 1 (EU ID 1) and Unit 2 are expected to be variable because of the installation of new emission control equipment. During FY2017, several changes are anticipated, as follows.

- Unit 1 is scheduled to begin operating with selective non-catalytic reduction (SNCR) for nitrogen oxides (NO_x) emission control or before October 31, 2016.
- Unit 2 is scheduled to be down for installation of selective catalytic reduction (SCR) equipment through June, 2016, and to begin operating using SCR for NO_x emission control on or before October 31, 2016. **Note that this schedule could change because of the recent Unit 2 fire**, but those possible changes (if any) are not yet known.
- Minor Source Permit AQ0173MSS01 specifies new emission limits for Unit 1 for certain air pollutants after 18 months from the first fire of coal. The date corresponding to 18 months after first fire of coal is February 4, 2017, which falls within FY2017.

Per Permits No. AQ0173TVP02, Revision 1 Condition 72.2(d) and AQ0173MSS01 Condition 12.2(d), GVEA requests written approval from ADEC before Friday March 18, 2016 to project the FY 2017 annual rate of emissions for Units 1 and 2 and the urea handling equipment in the following manner:

Unit 1 (EU ID 1):

- July 1, 2016 through October 30, 2016 – Calculate projected emissions using existing configuration. **Proportional of actuals-NOx only. GVEA will calculate as if operating as of July 1, Not when fire repair is completed**
- October 31, 2016 through February 3, 2017 – Calculate projected emissions with SNCR equipment installed. **Both limits from the permit.- NOx only**
- February 4, 2017 through June 30, 2017 – Calculate projected emissions with SNCR equipment installed and the emission limits that become effective 18 months after first fire of coal.

Unit 2 (EU ID 2):

- July 1, 2016 through October 30, 2016 – Calculate projected emissions using existing configuration. **Proportional of actuals- NOx only**
- October 31, 2016 through June 30, 2017 – Calculate projected emissions with SCR equipment installed. **Use limits from the permit.- NOx only**

Urea Handling Equipment (No EU ID Assigned):

- October 31, 2016 through June 30, 2017 – Calculate projected emissions for months during which SCR equipment is operated. GVEA will use AP 42

Projected emissions from all other emission units will be determined based on either the actual 2015 operation or potential operation (8,760 hours or estimated operation for intermittently used equipment).

GVEA appreciates your timely response to this request.

Regards,
Naomi

Naomi Morton Knight, P.E.
Environmental Health & Safety Officer
Golden Valley Electric Association, Inc.
758 Illinois Street
Fairbanks, AK 99701
907.458.4557 Office
907.590.2591 Cell
nmknight@gvea.com



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ADEC AQ

July 24, 2017

Certified Mail
Return Receipt Requested
7016 0340 0000 0399 4301

State of Alaska Department of Environmental Conservation
Air Permits Program
ATTN: Nattinee Nipataruedi
410 Willoughby Ave., Suite 303
P.O. Box 111800
Juneau, Alaska 99811-1800

**Subject: Golden Valley Electric Association
Revised 2016 Point Source Emission Inventory
Healy Power Plant**

Dear Ms. Nipataruedi,

Golden Valley Electric Association (GVEA) is submitting a revised 2016 Point Source Emission Inventory for the Healy Power Plant. The submittal is being made to update the volume of distillate oil fired by emission unit (EU) ID 2.

If you have any questions or would like any additional information please contact me by phone at 907-458-4557 or by email at nmknight@gvea.com. The certification from Lynn Thompson, Vice President of Power Supply, follows.

Sincerely,



Naomi Morton Knight, P.E.
Environmental Health and Safety Officer

Certification

Based on information and belief formed after reasonable inquiry, I certify that the statements and information in and attached to this document are true, accurate and complete.

Sincerely,



Lynn N. Thompson
Vice President of Power Supply

cc: SLR International

Stationary Source Detail	
ADEC ID	173
Name	Healy Power Plant
Physical Location	Mile 2.5 Healy Spur Rd
	Healy, AK 99743
	Lat 63.85 Long -148.96
	Description:
AFS ID	0229000002
Census Area	Denali Borough (068)
Line of Business (NAICS)	221112
	> Utilities
	> Utilities
	> Electric Power Generation, Transmission and Distribution
	> Fossil Fuel Electric Power Generation
Line of Business (SIC)	4911
	> Electric, gas, and sanitary services
	> Electric Services
Owner Name & Address	Golden Valley Electric Association
	PO Box 71249
	Fairbanks, AK 99707-1249

Emission Unit 01					
> Specifications					
ID	01		Design Capacity	327 MILLION BTU PER HOUR	
Description	Unit No. 1				
Manufacturer	Foster-Wheeler		Manufactured Year	Prior to 1976	
Model Number	Not Applicable		Serial Number	78-266	
> Regulations					
Regulation/Description					
40 CFR 60 Subpart UUUUU					
> Control Equipment					
Capture Efficiency (%)	99.9				
System Description	Low NOx burners with overfire air (OFA), Dry Sorbent Injection (DSI), and Baghouse				
Equipment Type(s)	Low NOx burners with OFA				
	DSI to neutralize acid gases including SO2 and HCl				
	Baghouse to control PM and remove the dry material generated by the DSI				
> Pollutants Controlled					
Pollutant Description			Reduction Efficiency (%)		
PM10 Primary (Filt + Cond)			99.9		
Sulfur Dioxide			Not Available		
Nitrogen Oxides(NOX)			Not Available		
> Processes					
Process	Primary Process				
SCC Code	10100224				
	> External Combustion Boilers				
	> Electric Generation				
	> Bituminous/Subbituminous Coal				
	> Spreader Stoker (Subbituminous Coal)				
Material Processed	Coal				
Period Start	1/1/2016		Period End	12/31/2016	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
164,044	Tons	26	26	28	20
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
6	22	48	8,021		
Fuel Characteristics					
Heat Content (Btu/lb)	Elem. Sulfur Content (wt. pct. S)	H2S Sulfur Content	Ash Content (wt. pct. ash)		
7,168	0.152	Not Available	9.290		
Heating					
Heat Input (MMBtu/hr)		Heat Output		Heat Values Convention	
293		Not Applicable		HHV	
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	58.5	POUNDS	HOURL	CEMS	234.61
Ammonia (NH3)	Not Available	Not Available	Not Available	Not Available	Not Available
Nitrogen Oxides(NOX)	72.7	POUNDS	HOURL	CEMS	291.56
PM10 Primary (Filt + Cond)(PM10-PRI)	0.447	POUNDS	HOURL	CEMS	1.79
PM2.5 Primary (Filt + Cond)(PM25-PRI)	0.447	POUNDS	HOURL	CEMS	1.79
Sulfur Dioxide(SO2)	105.2	POUNDS	HOURL	CEMS	421.90
Lead and lead compounds	0.00042	POUNDS	TON	AP-42 Table 1.1-18	0.03
Volatile Organic Compounds(VOC)	0.06	POUNDS	TON	AP-42 Table 1.1-19	4.92
PM Condensible (< 1 Micron)(PM-CON)	0.04	POUNDS	MILLION BTUS	AP-42 Table 1.1-5	47.04
Process	Secondary Process				
SCC Code	10100224				
	> External Combustion Boilers				
	> Electric Generation				
	> Bituminous/Subbituminous Coal				
	> Spreader Stoker (Subbituminous Coal)				
Material Processed	Distillate Oil				
Period Start	1/1/2016		Period End	12/31/2016	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
82,763	gallons	8	64	9	19

Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
0.0	0.1	0.2	39		
Fuel Characteristics					
Heat Content (Btu/gal)	Elem. Sulfur Content (wt. pct. S)	H2S Sulfur Content	Ash Content (wt. pct. ash)		
138,222	0.0015	Not Available	Not Available		
Heating					
Heat Input (MMBtu/hr)		Heat Output	Heat Values Convention		
293		Not Applicable	HHV		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	5	POUNDS	1,000 GALLONS	AP-42 Table 1.3-1	0.21
Ammonia (NH3)	Not Available	Not Available	Not Available	Not Available	Not Available
Nitrogen Oxides(NOX)	24	POUNDS	1,000 GALLONS	AP-42 Table 1.3-1	0.99
PM10 Primary (Filt + Cond)(PM10-PRI)	2.3	POUNDS	1,000 GALLONS	AP-42 Table 1.3-2 and 1.3-7	0.10
PM2.5 Primary (Filt + Cond)(PM25-PRI)	1.55	POUNDS	1,000 GALLONS	AP-42 Table 1.3-2 and 1.3-7	0.06
Sulfur Dioxide(SO2)	2.1E-04	POUNDS	GALLON	Mass Balance	0.01
Lead and lead compounds	9	POUNDS	BILLION GALLONS	AP-42 Table 1.3-10	0.00
Volatile Organic Compounds(VOC)	0.2	POUNDS	1,000 GALLONS	AP-42 Table 1.3-3	0.01
PM Condensable (< 1 Micron)(PM-CON)	1.3	POUNDS	1,000 GALLONS	AP-42 Table 1.3-2	0.05
> Release Points					
ID	Description	Type	Apportion %		
01	Unit No. 1	Vertical	100		
Release Point 01					
> Specifications					
ID	01	Type	Vertical		
Description	Unit No. 1				
> Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
122	Not Applicable	300	72	168,888	
> Geographic Coordinate					
Latitude	63.854831	Longitude	-148.950006	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Description	None				
Data Source	Source Test				

Emission Unit 02					
> Specifications					
ID	02		Design Capacity	658 MILLION BTU PER HOUR	
Description	Unit No. 2				
Manufacturer	TRW		Manufactured Year	1996	
Model Number	Not Applicable		Serial Number	1	
> Regulations					
Regulation/Description					
40 CFR 60 Subparts Da, Dc, and UUUUU					
> Control Equipment					
Capture Efficiency (%)	100				
System Description	Spray Dry Absorber (SDA) and Baghouse				
Equipment Type(s)	SDA to neutralize acid gases including SO2 and HCl				
	Baghouse to control PM and remove the dry material generated by the SDA				
> Pollutants Controlled					
Pollutant Description			Reduction Efficiency (%)		
Sulfur Dioxide			Not Available		
PM10 Primary (Filt + Cond)			99.95		
> Processes					
Process	Primary Process				
SCC Code	10100221				
	> External Combustion Boilers				
	> Electric Generation				
	> Bituminous/Subbituminous Coal				
	> Pulverized Coal: Wet Bottom (Subbituminous Coal)				
Material Processed	Coal				
Period Start	1/1/2016		Period End	12/31/2016	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
32,956	tons	0	0	93	7
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
1	4	8	1,283		
Fuel Characteristics					
Heat Content (Btu/lb)	Elem. Sulfur Content (wt. pct. S)	H2S Sulfur Content	Ash Content (wt. pct. ash)		
7,187	0.129	Not Available	6.472		
Heating					
Heat Input (MMBtu/hr)		Heat Output		Heat Values Convention	
369		Not Applicable		HHV	
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	4.9	POUNDS	HOURLY	CEMS	3.14
Ammonia (NH3)	Not Available	Not Available	Not Available	Not Available	Not Available
Nitrogen Oxides(NOx)	85	POUNDS	HOURLY	CEMS	54.55
PM10 Primary (Filt + Cond)(PM10-PRI)	10.872	POUNDS	HOURLY	CEMS	6.98
PM2.5 Primary (Filt + Cond)(PM25-PRI)	10.872	POUNDS	HOURLY	CEMS	6.98
Sulfur Dioxide(SO2)	8.2	POUNDS	HOURLY	CEMS	5.26
Lead and lead compounds	0.00042	POUNDS	TON	AP-42 Table 1.1-18	0.01
Volatile Organic Compounds(VOC)	0.04	POUNDS	TON	AP-42 Table 1.1-19	0.66
PM Condensable (< 1 Micron)(PM-CON)	0.04	POUNDS	MILLION BTUS	AP-42 Table 1.1-5	9.47
Process					
Secondary Process					
SCC Code	10100224				
	> External Combustion Boilers				
	> Electric Generation				
	> Bituminous/Subbituminous Coal				
	> Pulverized Coal: Wet Bottom (Subbituminous Coal)				
Material Processed	Distillate Oil				
Period Start	1/1/2016		Period End	12/31/2016	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
243,588	gallons	0	55	44	1
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
0.0	0.1	0.2	39		

Fuel Characteristics					
Heat Content (Btu/gal)	Elem. Sulfur Content (wt. pct. S)	H2S Sulfur Content	Ash Content (wt. pct. ash)		
138,222	0.0015	Not Available	Not Available		
Heating					
Heat Input (MMBtu/hr)		Heat Output		Heat Values Convention	
863		Not Applicable		HHV	
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	5	POUNDS	1,000 GALLONS	AP-42 Table 1.3-1	0.61
Ammonia (NH3)	Not Available	Not Available	Not Available	Not Available	Not Available
Nitrogen Oxides(NOX)	24	POUNDS	1,000 GALLONS	AP-42 Table 1.3-1	2.92
PM10 Primary (Filt + Cond)(PM10-PR1)	2.3	POUNDS	1,000 GALLONS	AP-42 Table 1.3-2 and 1.3-7	0.28
PM2.5 Primary (Filt + Cond)(PM25-PR1)	1.55	POUNDS	1,000 GALLONS	AP-42 Table 1.3-2 and 1.3-7	0.19
Sulfur Dioxide(SO2)	2.1E-04	POUNDS	GALLON	Mass Balance	0.03
Lead and lead compounds	9	POUNDS	BILLION GALLONS	AP-42 Table 1.3-10	0.00
Volatile Organic Compounds(VOC)	0.2	POUNDS	1,000 GALLONS	AP-42 Table 1.3-3	0.02
PM Condensible (< 1 Micron)(PM-CON)	1.3	POUNDS	1,000 GALLONS	AP-42 Table 1.3-2	0.16
> Release Points					
ID	Description			Type	Apportion %
02	Unit No. 2			Vertical	100
Release Point 02					
> Specifications					
ID	02		Type	Vertical	
Description	Unit No. 2				
> Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
315	8	208	84.2	253,943	
> Geographic Coordinate					
Latitude	63.854183	Longitude	-148.951639	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Description	None				
Data Source	Source Test				

Emission Unit 03					
> Specifications					
ID	03		Design Capacity	12.554 MILLION BTU PER HOUR	
Description	Auxiliary Heater No. 1				
Manufacturer	Cleaver-Brooks		Manufactured Year	1967	
Model Number	CB 189-300		Serial Number	L-39759	
> Regulations					
Regulation/Description					
40 CFR 63 Subpart JJJJJ					
> Control Equipment					
Capture Efficiency (%)	0				
System Description	None				
Equipment Type(s)	None				
> Pollutants Controlled					
Pollutant Description			Reduction Efficiency (%)		
Not Applicable			Not Applicable		
> Processes					
Process	Primary Process				
SCC Code	10200502				
	> External Combustion Boilers				
	> Industrial				
	> Distillate Oil				
	> 10-100 Million Btu/hr **				
Material Processed	Distillate Oil				
Period Start	1/1/2016		Period End	12/31/2016	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
35,817	gallons	0	13	1	86
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
1	2	4	666		
Fuel Characteristics					
Heat Content (Btu/gal)	Elem. Sulfur Content (wt. pct. S)	H2S Sulfur Content	Ash Content (wt. pct. ash)		
138,222	0.0015	Not Available	Not Available		
Heating					
Heat Input (MMBtu/hr)		Heat Output		Heat Values Convention	
7		Not Applicable		HHV	
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	5	POUNDS	1,000 GALLONS	AP-42 Table 1.3-1	0.09
Ammonia (NH3)	Not Available	Not Available	Not Available	Not Available	Not Available
Nitrogen Oxides(NOx)	20	POUNDS	1,000 GALLONS	AP-42 Table 1.3-1	0.36
PM10 Primary (Filt + Cond)(PM10-PRI)	2.3	POUNDS	1,000 GALLONS	AP-42 Table 1.3-2 and 1.3-7	0.04
PM2.5 Primary (Filt + Cond)(PM25-PRI)	1.55	POUNDS	1,000 GALLONS	AP-42 Table 1.3-2 and 1.3-7	0.03
Sulfur Dioxide(SO2)	2.1E-04	POUNDS	GALLON	Mass Balance	0.00
Lead and lead compounds	9	POUNDS	BILLION GALLONS	AP-42 Table 1.3-10	0.00
Volatile Organic Compounds(VOC)	0.34	POUNDS	1,000 GALLONS	AP-42 Table 1.3-3	0.01
PM Condensable (< 1 Micron)(PM-CON)	1.3	POUNDS	1,000 GALLONS	AP-42 Table 1.3-2	0.02
Process					
SCC Code	Secondary Process				
	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
Material Processed	Not Applicable				
Period Start	1/1/2016		Period End	12/31/2016	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		

Fuel Characteristics					
Heat Content	Elem. Sulfur Content	H2S Sulfur Content	Ash Content		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input		Heat Output		Heat Values Convention	
Not Applicable		Not Applicable		Not Applicable	
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOx)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (< 1 Micron)(PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
> Release Points					
ID	Description			Type	Apportion %
03	Auxiliary Heater No. 1			Vertical	100
Release Point 03					
> Specifications					
ID	03		Type	Vertical	
Description	Auxiliary Heater No. 1				
> Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
85	1.9	450	20	3600	
> Geographic Coordinate					
Latitude	63.854883	Longitude	-148.950131	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Description	None				
Data Source	Engineering Estimate				

Emission Unit 04					
> Specifications					
ID	04		Design Capacity	23 MILLION BTU PER HOUR	
Description	Auxiliary Heater No. 2				
Manufacturer	Cleaver-Brooks		Manufactured Year	1996	
Model Number	CBI 100-800-15		Serial Number	OLO94777	
> Regulations					
Regulation/Description					
40 CFR 60 Subpart Dc and 40 CFR 63 Subpart JJJJJ					
> Control Equipment					
Capture Efficiency (%)	0				
System Description	None				
Equipment Type(s)	None				
> Pollutants Controlled					
Pollutant Description			Reduction Efficiency (%)		
Not Applicable			Not Applicable		
> Processes					
Process	Primary Process				
SCC Code	10200502				
	> External Combustion Boilers				
	> Industrial				
	> Distillate Oil				
	> 10-100 Million Btu/hr **				
Material Processed	Distillate Oil				
Period Start	1/1/2016		Period End	12/31/2016	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
27,775	gallons	0	39	61	0
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
0	1	2	276		
Fuel Characteristics					
Heat Content (Btu/gal)	Elem. Sulfur Content (wt. pct. S)	H2S Sulfur Content	Ash Content (wt. pct. ash)		
138,222	0.0015	Not Available	Not Available		
Heating					
Heat Input (MMBtu/hr)		Heat Output		Heat Values Convention	
14		Not Applicable		HHV	
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	5	POUNDS	1,000 GALLONS	AP-42 Table 1.3-1	0.07
Ammonia (NH3)	Not Available	Not Available	Not Available	Not Available	Not Available
Nitrogen Oxides(NOX)	20	POUNDS	1,000 GALLONS	AP-42 Table 1.3-1	0.28
PM10 Primary (Filt + Cond)(PM10-PRI)	2.3	POUNDS	1,000 GALLONS	AP-42 Table 1.3-2 and 1.3-7	0.03
PM2.5 Primary (Filt + Cond)(PM25-PRI)	1.55	POUNDS	1,000 GALLONS	AP-42 Table 1.3-2 and 1.3-7	0.02
Sulfur Dioxide(SO2)	2.1E-04	POUNDS	GALLON	Mass Balance	0.00
Lead and lead compounds	9	POUNDS	BILLION GALLONS	AP-42 Table 1.3-10	0.00
Volatile Organic Compounds(VOC)	0.34	POUNDS	1,000 GALLONS	AP-42 Table 1.3-3	0.00
PM Condensable (< 1 Micron)(PM-CON)	1.3	POUNDS	1,000 GALLONS	AP-42 Table 1.3-2	0.02
Process	Secondary Process				
SCC Code	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
Material Processed	Not Applicable				
Period Start	1/1/2016		Period End	12/31/2016	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		

Fuel Characteristics					
Heat Content	Elem. Sulfur Content	H2S Sulfur Content	Ash Content		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input		Heat Output		Heat Values Convention	
Not Applicable		Not Applicable		Not Applicable	
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOx)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (< 1 Micron)(PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
> Release Points					
ID	Description	Type		Apportion %	
04	Auxiliary Heater No. 2	Vertical		100	
Release Point 04					
> Specifications					
ID	04	Type		Vertical	
Description	Auxiliary Heater No. 2				
> Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
152	1.9	450	24.7	4268.9	
> Geographic Coordinate					
Latitude	63.854956	Longitude	-148.951181	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Description	None				
Data Source	Engineering Estimate				

Emission Unit 05					
> Specifications					
ID	05		Design Capacity	2.75 MEGAWATTS	
Description	Diesel Generator Engine No. 1				
Manufacturer	Electro-Motive Diesel		Manufactured Year	1967	
Model Number	20-645-E4		Serial Number	67-B1-1152	
> Regulations					
Regulation/Description					
40 CFR 63 Subpart ZZZZ					
> Control Equipment					
Capture Efficiency (%)	0				
System Description	None				
Equipment Type(s)	None				
> Pollutants Controlled					
Pollutant Description			Reduction Efficiency (%)		
Not Applicable			Not Applicable		
> Processes					
Process	Primary Process				
SCC Code	20100102				
	> Internal Combustion Engines				
	> Electric Generation				
	> Distillate Oil (Diesel)				
	> Reciprocating				
Material Processed	Diesel				
Period Start	1/1/2016		Period End	12/31/2016	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
0	gallons	25	25	25	25
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
0	0	0	0		
Fuel Characteristics					
Heat Content (Btu/gal)	Elem. Sulfur Content (wt. pct. S)	H2S Sulfur Content	Ash Content (wt. pct. ash)		
138,222	0.0015	Not Available	Not Available		
Heating					
Heat Input (MMBtu/hr)		Heat Output (Megawatts)		Heat Values Convention	
0		2.75		HHV	
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	0.85	POUNDS	MILLION BTUS	AP-42 Table 3.4-1	0.00
Ammonia (NH3)	Not Available	Not Available	Not Available	Not Available	Not Available
Nitrogen Oxides(NOx)	3.2	POUNDS	MILLION BTUS	AP-42 Table 3.4-1	0.00
PM10 Primary (Filt + Cond)(PM10-PRI)	5.73E-02	POUNDS	MILLION BTUS	AP-42 Table 3.4-2	0.00
PM2.5 Primary (Filt + Cond)(PM25-PRI)	5.56E-02	POUNDS	MILLION BTUS	AP-42 Table 3.4-2	0.00
Sulfur Dioxide(SO2)	2.05E-04	POUNDS	GALLON	Mass Balance	0.00
Volatile Organic Compounds(VOC)	8.2E-02	POUNDS	MILLION BTUS	AP-42 Table 3.4-1	0.00
Lead and lead compounds	Not Available	Not Available	Not Available	Not Available	Not Available
PM Condensable (< 1 Micron)(PM-CON)	7.7E-03	POUNDS	MILLION BTUS	AP-42 Table 3.4-2	0.00
Process					
SCC Code	Secondary Process				
	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
Material Processed	Not Applicable				
Period Start	1/1/2016		Period End	12/31/2016	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		

Fuel Characteristics					
Heat Content	Elem. Sulfur Content	H2S Sulfur Content	Ash Content		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input		Heat Output		Heat Values Convention	
Not Applicable		Not Applicable		Not Applicable	
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOX)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (< 1 Micron)(PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
> Release Points					
ID	Description	Type		Apportion %	
05	Diesel Generator Engine No. 1	Vertical		100	
Release Point 05					
> Specifications					
ID	05	Type		Vertical	
Description	Diesel Generator Engine No. 1				
> Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
18.25	3.33	950	0.1	13,180	
> Geographic Coordinate					
Latitude	63.855217	Longitude	-148.948886	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Description	None				
Data Source	Engineering Estimate				

Emission Unit 06					
> Specifications					
ID	06		Design Capacity	400 ton/hr	
Description	Crusher System (Dust Collector No. 1)				
Manufacturer	Not Available		Manufactured Year	Not Available	
Model Number	Not Available		Serial Number	885247 (Secondary Crusher No. 1) 844034 (Secondary Crusher No. 2)	
> Regulations					
Regulation/Description					
40 CFR 60 Subpart Y					
> Control Equipment					
Capture Efficiency (%)	Not Available				
System Description	Dust Collector No. 1				
Equipment Type(s)	Fabric Filter/Baghouse				
> Pollutants Controlled					
Pollutant Description			Reduction Efficiency (%)		
PM10 Primary (Filt + Cond)			Not Available		
PM2.5 Primary (Filt + Cond)			Not Available		
> Processes					
Process	Primary Process				
SCC Code	30510103				
	> Industrial Processes				
	> Mineral Products				
	> Bulk Materials Conveyors				
	> Coal				
Material Processed	Coal				
Period Start	1/1/2016		Period End	12/31/2016	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
197,000	tons	36	24	26	14
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
1	3	7	1,211		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content	H2S Sulfur Content	Ash Content		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input	Heat Output		Heat Values Convention		
Not Applicable	Not Applicable		Not Applicable		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOX)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	2.05	POUNDS	HOURLY	Permit AQ0173TVP02, Table B	1.24
PM2.5 Primary (Filt + Cond)(PM25-PRI)	2.05	POUNDS	HOURLY	Permit AQ0173TVP02, Table B	1.24
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (< 1 Micron)(PM-CON)	Not Available	Not Available	Not Available	Not Available	Not Available
Process					
SCC Code	Secondary Process				
	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
Material Processed	Not Applicable				
Period Start	1/1/2016		Period End	12/31/2016	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		

Fuel Characteristics					
Heat Content	Elem. Sulfur Content	H2S Sulfur Content	Ash Content		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input		Heat Output		Heat Values Convention	
Not Applicable		Not Applicable		Not Applicable	
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOx)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (< 1 Micron)(PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
> Release Points					
ID	Description			Type	Apportion %
06	Crusher System (Dust Collector No. 1)			Downward-facing Vent	100
Release Point 06					
> Specifications					
ID	06		Type	Downward-facing Vent	
Description	Crusher System (Dust Collector No. 1)				
> Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
1	1	30	1	12,000	
> Geographic Coordinate					
Latitude	63.855014	Longitude	-148.949925	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Description	None				
Data Source	Engineering Estimate				

Emission Unit 07					
> Specifications					
ID	07		Design Capacity	314 tons	
Description	Limestone Storage Silo				
Manufacturer	Not Available		Manufactured Year	Not Available	
Model Number	Not Available		Serial Number	Not Available	
> Regulations					
Regulation/Description					
Not Applicable					
> Control Equipment					
Capture Efficiency (%)	Not Available				
System Description	Baghouse				
Equipment Type(s)	Dust Suppression				
	Fabric Filter/Baghouse				
> Pollutants Controlled					
Pollutant Description				Reduction Efficiency (%)	
PM10 Primary (Filt + Cond)				Not Available	
PM2.5 Primary (Filt + Cond)				Not Available	
> Processes					
Process	Primary Process				
SCC Code	30510205				
	> Industrial Processes				
	> Mineral Products				
	> Bulk Materials Storage Bins				
	> Limestone				
Material Processed	Limestone				
Period Start	1/1/2016		Period End	12/31/2016	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
Not Applicable	Not Applicable	0	0	90	10
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
0.04	0.1	0.3	49		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content	H2S Sulfur Content	Ash Content		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input	Heat Output		Heat Values Convention		
Not Applicable	Not Applicable		Not Applicable		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOX)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	0.14	POUNDS	HOUR	Permit AQ0173TVP02, Table B	0.00
PM2.5 Primary (Filt + Cond)(PM25-PRI)	0.14	POUNDS	HOUR	Permit AQ0173TVP02, Table B	0.00
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (< 1 Micron)(PM-CON)	Not Available	Not Available	Not Available	Not Available	Not Available
Process					
SCC Code	Secondary Process				
	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
Material Processed	Not Applicable				
Period Start	1/1/2016		Period End	12/31/2016	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		

Fuel Characteristics					
Heat Content	Elem. Sulfur Content	H2S Sulfur Content	Ash Content		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input		Heat Output		Heat Values Convention	
Not Applicable		Not Applicable		Not Applicable	
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOx)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (< 1 Micron)(PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
> Release Points					
ID	Description	Type		Apportion %	
07	Limestone Storage Silo	Downward-facing Vent		100	
Release Point 07					
> Specifications					
ID	07	Type		Downward-facing Vent	
Description	Limestone Storage Silo				
> Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
1	1	30	1	800	
> Geographic Coordinate					
Latitude	63.854947	Longitude	-148.950628	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Description	None				
Data Source	Engineering Estimate				

Emission Unit 08					
> Specifications					
ID	08		Design Capacity	570 tons	
Description	Flyash Storage Silo				
Manufacturer	Not Available		Manufactured Year	Not Available	
Model Number	Not Available		Serial Number	Not Available	
> Regulations					
Regulation/Description					
Not Applicable					
> Control Equipment					
Capture Efficiency (%)	Not Available				
System Description	Pulse Jet Baghouse				
Equipment Type(s)	Dust Suppression				
	Fabric Filter/Baghouse				
> Pollutants Controlled					
Pollutant Description			Reduction Efficiency (%)		
PM10 Primary (Filt + Cond)			Not Available		
PM2.5 Primary (Filt + Cond)			Not Available		
> Processes					
Process	Primary Process				
SCC Code	30183001				
	> Industrial Processes				
	> Chemical Manufacturing				
	> General Processes				
	> Storage/Transfer				
Material Processed	Flyash				
Period Start	1/1/2016		Period End	12/31/2016	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
Not Applicable	Not Applicable	0	18	77	5
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
1	4	8	1,374		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content	H2S Sulfur Content	Ash Content		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input	Heat Output		Heat Values Convention		
Not Applicable	Not Applicable		Not Applicable		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOX)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	0.86	POUNDS	HOURL	Permit AQ0173TVP02, Table B	0.59
PM2.5 Primary (Filt + Cond)(PM25-PRI)	0.86	POUNDS	HOURL	Permit AQ0173TVP02, Table B	0.59
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (< 1 Micron)(PM-CON)	Not Available	Not Available	Not Available	Not Available	Not Available
Process					
SCC Code	Secondary Process				
	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
Material Processed	Not Applicable				
Period Start	1/1/2016		Period End	12/31/2016	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		

Fuel Characteristics					
Heat Content	Elem. Sulfur Content	H2S Sulfur Content	Ash Content		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input		Heat Output		Heat Values Convention	
Not Applicable		Not Applicable		Not Applicable	
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOX)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (< 1 Micron)(PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
> Release Points					
ID	Description			Type	Apportion %
08	Flyash Storage Silo			Horizontal	100
Release Point 08					
> Specifications					
ID	08		Type	Horizontal	
Description	Flyash Storage Silo				
> Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
1	1	30	1	5,000	
> Geographic Coordinate					
Latitude	63.855036	Longitude	-148.951444	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Description	None				
Data Source	Engineering Estimate				

Emission Unit 09					
> Specifications					
ID	09		Design Capacity	50 tons	
Description	Sodium Bicarbonate Handling System				
Manufacturer	Not Available		Manufactured Year	Not Available	
Model Number	Not Available		Serial Number	Not Available	
> Regulations					
Regulation/Description					
40 CFR 60 Subpart OOO					
> Control Equipment					
Capture Efficiency (%)	Not Available				
System Description	Horizon System 58-SF-16 Style II Pulse Air Baghouse				
Equipment Type(s)	Fabric Filter/Baghouse				
> Pollutants Controlled					
Pollutant Description			Reduction Efficiency (%)		
PM10 Primary (Filt + Cond)			Not Available		
PM2.5 Primary (Filt + Cond)			Not Available		
> Processes					
Process	Primary Process				
SCC Code	30183001				
	> Industrial Processes				
	> Chemical Manufacturing				
	> General Processes				
	> Storage/Transfer				
Material Processed	Sodium Bicarbonate				
Period Start	1/1/2016		Period End	12/31/2016	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
Not Applicable	Not Applicable	0	0	67	33
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
0	0	0	15		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content	H2S Sulfur Content	Ash Content		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input	Heat Output		Heat Values Convention		
Not Applicable	Not Applicable		Not Applicable		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOx)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	0.02	GRAINS	DRY STANDARD CUBIC FOOT	Design Specifications	0.00
PM2.5 Primary (Filt + Cond)(PM25-PRI)	0.02	GRAINS	DRY STANDARD CUBIC FOOT	Design Specifications	0.00
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (< 1 Micron)(PM-CON)	Not Available	Not Available	Not Available	Not Available	Not Available
Process	Secondary Process				
SCC Code	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
Material Processed	Not Applicable				
Period Start	1/1/2016		Period End	12/31/2016	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		

Fuel Characteristics					
Heat Content	Elem. Sulfur Content	H2S Sulfur Content	Ash Content		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input		Heat Output		Heat Values Convention	
Not Applicable		Not Applicable		Not Applicable	
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOx)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (< 1 Micron)(PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
> Release Points					
ID	Description	Type		Apportion %	
09	Sodium Bicarbonate Handling System	Downward-facing Vent		100	
Release Point 09					
> Specifications					
ID	09	Type		Downward-facing Vent	
Description	Sodium Bicarbonate Handling System				
> Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
1	1	30	1	440	
> Geographic Coordinate					
Latitude	63.854619	Longitude	-148.950214	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Description	None				
Data Source	Engineering Estimate				

Emission Unit 10					
> Specifications					
ID	10		Design Capacity	240 ton/hr	
Description	Coal Handling System (Dust Collector No. 2)				
Manufacturer	Not Available		Manufactured Year	Not Available	
Model Number	Not Available		Serial Number	Not Available	
> Regulations					
Regulation/Description					
40 CFR 60 Subpart Y					
> Control Equipment					
Capture Efficiency (%)	Not Available				
System Description	Air-Cure Environmental, Inc 276RF8 Reverse Pulse Baghouse				
Equipment Type(s)	Fabric Filter/Baghouse				
> Pollutants Controlled					
Pollutant Description			Reduction Efficiency (%)		
PM10 Primary (Filt + Cond)			Not Available		
PM2.5 Primary (Filt + Cond)			Not Available		
> Processes					
Process	Primary Process				
SCC Code	30510103				
	> Industrial Processes				
	> Mineral Products				
	> Bulk Materials Conveyors				
	> Coal				
Material Processed	Coal				
Period Start	1/1/2016		Period End	12/31/2016	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
Not Applicable	Not Applicable	36	24	26	14
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
1	3	7	1,211		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content	H2S Sulfur Content	Ash Content		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input	Heat Output		Heat Values Convention		
Not Applicable	Not Applicable		Not Applicable		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOx)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	3.43	POUNDS	HOUR	Permit AQ0173TVP02, Table B	2.08
PM2.5 Primary (Filt + Cond)(PM25-PRI)	3.43	POUNDS	HOUR	Permit AQ0173TVP02, Table B	2.08
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (< 1 Micron)(PM-CON)	Not Available	Not Available	Not Available	Not Available	Not Available
Process					
SCC Code	Secondary Process				
	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
Material Processed	Not Applicable				
Period Start	1/1/2016		Period End	12/31/2016	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		

Fuel Characteristics					
Heat Content	Elem. Sulfur Content	H2S Sulfur Content	Ash Content		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input		Heat Output		Heat Values Convention	
Not Applicable		Not Applicable		Not Applicable	
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOX)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (< 1 Micron)(PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
> Release Points					
ID	Description			Type	Apportion %
10	Coal Handling System (Dust Collector No. 2)			Horizontal	100
Release Point 10					
> Specifications					
ID	10		Type	Horizontal	
Description	Coal Handling System (Dust Collector No. 2)				
> Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
1	1	30	1	20,000	
> Geographic Coordinate					
Latitude	63.854989	Longitude	-148.950558	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Description	None				
Data Source	Engineering Estimate				

Emission Unit 11					
> Specifications					
ID	11	Design Capacity	Not Applicable		
Description	Haul Road (located on GVEA property)				
Manufacturer	Not Applicable	Manufactured Year	Not Applicable		
Model Number	Not Applicable	Serial Number	Not Applicable		
> Regulations					
Regulation/Description					
Not Applicable					
> Control Equipment					
Capture Efficiency (%)	50				
System Description	Water application				
Equipment Type(s)	Dust Suppression				
> Pollutants Controlled					
Pollutant Description				Reduction Efficiency (%)	
PM10 Primary (Filt + Cond)				50	
PM2.5 Primary (Filt + Cond)				50	
> Processes					
Process	Primary Process				
SCC Code	30501090				
	> Industrial Processes				
	> Mineral Products				
	> Coal Mining, Cleaning, and Material Handling (See 305310)				
	> Haul Roads: General				
Material Processed	Fugitive Dust				
Period Start	1/1/2016	Period End	12/31/2016		
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
788	Vehicle Miles Travelled (VMT)	22	22	39	17
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
7	24	52	8,784		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content	H2S Sulfur Content	Ash Content		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input	Heat Output		Heat Values Convention		
Not Applicable	Not Applicable		Not Applicable		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOX)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	1.54	POUNDS	VMT	AP-42 Section 13.2.2	0.61
PM2.5 Primary (Filt + Cond)(PM25-PRI)	0.15	POUNDS	VMT	AP-42 Section 13.2.2	0.06
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (< 1 Micron)(PM-CON)	Not Available	Not Available	Not Available	Not Available	Not Available
Process					
SCC Code	Secondary Process				
	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
Material Processed	Not Applicable				
Period Start	1/1/2016	Period End	12/31/2016		
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		

Fuel Characteristics					
Heat Content	Elem. Sulfur Content	H2S Sulfur Content	Ash Content		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input		Heat Output		Heat Values Convention	
Not Applicable		Not Applicable		Not Applicable	
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOX)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensible (< 1 Micron)(PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
> Release Points					
ID	Description			Type	Apportion %
11	Haul Road (located on GVEA property)			Fugitive	100
Release Point 11					
> Specifications					
ID	11		Type	Fugitive	
Description	Haul Road (located on GVEA property)				
> Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	
> Geographic Coordinate					
Latitude	63.855392	Longitude	-148.945955	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Description	Location determined near split in haul road by substation				
Data Source	Engineering Estimate				

Emission Unit 12					
> Specifications					
ID	12		Design Capacity	372,000 cubic feet	
Description	Coal Storage Pile				
Manufacturer	Not Applicable		Manufactured Year	Not Applicable	
Model Number	Not Applicable		Serial Number	Not Applicable	
> Regulations					
Regulation/Description					
Not Applicable					
> Control Equipment					
Capture Efficiency (%)	50				
System Description	Water application				
Equipment Type(s)	Dust Suppression				
> Pollutants Controlled					
Pollutant Description			Reduction Efficiency (%)		
PM10 Primary (Filt + Cond)			50		
PM2.5 Primary (Filt + Cond)			50		
> Processes					
Process	Primary Process				
SCC Code	30510303				
	> Industrial Processes				
	> Mineral Products				
	> Bulk Materials Open Stockpiles				
	> Coal				
Material Processed	Coal				
Period Start	1/1/2016		Period End	12/31/2016	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
197,000	tons	22	22	39	17
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
7	24	52	8,784		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content	H2S Sulfur Content	Ash Content		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input	Heat Output		Heat Values Convention		
Not Applicable	Not Applicable		Not Applicable		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOX)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	0.55	TONS	YEAR	AP-42 Sections 13.2.2, 13.2.4, and 13.2.5	0.55
PM2.5 Primary (Filt + Cond)(PM25-PRI)	0.06	TONS	YEAR	AP-42 Sections 13.2.2, 13.2.4, and 13.2.5	0.06
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (< 1 Micron)(PM-CON)	Not Available	Not Available	Not Available	Not Available	Not Available
Process					
SCC Code	Secondary Process				
	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
Material Processed	Not Applicable				
Period Start	1/1/2016		Period End	12/31/2016	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		

Fuel Characteristics					
Heat Content	Elem. Sulfur Content	H2S Sulfur Content	Ash Content		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input		Heat Output		Heat Values Convention	
Not Applicable		Not Applicable		Not Applicable	
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOX)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensible (< 1 Micron)(PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
> Release Points					
ID	Description			Type	Apportion %
12	Coal Storage Pile			Fugitive	100
Release Point 12					
> Specifications					
ID	12		Type	Fugitive	
Description	Coal Storage Pile				
> Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	
> Geographic Coordinate					
Latitude	63.854556	Longitude	-148.946703	Datum	World 1984
Base Elevation	1,260	Accuracy	1		
Description	None				
Data Source	Engineering Estimate				

Emission Unit 13					
> Specifications					
ID	13	Design Capacity	264 HORSEPOWER		
Description	Firewater Pump Engine				
Manufacturer	Caterpillar	Manufactured Year	1997		
Model Number	3406B	Serial Number	6TB14931		
> Regulations					
Regulation/Description					
40 CFR 63 Subpart ZZZZ					
> Control Equipment					
Capture Efficiency (%)	Not Applicable				
System Description	Not Applicable				
Equipment Type(s)	Not Applicable				
> Pollutants Controlled					
Pollutant Description			Reduction Efficiency (%)		
Not Applicable			Not Applicable		
> Processes					
Process	Primary Process				
SCC Code	20200102				
	> Internal Combustion Engines				
	> Industrial				
	> Distillate Oil (Diesel)				
	> Reciprocating				
Material Processed	Distillate Oil				
Period Start	1/1/2016	Period End	12/31/2016		
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
84	gallons	25	25	25	25
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
0.005	0.02	0.04	6		
Fuel Characteristics					
Heat Content (Btu/gal)	Elem. Sulfur Content (wt. pct. S)	H2S Sulfur Content	Ash Content (wt. pct. ash)		
138,222	0.0015	Not Available	Not Available		
Heating					
Heat Input (MMBtu/hr)		Heat Output (horsepower)		Heat Values Convention	
2		264		HHV	
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	6.68E-03	POUNDS	HORSEPOWER-HOUR	AP-42 Table 3.3-1	0.01
Ammonia (NH3)	Not Available	Not Available	Not Available	Not Available	Not Available
Nitrogen Oxides(NOx)	0.031	POUNDS	HORSEPOWER-HOUR	AP-42 Table 3.3-1	0.02
PM10 Primary (Filt + Cond)(PM10-PRI)	2.2E-03	POUNDS	HORSEPOWER-HOUR	AP-42 Table 3.3-1	0.00
PM2.5 Primary (Filt + Cond)(PM25-PRI)	Not Available	Not Available	Not Available	Not Available	Not Available
Sulfur Dioxide(SO2)	2.05E-04	POUNDS	GALLON	Mass Balance	0.00
Volatile Organic Compounds(VOC)	2.51E-03	POUNDS	HORSEPOWER-HOUR	AP-42 Table 3.3-1	0.00
Lead and lead compounds	Not Available	Not Available	Not Available	Not Available	Not Available
PM Condensable (< 1 Micron)(PM-CON)	Not Available	Not Available	Not Available	Not Available	Not Available
Process					
SCC Code	Secondary Process				
	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
Material Processed	Not Applicable				
Period Start	1/1/2016	Period End	12/31/2016		

Throughput					
Total		Summer %	Fall %	Winter %	Spring %
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content	H2S Sulfur Content	Ash Content		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input		Heat Output		Heat Values Convention	
Not Applicable		Not Applicable		Not Applicable	
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOx)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (< 1 Micron)(PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
> Release Points					
ID	Description			Type	Apportion %
13	Firewater Pump Engine			Horizontal	100
Release Point 13					
> Specifications					
ID	13		Type	Horizontal	
Description	Firewater Pump Engine				
> Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
10	1	300	90	283	
> Geographic Coordinate					
Latitude	63.854956	Longitude	-148.951181	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Description	None				
Data Source	Engineering Estimate				

EU ID	Description	Fuel Consumption (gallons)											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	Unit 1	1,178	1,090	4,362	4,929	6,341	4,983	1,028	698	7,443	12,573	32,888	5,452
2	Unit 2	57,708	49,162	1,872	-	-	-	-	-	602	109,124	25,120	-
3	Auxiliary Boiler 1	350	-	5,125	25,763	-	-	-	-	1,462	971	13	245,588
4	Auxiliary Boiler 2	-	-	100	-	-	-	-	-	-	-	10,734	16,942
5	Diesel Electric Generator	-	-	-	-	-	-	-	-	-	-	-	27,775
13	Firewater Pump	7	7	7	7	7	7	7	7	7	7	7	84
Total		6,659	21,018	2,280	-	-	-	-	-	-	-	-	-

EU ID	Description	Coal Consumption (tons)											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	Unit 1	16,359	15,237	15,350	3,264	13,775	11,818	15,522	15,881	14,722	15,434	12,602	14,081
2	Unit 2	26,018	36,255	17,629	3,264	13,775	11,818	15,522	15,881	14,722	15,434	12,602	14,081
Total		42,377	51,492	32,979	6,528	27,550	23,636	31,044	31,762	29,444	30,868	25,204	28,162

EU ID	Description	Fuel Usage by Season (%)											
		Summer	Fall	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall	Winter	Spring
1	Unit 1	8.1	61.7	9.3	18.9	8.1	61.7	9.3	18.9	8.1	61.7	9.3	18.9
2	Unit 2	26.3	26.1	27.8	19.7	26.3	26.1	27.8	19.7	26.3	26.1	27.8	19.7
3	Auxiliary Boiler 1	-	55.4	43.9	0.8	-	55.4	43.9	0.8	-	55.4	43.9	0.8
4	Auxiliary Boiler 2	-	-	93.1	6.9	-	-	93.1	6.9	-	-	93.1	6.9
5	Diesel Electric Generator	-	-	12.8	1.0	-	-	12.8	1.0	-	-	12.8	1.0
13	Firewater Pump	-	-	38.6	61.0	-	-	38.6	61.0	-	-	38.6	61.0
Total		25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0

EU ID	Description	Fuel HHV (Btu/gal)											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	Unit 1	138,627	138,627	138,627	138,627	138,627	138,627	138,627	138,627	138,627	138,627	138,627	138,627
2	Unit 2	138,627	138,627	138,627	138,627	138,627	138,627	138,627	138,627	138,627	138,627	138,627	138,627
Total		277,254	277,254	277,254	277,254	277,254	277,254	277,254	277,254	277,254	277,254	277,254	277,254

EU ID	Description	Fuel HHV (Btu/gal)											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	Unit 1	138,627	138,627	138,627	138,627	138,627	138,627	138,627	138,627	138,627	138,627	138,627	138,627
2	Unit 2	138,627	138,627	138,627	138,627	138,627	138,627	138,627	138,627	138,627	138,627	138,627	138,627
Total		277,254	277,254	277,254	277,254	277,254	277,254	277,254	277,254	277,254	277,254	277,254	277,254

EU ID	Description	Fuel Consumption (gallons)											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	Unit 1	1,178	1,090	4,362	4,929	6,341	4,983	1,028	698	7,443	12,573	32,888	5,452
2	Unit 2	57,708	49,162	1,872	-	-	-	-	-	602	109,124	25,120	-
3	Auxiliary Boiler 1	350	-	5,125	25,763	-	-	-	-	1,462	971	13	245,588
4	Auxiliary Boiler 2	-	-	100	-	-	-	-	-	-	-	10,734	16,942
5	Diesel Electric Generator	-	-	-	-	-	-	-	-	-	-	-	27,775
13	Firewater Pump	7	7	7	7	7	7	7	7	7	7	7	84
Total		6,659	21,018	2,280	-	-	-	-	-	-	-	-	-

EU ID	Description	Coal Consumption (tons)											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	Unit 1	16,359	15,237	15,350	3,264	13,775	11,818	15,522	15,881	14,722	15,434	12,602	14,081
2	Unit 2	26,018	36,255	17,629	3,264	13,775	11,818	15,522	15,881	14,722	15,434	12,602	14,081
Total		42,377	51,492	32,979	6,528	27,550	23,636	31,044	31,762	29,444	30,868	25,204	28,162

EU ID	Description	Fuel Usage by Season (%)											
		Summer	Fall	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall	Winter	Spring
1	Unit 1	8.1	61.7	9.3	18.9	8.1	61.7	9.3	18.9	8.1	61.7	9.3	18.9
2	Unit 2	26.3	26.1	27.8	19.7	26.3	26.1	27.8	19.7	26.3	26.1	27.8	19.7
3	Auxiliary Boiler 1	-	55.4	43.9	0.8	-	55.4	43.9	0.8	-	55.4	43.9	0.8
4	Auxiliary Boiler 2	-	-	93.1	6.9	-	-	93.1	6.9	-	-	93.1	6.9
5	Diesel Electric Generator	-	-	12.8	1.0	-	-	12.8	1.0	-	-	12.8	1.0
13	Firewater Pump	-	-	38.6	61.0	-	-	38.6	61.0	-	-	38.6	61.0
Total		25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0

EU ID	Description	Fuel HHV (Btu/gal)											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	Unit 1	138,627	138,627	138,627	138,627	138,627	138,627	138,627	138,627	138,627	138,627	138,627	138,627
2	Unit 2	138,627	138,627	138,627	138,627	138,627	138,627	138,627	138,627	138,627	138,627	138,627	138,627
Total		277,254	277,254	277,254	277,254	277,254	277,254	277,254	277,254	277,254	277,254	277,254	277,254

EU ID	Description	Fuel HHV (Btu/gal)											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	Unit 1	138,627	138,627	138,627	138,627	138,627	138,627	138,627	138,627	138,627	138,627	138,627	138,627
2	Unit 2	138,627	138,627	138,627	138,627	138,627	138,627	138,627	138,627	138,627	138,627	138,627	138,627
Total		277,254	277,254	277,254	277,254	277,254	277,254	277,254	277,254	277,254	277,254	277,254	277,254

2016 Actual Emissions Calculations - Haul Road Particulate Matter Emissions
Golden Valley Electric Association - Healy Power Plant

Emission Unit		Factor Reference	Emission	Emission Factor	2016 Actual Operation	2016 Actual PM Emissions
ID	Description					
11	Coal Haul - Unpaved Portion	AP-42, Section 13.2.2	PM	5.97 lb/VMT	788 VMT	2.35 tpy ¹
			PM ₁₀	1.54 lb/VMT		0.61 tpy ¹
			PM _{2.5}	0.15 lb/VMT		0.06 tpy ¹
Total PM Emissions					Total PM ₁₀ Emissions	2.35 tpy
					Total PM _{2.5} Emissions	0.61 tpy
					Total PM _{2.5} Emissions	0.06 tpy

Notes:

¹ Coal Haul Road**Unpaved Road Emission Factor**

AP-42, Section 13.2.2, Equation 1a:

$$E \left(\frac{lb}{VMT} \right) = k \left(\frac{s}{12} \right)^a \left(\frac{W}{3} \right)^b$$

k = surface material silt content (haul road)

W = mean vehicle weight

a (empirical constant)

b (empirical constant)

E (uncontrolled) =

Efficiency =

E (controlled) =

PM	4.9	PM ₁₀	1.5	PM _{2.5}	0.15	from AP-42, Table 13.2.2-2
	5.1		5.1		5.1	percent, from AP-42, Table 13.2.2-1
	167.5		167.5		167.5	tons, estimate - average of full (230 ton) and empty (105 ton) truck
	0.7		0.9		0.9	from AP-42, Table 13.2.2-2
	0.45		0.45		0.45	from AP-42, Table 13.2.2-2
	16.45		4.24		0.42	lb/VMT
	50%		50%		50%	assumed control efficiency for water
	8.23		2.12		0.21	lb/VMT

Healy Alaska annually has 100 days with rainfall greater than or equal to 0.01 inches per the Western Regional Climate Center.

AP-42, Section 13.2.2, Equation 2:

$$E_{ext} = E \left(\frac{365 - P}{365} \right)$$

E_{ext} = annual size-specific emission factor extrapolated for water mitigation, lb/VMT

E = emission factor from Equation 1a

P = number of days in a year with at least 0.01 inches of precipitation

PM	PM ₁₀	PM _{2.5}
5.97	1.54	0.15
lb/VMT		

2016 Actual Emissions Calculations - Haul Road Particulate Matter Emissions
Golden Valley Electric Association - Healy Power Plant

Coal Throughput	
Unit 1 actual coal throughput	164,044 tons
Unit 2 actual coal throughput	32,956 tons
Total potential coal throughput	197,000 tons

Vehicle Miles Traveled (VMT)

$$VMT = \frac{\text{Throughput (tons)} \times \text{Roundtrip Distance (miles)}}{\text{Haul Truck Capacity (tons/trip)}}$$

Haul truck capacity	125 tons, estimate
Unpaved distance from coal pile to paved road (round trip)	0.50 miles/trip
Unpaved road VMT =	788.00 miles

2016 Actual Emissions Calculations - Coal Storage Pile Particulate Matter Emissions
Golden Valley Electric Association - Healy Power Plant

Emission Unit		Factor Reference	Emission	Emission Factor	Actual Operation	Actual PM Emissions
ID	Description					
12	Truck Drop Onto Stockpile	AP-42, Section 13.2.4	PM	2.69E-05 lb/ton	197,000 tpy	2.7E-03 tpy ¹
			PM ₁₀	1.27E-05 lb/ton		1.3E-03 tpy ¹
			PM _{2.5}	1.93E-06 lb/ton		1.9E-04 tpy ¹
	Front End Loader Drop Into Grizzly	AP-42, Section 13.2.4	PM	2.69E-05 lb/ton	197,000 tpy	2.7E-03 tpy ¹
			PM ₁₀	1.27E-05 lb/ton		1.3E-03 tpy ¹
			PM _{2.5}	1.93E-06 lb/ton		1.9E-04 tpy ¹
	Front End Loader Movement - Coal Pile to Grizzly	AP-42, Section 13.2.2	PM	3.72 lb/VMT	1,036 VMT	1.93 tpy ²
			PM ₁₀	1.06 lb/VMT		5.5E-01 tpy ²
			PM _{2.5}	0.11 lb/VMT		5.5E-02 tpy ²
	Stockpile Wind Erosion	AP-42, Section 13.2.5	PM	0 g/m ² -yr	10,150 m ²	0 tpy ³
			PM ₁₀	0 g/m ² -yr		0 tpy ³
			PM _{2.5}	0 g/m ² -yr		0 tpy ³
Total PM Emissions						1.94 tpy
Total PM ₁₀ Emissions						0.55 tpy
Total PM _{2.5} Emissions						0.06 tpy

Notes:

¹ Truck Drop onto Stockpile and Front End Loader Drop to Grizzly

Drop Operation Emission Factor:

AP-42, Section 13.2.4

$$E \left(\frac{\text{lb}}{\text{ton}} \right) = \frac{k \times 0.0037 \times \left(\frac{U}{5} \right)^{1.3}}{\left(\frac{M}{2} \right)^{1.4}}$$

k

U = mean wind speed

M = coal moisture content

E =

	PM	PM ₁₀	PM _{2.5}
0.74	0.35	0.053	
3.03	3.03	3.03	
30.74	30.74	30.74	
2.69E-05	1.27E-05	1.93E-06	

miles/hr

percent

lb/ton

AP-42, Section 13.2.4

Per www.ncdc.noaa.gov for calendar year 2016, McKinley Airport ASOS (PAIN)

From 2016 coal proximate analyses

Annual Stockpile Throughput:

Unit 1 potential coal throughput	164,044 tons
Unit 2 potential coal throughput	32,956 tons
Total potential coal throughput	197,000 tons

² Front End Loader Movement

Coal moved per trip:

$$Coal \text{ Density} \left(\frac{\text{lb}}{\text{ft}^3} \right) \times 27 \left(\frac{\text{ft}^3}{\text{yd}^3} \right) \times Bucket \text{ Size (yd}^3 \text{)}$$

$$2000 \left(\frac{\text{lb}}{\text{ton}} \right)$$

Size of load bucket

Density of coal

Coal moved per trip

8 yd³50 lb/ft³

5.4 tons

2016 Actual Emissions Calculations - Coal Storage Pile Particulate Matter Emissions
Golden Valley Electric Association - Healy Power Plant

Emission Factor

AP-42, Section 13.2.2, Equation 1a:

$$E' \left(\frac{lb}{VMT} \right) = k \left(\frac{s}{12} \right)^a \left(\frac{W}{3} \right)^b$$

s = surface material silt content (haul road)	k	PM	PM ₁₀	PM _{2.5}	
W = mean vehicle weight		4.9	1.5	0.15	from AP-42, Table 13.2.2-2
a (empirical constant)	27	8.4	8.4	8.4	percent, from AP-42, Table 13.2.2-1
b (empirical constant)	0.7	27	27	27	tons, estimate
E (uncontrolled) =	0.45	0.9	0.9	0.9	from AP-42, Table 13.2.2-2
Efficiency =	10.26	0.45	0.45	0.45	from AP-42, Table 13.2.2-2
E (controlled) =	50%	2.92	2.92	0.29	lb/VMT
		50%	50%	50%	assumed control efficiency for water
		5.13	1.46	0.15	lb/VMT

Healy Alaska annually has 100 days with rainfall greater than or equal to 0.01 inches per the Western Regional Climate Center.
 AP-42, Section 13.2.2, Equation 2:

$$E'_{ext} = E' \left(\frac{365 - P}{365} \right)$$

E_{ext} = annual size-specific emission factor extrapolated for water mitigation, lb/VMT
 E = emission factor from Equation 1a
 P = number of days in a year with at least 0.01 inches of precipitation

E (controlled) =	PM	PM ₁₀	PM _{2.5}
	3.72	1.06	0.11
			lb/VMT

Vehicle Miles Traveled (VMT)

$$VMT = \frac{\text{Throughput (tons)} \times \text{Roundtrip Distance (miles)}}{\text{Haul Truck Capacity (tons/trip)}}$$

Total Potential Coal Throughput	197,000 tons
Coal moved per trip	5.4 tons
Approximate distance from coal pile to grizzly (round trip)	150 feet
VMT = vehicles miles traveled per year	1,036

2016 Actual Emissions Calculations - Coal Storage Pile Particulate Matter Emissions
Golden Valley Electric Association - Healy Power Plant

³ Stockpile Wind Erosion
 Coal Pile Surface Area

Surface area of active face = 10,150 m² Engineering estimate of projected use

AP-42 Section 13.2.5, Equation (2)

Emission factor for wind-generated particulate emissions from mixtures of erodible and nonerodible surface material subject to disturbance, EF

$$EF = \left(\frac{q}{m^2 \cdot yr} \right) = k \sum_{i=1}^N P_i$$

where

k = particle size multiplier (AP-42 Section 13.2.5.3)

N = number of disturbances per year

P_i = erosion potential corresponding to the fastest mile of wind for the ith period between disturbances, g/m²

AP-42 Section 13.2.5, Equation (3)

Erosion potential function for a dry exposed surface, P

$$P = 58 (u^* - u_t^*)^2 + 25 (u^* - u_t^*)$$

$$P = 0 \text{ for } u^* \leq u_t^*$$

where

u* = friction velocity (m/s)

u_t = threshold friction velocity (m/s)

AP-42 Section 13.2.5, Equation (1)

Friction velocity, u*

$$u^* = \frac{0.4 \times u(z)}{\ln\left(\frac{z}{z_o}\right)} \text{ when } z > z_o$$

where

u* = friction velocity (cm/s)

u(z) = wind speed at height z above test surface (cm/s)

z = height above test surface (cm)

z_o = roughness height, cm

Data:

u(z)	10	Use maximum wind gust speed recorded at McKinley Airport ASOS for each month in 2015 (see table below)
z	meters	
N	365	disturbances/year for active face, estimated
	30	average disturbances/month

2016 Actual Emissions Calculations - Coal Storage Pile Particulate Matter Emissions
Golden Valley Electric Association - Healy Power Plant

Month-Year	Maximum Wind Speed (u(10)) ^a		Wind Direction deg	Uncrusted Coal Pile ^b (Table 13.2.5-2)						Ground Coal ^c (Table 13.2.5-2)						Emission Factor, EF g/m ² -yr
	mph	m/s		Roughness Height (z ₀) cm	Threshold Friction Velocity (u _t) m/s	Calculated Friction Velocity (u*) m/s	Erosion potential function, P	Roughness Height (z ₀) cm	Threshold Friction Velocity (u _t) m/s	Calculated Friction Velocity (u*) m/s	Erosion potential function, P	P x N	k			
Jan-16	31	13.9	206	0.3	1.12	0.68	0	0.01	0.55	0.48	0	0				
Feb-16	29	13.0	197	0.3	1.12	0.64	0	0.01	0.55	0.45	0	0				
Mar-16	26	11.6	194	0.3	1.12	0.57	0	0.01	0.55	0.40	0	0				
Apr-16	29	13.0	179	0.3	1.12	0.64	0	0.01	0.55	0.45	0	0				
May-16	26	11.6	164	0.3	1.12	0.57	0	0.01	0.55	0.40	0	0				
Jun-16	30	13.4	177	0.3	1.12	0.66	0	0.01	0.55	0.47	0	0				
Jul-16	20	8.9	172	0.3	1.12	0.44	0	0.01	0.55	0.31	0	0				
Aug-16	25	11.2	178	0.3	1.12	0.55	0	0.01	0.55	0.39	0	0				
Sep-16	34	15.2	193	0.3	1.12	0.75	0	0.01	0.55	0.53	0	0				
Oct-16	30	13.4	194	0.3	1.12	0.66	0	0.01	0.55	0.47	0	0				
Nov-16	23	10.3	232	0.3	1.12	0.51	0	0.01	0.55	0.36	0	0				
Dec-16	31	13.9	224	0.3	1.12	0.68	0	0.01	0.55	0.48	0	0				
PM Annual Total							0				0	0	1	0.00		
PM ₁₀ Annual Total												0	0.5	0.00		
PM _{2.5} Annual Total													0.075	0.00		

^a Per www.ndbc.noaa.gov for calendar year 2015, McKinley Airport ASOS (PAIN).

^b The erosion potential factor for the uncrusted coal pile is zero for all months. Therefore, wind erosion of the uncrusted coal pile is not a significant source of PM emissions.

^c The erosion potential factor for ground coal is zero for all months. Therefore, wind erosion of the ground coal is not a significant source of PM emissions.



March 28, 2018

Certified Mail
Return Receipt Requested
7017 1450 0000 8485 6095

Alaska Department of Environmental Conservation
Air Permits Program
ATTN: Molly Birnbaum
410 Willoughby Avenue, Suite 303
PO Box 111800
Juneau, AK 99811-1800

**Subject: Golden Valley Electric Association – Healy Power Plant
2017 Point Source Triennial Emission Inventory**

Dear Ms. Birnbaum,

Golden Valley Electric Association (GVEA) is submitting a 2017 Triennial Point Source Emission Inventory for the Healy Power Plant in accordance with Condition 98 (Information Requests) of Air Quality Permit No. AQ0173TVP02 Revision 1.

The 2017 Triennial Point Source Emission Inventory request letter from the Alaska Department of Environmental Conservation (ADEC) to GVEA dated January 31, 2018 mentions both an Excel template and guidance document available on the ADEC website at

<http://dec.alaska.gov/Applications/Air/airtoolsweb/PointSourceEmissionInventory>. The facility-specific template posted on the ADEC website requires reporting of:

- PM10 Primary (Filt + Cond)(PM10-PRI);
- PM2.5 Primary (Filt + Cond)(PM25-PRI); and
- PM Condensable (< 1 Micron)(PM-CON).

The guidance document posted on the ADEC website requires reporting of:

- PM10 Primary (Filt + Cond)(PM10-PRI);
- PM2.5 Filterable (PM25-FIL); and
- PM Condensable (PM-CON).

March 30, 2022

Due to the discrepancies between the excel template and guidance document, GVEA has chosen to report the following PM-related pollutants in the 2017 Triennial Point Source Emission Inventory.

- PM10 Primary (Filt + Cond)(PM10-PRI);
- PM2.5 Primary (Filt + Cond)(PM25-PRI);
- PM2.5 Filterable (PM25-FIL); and
- PM Condensable (PM-CON).

If you have any questions or would like any additional information please contact me by phone at 907-458-4557 or by email at nmknight@gvea.com. The certification from Lynn Thompson, Vice President of Power Supply, follows.

Sincerely,



Naomi Morton Knight, P.E.
Environmental Officer

Enclosure

Certification

Based on information and belief formed after reasonable inquiry, I certify that the statements and information in and attached to this document are true, accurate and complete.

Sincerely,



Lynn N. Thompson
Vice President of Power Supply

Stationary Source Detail	
Inventory Start Date	1/1/2017
Inventory End Date	12/31/2017
ADEC ID	173
AFS ID	0229000002
Census Area	Denali Borough (068)
Name	Healy Power Plant
Physical Location	Mile 2.5 Healy Spur Rd
	Healy, AK 99743
	Lat 63.85 Long -148.96
	Legal Description: Not available
Owner Name, Address, and Contact Number	Naomi Morton Knight, P.E.
	Golden Valley Electric Association
	PO Box 71249
	Fairbanks, AK 99707-1249
	907-458-4557
Line of Business (NAICS)	221112
Line of Business (SIC)	4911
Facility Status	Operating
Facility Status Year	1967

Emission Unit 01					
Specifications					
ID	01		Design Capacity	327 MILLION BTU PER HOUR	
Description	Unit No. 1		Emission Unit Status	Operating	
Manufacturer	Foster-Wheeler		Manufactured Year	Prior to 1967	
Model Number	Not Applicable		Serial Number	78-266	
Initial Startup Date	Installed November 1967		Retired Date	Not Applicable	
Regulations					
Regulation/Description					
40 CFR 63 Subpart UUUUU					
Control Equipment					
System Description	Low NOx burners with overfire air (OFA), Dry Sorbent Injection (DSI), and Baghouse				
Control Measures/ Devices	Low NOx burners with OFA				
	DSI to neutralize acid gases including SO ₂ and HCl				
	Baghouse to control PM and remove the dry material generated by the DSI				
Control Efficiency (%)	99.9				
Capture Efficiency (%)	99.9				
Pollutants Controlled	Particulate Matter		Reduction Efficiency (%)	99.9	
	Sulfur Dioxide		Reduction Efficiency (%)	Not Available	
	Nitrogen Oxides (NOx)		Reduction Efficiency (%)	Not Available	
Processes					
Process	Primary Process				
SCC Code	10100224				
	> External Combustion Boilers				
	> Electric Generation				
	> Bituminous/Subbituminous Coal				
	> Spreader Stoker (Subbituminous Coal)				
Material Processed	Coal				
Period Start	1/1/2017		Period End	12/31/2017	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
173,463	Tons	18	29	27	26
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
6	21	46	7,690		
Fuel Characteristics					
Heat Content (MMBtu/ton)	Elem. Sulfur Content (weight %)	H ₂ S Sulfur Content (ppmv)	Ash Content (weight %)		
14.1	0.122	Not Available	7.010		
Heating					
Heat Input (MMBtu/hr)		Heat Output (MMBtu/hr)		Heat Values Convention	
319		Not Applicable		HHV	
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	130.8	POUNDS	HOUR	CEMS	5.029E+02
Ammonia (NH ₃)	Not Available	Not Available	Not Available	Not Available	Not Available
Nitrogen Oxides(NO _x)	60.0	POUNDS	HOUR	CEMS	2.307E+02
PM ₁₀ Primary (Filt + Cond)(PM ₁₀ -PRI)	0.204	POUNDS	HOUR	CEMS	7.843E-01
PM _{2.5} Primary (Filt + Cond)(PM ₂₅ -PRI)	0.204	POUNDS	HOUR	CEMS	7.843E-01
PM _{2.5} Filterable (PM ₂₅ -FIL)	0.204	POUNDS	HOUR	CEMS	7.843E-01
PM Condensible (PM-CON)	Not Available	Not Available	Not Available	Not Available	Not Available
Sulfur Dioxide(SO ₂)	77.1	POUNDS	HOUR	CEMS	2.964E+02
Lead and lead compounds	0.00042	POUNDS	TON	AP-42 Table 1.1-18	3.643E-02
Volatile Organic Compounds(VOC)	0.06	POUNDS	TON	AP-42 Table 1.1-19	5.204E+00
Process	Secondary Process				
SCC Code	10100501				
	> External Combustion Boilers				
	> Electric Generation				
	> Distillate Oil - Grades 1 and 2				
	> Boiler				

Material Processed	Distillate Oil				
Period Start	1/1/2017		Period End	12/31/2017	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
34,599	gallons	26	40	15	19
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
0.0	0.0	0.1	15		
Fuel Characteristics					
Heat Content (Btu/1,000 gal)	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
137	0.0015	Not Available	Not Available		
Heating					
Heat Input (MMBtu/hr)		Heat Output (MMBtu/hr)		Heat Values Convention	
319		Not Applicable		HHV	
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	5	POUNDS	THOUSAND GALLONS	AP-42 Table 1.3-1	8.650E-02
Ammonia (NH3)	0.011	POUNDS	MILLION BTUS	Engineering Test	2.598E-02
Nitrogen Oxides(NOx)	24	POUNDS	THOUSAND GALLONS	AP-42 Table 1.3-1	4.152E-01
PM10 Primary (Filt + Cond)(PM10-PRI)	2.3	POUNDS	THOUSAND GALLONS	AP-42 Tables 1.3-2 and 1.3-7	3.979E-02
PM2.5 Primary (Filt + Cond)(PM25-PRI)	1.55	POUNDS	THOUSAND GALLONS	AP-42 Tables 1.3-2 and 1.3-7	2.681E-02
PM2.5 Filterable (PM25-FIL)	0.25	POUNDS	THOUSAND GALLONS	AP-42 Table 1.3-7	4.325E-03
PM Condensable (PM-CON)	1.3	POUNDS	THOUSAND GALLONS	AP-42 Table 1.3-2	2.249E-02
Sulfur Dioxide(SO2)	2.1E-04	POUNDS	GALLON	Mass Balance	3.548E-03
Lead and lead compounds	9	POUNDS	BILLION GALLONS	AP-42 Table 1.3-10	1.557E-07
Volatile Organic Compounds(VOC)	0.2	POUNDS	THOUSAND GALLONS	AP-42 Table 1.3-3	3.460E-03
Release Points					
ID	Description	Type		Apportion %	
01	Unit No. 1	Vertical		100	
Release Point 01					
Specifications					
ID	01	Type		Vertical	
Description	Unit No. 1				
Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
122	85	294	58	135,460	
Geographic Coordinate					
Latitude	63.854831	Longitude	-148.950006	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Location Description	Healy, AK	Retired Date	Not Applicable		
Data Source	Source Test				

Emission Unit 02					
Specifications					
ID	02		Design Capacity	658 MILLION BTU PER HOUR	
Description	Unit No. 2		Emission Unit Status	Not Operating	
Manufacturer	TRW		Manufactured Year	1996	
Model Number	Not Applicable		Serial Number	1	
Initial Startup Date	Installed 1996		Retired Date	Not Applicable	
Regulations					
Regulation/Description					
40 CFR 60 Subpart Da, 40 CFR 63 Subpart UUUUU					
Control Equipment					
System Description	Spray Dry Absorber (SDA) and Baghouse				
Control Measures/Devices	SDA to neutralize acid gases including SO2 and HCl				
	Baghouse to control PM and remove the dry material generated by the SDA				
Control Efficiency (%)	100				
Capture Efficiency (%)	100				
Pollutants Controlled	Particulate Matter		Reduction Efficiency (%)	99.95	
	Sulfur Dioxide		Reduction Efficiency (%)	Not Available	
Processes					
Process	Primary Process				
SCC Code	10100221				
	> External Combustion Boilers				
	> Electric Generation				
	> Bituminous/Subbituminous Coal				
	> Pulverized Coal: Wet Bottom				
Material Processed	Coal				
Period Start	1/1/2017		Period End	12/31/2017	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
0	tons	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Fuel Characteristics					
Heat Content (MMBtu/ton)	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input (MMBtu/hr)		Heat Output (MMBtu/hr)		Heat Values Convention	
Not Applicable		Not Applicable		HHV	
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOX)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Filterable (PM25-FIL)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensible (PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Process	Secondary Process				
SCC Code	10100501				
	> External Combustion Boilers				
	> Electric Generation				
	> Distillate Oil - Grades 1 and 2				
	> Boiler				
Material Processed	Distillate Oil				
Period Start	1/1/2017		Period End	12/31/2017	

Throughput					
Total		Summer %	Fall %	Winter %	Spring %
0		25	25	25	25
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Fuel Characteristics					
Heat Content (Btu/1,000 gal)	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Available	Not Available		
Heating					
Heat Input (MMBtu/hr)		Heat Output (MMBtu/hr)		Heat Values Convention	
Not Applicable		Not Applicable		Not Applicable	
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOx)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Filterable (PM25-FIL)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Release Points					
ID	Description			Type	Apportion %
02	Unit No. 2			Vertical	100
Release Point 02					
Specifications					
ID	02		Type	Vertical	
Description	Unit No. 2				
Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
315	8	208	84.2	253,943	
Geographic Coordinate					
Latitude	63.854183	Longitude	-148.951639	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Location Description	Healy, AK	Retired Date	Not Applicable		
Data Source	Source Test				

Emission Unit 03					
Specifications					
ID	03		Design Capacity	12.554 MILLION BTU PER HOUR	
Description	Auxiliary Heater No. 1		Emission Unit Status	Operating	
Manufacturer	Cleaver-Brooks		Manufactured Year	1967	
Model Number	CB 189-300		Serial Number	L-39759	
Initial Startup Date	Installed 1967		Retired Date	Not Applicable	
Regulations					
Regulation/Description					
40 CFR 63 Subpart JJJJJJ					
Control Equipment					
System Description	Not Applicable				
Control Measures/Devices	Not Applicable				
Control Efficiency (%)	Not Applicable				
Capture Efficiency (%)	Not Applicable				
Pollutants Controlled	Not Applicable		Reduction Efficiency (%)	Not Applicable	
	Not Applicable		Reduction Efficiency (%)	Not Applicable	
Processes					
Process	Primary Process				
SCC Code	10200502				
	> External Combustion Boilers				
	> Industrial				
	> Distillate Oil				
	> 10-100 Million Btu/hr				
Material Processed	Distillate Oil				
Period Start	1/1/2017		Period End	12/31/2017	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
8,962	gallons	25	0	30	45
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
0.2	0.6	1.3	221		
Fuel Characteristics					
Heat Content (Btu/1,000 gal)	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
137	0.0015	Not Available	Not Available		
Heating					
Heat Input (MMBtu/hr)	Heat Output (MMBtu/hr)		Heat Values Convention		
6	Not Applicable		HHV		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	5	POUNDS	THOUSAND GALLONS	AP-42 Table 1.3-1	2.241E-02
Ammonia (NH3)	Not Available	Not Available	Not Available	Not Available	Not Available
Nitrogen Oxides(NOx)	20	POUNDS	THOUSAND GALLONS	AP-42 Table 1.3-1	8.962E-02
PM10 Primary (Filt + Cond)(PM10-PRI)	2.3	POUNDS	THOUSAND GALLONS	AP-42 Tables 1.3-2 and 1.3-7	1.031E-02
PM2.5 Primary (Filt + Cond)(PM25-PRI)	1.55	POUNDS	THOUSAND GALLONS	AP-42 Tables 1.3-2 and 1.3-7	6.946E-03
PM2.5 Filterable (PM25-FIL)	0.25	POUNDS	THOUSAND GALLONS	AP-42 Table 1.3-7	1.120E-03
PM Condensable (PM-CON)	1.3	POUNDS	THOUSAND GALLONS	AP-42 Table 1.3-2	5.825E-03
Sulfur Dioxide(SO2)	2.1E-04	POUNDS	GALLON	Mass Balance	9.191E-04
Lead and lead compounds	9	POUNDS	BILLION GALLONS	AP-42 Table 1.3-10	4.033E-11
Volatile Organic Compounds(VOC)	0.34	POUNDS	THOUSAND GALLONS	AP-42 Table 1.3-3	1.524E-03
Process	Secondary Process				
SCC Code	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
Material Processed	Not Applicable				
Period Start	1/1/2017		Period End	12/31/2017	

Throughput					
Total		Summer %	Fall %	Winter %	Spring %
Not Applicable		Not Applicable	Not Applicable	Not Applicable	Not Applicable
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input (MMBtu/hr)		Heat Output (MMBtu/hr)		Heat Values Convention	
Not Applicable		Not Applicable		Not Applicable	
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOx)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Filterable (PM25-FIL)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Release Points					
ID	Description			Type	Apportion %
03	Auxiliary Heater No. 1			Vertical	100
Release Point 03					
Specifications					
ID	03		Type	Vertical	
Description	Auxiliary Heater No. 1				
Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
85	1.9	450	21	3,600	
Geographic Coordinate					
Latitude	63.854883	Longitude	-148.950131	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Location Description	Healy, AK	Retired Date	Not Applicable		
Data Source	Engineering Estimate				

Emission Unit 04					
Specifications					
ID	04		Design Capacity	23 MILLION BTU PER HOUR	
Description	Auxiliary Heater No. 2		Emission Unit Status	Operating	
Manufacturer	Cleaver-Brooks		Manufactured Year	1996	
Model Number	CBI 100-800-15		Serial Number	OLO94777	
Initial Startup Date	Installed 1996		Retired Date	Not Applicable	
Regulations					
Regulation/Description					
40 CFR 60 Subpart Dc and 40 CFR 63 Subpart JJJJJ					
Control Equipment					
System Description	Not Applicable				
Control Measures/Devices	Not Applicable				
Control Efficiency (%)	Not Applicable				
Capture Efficiency (%)	Not Applicable				
Pollutants Controlled	Not Applicable		Reduction Efficiency (%)	Not Applicable	
	Not Applicable		Reduction Efficiency (%)	Not Applicable	
Processes					
Process	Primary Process				
SCC Code	10200502				
	> External Combustion Boilers				
	> Industrial				
	> Distillate Oil				
	> 10-100 Million Btu/hr				
Material Processed	Distillate Oil				
Period Start	1/1/2017		Period End	12/31/2017	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
5,124	gallons	0	0	31	69
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
0.1	0.3	0.6	93		
Fuel Characteristics					
Heat Content (Btu/1,000 gal)	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
137	0.0015	Not Available	Not Available		
Heating					
Heat Input (MMBtu/hr)	Heat Output (MMBtu/hr)		Heat Values Convention		
7	Not Applicable		HHV		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	5	POUNDS	THOUSAND GALLONS	AP-42 Table 1.3-1	1.281E-02
Ammonia (NH3)	Not Available	Not Available	Not Available	Not Available	Not Available
Nitrogen Oxides(NOx)	20	POUNDS	THOUSAND GALLONS	AP-42 Table 1.3-1	5.124E-02
PM10 Primary (Filt + Cond)(PM10-PRI)	2.3	POUNDS	THOUSAND GALLONS	AP-42 Tables 1.3-2 and 1.3-7	5.893E-03
PM2.5 Primary (Filt + Cond)(PM25-PRI)	1.55	POUNDS	THOUSAND GALLONS	AP-42 Tables 1.3-2 and 1.3-7	3.971E-03
PM2.5 Filterable (PM25-FIL)	0.25	POUNDS	THOUSAND GALLONS	AP-42 Table 1.3-7	6.405E-04
PM Condensable (PM-CON)	1.3	POUNDS	THOUSAND GALLONS	AP-42 Table 1.3-2	3.331E-03
Sulfur Dioxide(SO2)	2.1E-04	POUNDS	GALLON	Mass Balance	5.255E-04
Lead and lead compounds	9	POUNDS	BILLION GALLONS	AP-42 Table 1.3-10	2.306E-11
Volatile Organic Compounds(VOC)	0.34	POUNDS	THOUSAND GALLONS	AP-42 Table 1.3-3	8.711E-04
Process	Secondary Process				
SCC Code	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
Material Processed	Not Applicable				
Period Start	1/1/2017		Period End	12/31/2017	

Throughput					
Total		Summer %	Fall %	Winter %	Spring %
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input (MMBtu/hr)	Heat Output (MMBtu/hr)		Heat Values Convention		
Not Applicable	Not Applicable		Not Applicable		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOx)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PR)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PR)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Filterable (PM25-FIL)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Release Points					
ID	Description	Type		Apportion %	
04	Auxiliary Heater No. 2	Vertical		100	
Release Point 04					
Specifications					
ID	04	Type		Vertical	
Description	Auxiliary Heater No. 2				
Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
152	1.9	450	25	4,269	
Geographic Coordinate					
Latitude	63.854956	Longitude	-148.951181	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Location Description	Healy, AK	Retired Date	Not Applicable		
Data Source	Engineering Estimate				

Emission Unit 05					
Specifications					
ID	05		Design Capacity	2.75 MEGAWATTS	
Description	Diesel Generator Engine No. 1		Emission Unit Status	Not Operating	
Manufacturer	Electro-Motive Diesel		Manufactured Year	1967	
Model Number	20-645-E4		Serial Number	67-81-1152	
Initial Startup Date	Installed 1967		Retired Date	Not Applicable	
Regulations					
Regulation/Description					
40 CFR 63 Subpart ZZZZ					
Control Equipment					
System Description	Not Applicable				
Control Measures/Devices	Not Applicable				
Control Efficiency (%)	Not Applicable				
Capture Efficiency (%)	Not Applicable				
Pollutants Controlled	Not Applicable		Reduction Efficiency (%)	Not Applicable	
	Not Applicable		Reduction Efficiency (%)	Not Applicable	
Processes					
Process	Primary Process				
SCC Code	20100102				
	> Internal Combustion Engines				
	> Electric Generation				
	> Distillate Oil (Diesel)				
	> Reciprocating				
Material Processed	Diesel				
Period Start	1/1/2017		Period End	12/31/2017	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
0	gallons	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Fuel Characteristics					
Heat Content (Btu/1,000 gal)	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input (MMBtu/hr)	Heat Output (Megawatts)		Heat Values Convention		
Not Applicable	Not Applicable		HHV		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOx)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Filterable (PM25-FIL)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Process					
Process	Secondary Process				
SCC Code	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
Material Processed	Not Applicable				
Period Start	1/1/2017		Period End	12/31/2017	

Throughput					
Total		Summer %	Fall %	Winter %	Spring %
Not Applicable		Not Applicable	Not Applicable	Not Applicable	Not Applicable
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input		Heat Output	Heat Values Convention		
Not Applicable		Not Applicable	Not Applicable		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOx)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PR1)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PR1)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Filterable (PM25-FIL)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Release Points					
ID	Description	Type		Apportion %	
05	Diesel Generator Engine No. 1	Vertical		100	
Release Point 05					
Specifications					
ID	05	Type		Vertical	
Description	Diesel Generator Engine No. 1				
Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
18.25	3.33	950	25	13,180	
Geographic Coordinate					
Latitude	63.855217	Longitude	-148.948886	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Location Description	Healy, AK	Retired Date	Not Applicable		
Data Source	Engineering Estimate				

Emission Unit 06					
Specifications					
ID	06		Design Capacity	400 ton/hr	
Description	Crusher System (Dust Collector No. 1)		Emission Unit Status	Operating	
Manufacturer	Not Available		Manufactured Year	Not Available	
Model Number	Not Available		Serial Number	885247 (Secondary Crusher No. 1) 844034 (Secondary Crusher No. 2)	
Initial Startup Date	Installed 1996		Retired Date	Not Applicable	
Regulations					
Regulation/Description					
40 CFR 60 Subpart Y					
Control Equipment					
System Description	Dust Collector No. 1				
Control Measures/Devices	Fabric Filter/Baghouse				
Control Efficiency (%)	Not Available				
Capture Efficiency (%)	Not Available				
Pollutants Controlled	PM10 Primary (Filt + Cond)		Reduction Efficiency (%)	Not Available	
	PM25 Primary (Filt + Cond)		Reduction Efficiency (%)	Not Available	
	PM2.5 Filterable (PM25-FIL)		Reduction Efficiency (%)	Not Available	
Processes					
Process	Primary Process				
SCC Code	30510103				
	> Industrial Processes				
	> Mineral Products				
	> Bulk Materials Conveyors				
	> Coal				
Material Processed	Coal				
Period Start	1/1/2017		Period End	12/31/2017	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
173,463	tons	17	29	29	25
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
0.9	3.0	6.6	1,104		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input	Heat Output		Heat Values Convention		
Not Applicable	Not Applicable		Not Applicable		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOx)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	2.05	POUNDS	HOUR	Permit AQ0173TVP02, Table B	1.131E+00
PM2.5 Primary (Filt + Cond)(PM25-PRI)	2.05	POUNDS	HOUR	Permit AQ0173TVP02, Table B	1.131E+00
PM2.5 Filterable (PM25-FIL)	2.05	POUNDS	HOUR	Permit AQ0173TVP02, Table B	1.131E+00
PM Condensable (PM-CON)	Not Available	Not Available	Not Available	Not Available	Not Available
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Process					
SCC Code	Secondary Process				
	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				

Material Processed	Not Applicable				
Period Start	1/1/2017		Period End	12/31/2017	
Throughput					
Total	Summer %	Fall %	Winter %	Spring %	
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input	Heat Output		Heat Values Convention		
Not Applicable	Not Applicable		Not Applicable		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOX)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PR1)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PR1)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Filterable (PM25-FIL)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (< 1 Micron)(PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Release Points					
ID	Description	Type	Apportion %		
06	Crusher System (Dust Collector No. 1)	Downward-facing Vent	100		
Release Point 06					
Specifications					
ID	06	Type	Downward-facing Vent		
Description	Crusher System (Dust Collector No. 1)				
Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
13	3.08	30	27	12,000	
Geographic Coordinate					
Latitude	63.855014	Longitude	-148.949925	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Location Description	Healy, AK	Retired Date	Not Applicable		
Data Source	Engineering Estimate				

Emission Unit 07					
Specifications					
ID	07		Design Capacity	314 tons	
Description	Limestone Storage Silo		Emission Unit Status	Not Operating	
Manufacturer	Not Available		Manufactured Year	Not Available	
Model Number	Not Available		Serial Number	Not Available	
Initial Startup Date	Installed 1996		Retired Date	Not Applicable	
Regulations					
Regulation/Description					
Not Applicable					
Control Equipment					
System Description	Baghouse				
Control Measures/Devices	Dust Suppression Fabric Filter/Baghouse				
Control Efficiency (%)	Not Applicable				
Capture Efficiency (%)	Not Applicable				
Pollutants Controlled	PM10 Primary (Filt + Cond)		Reduction Efficiency (%)	Not Available	
	PM25 Primary (Filt + Cond)		Reduction Efficiency (%)	Not Available	
	PM2.5 Filterable (PM25-FIL)		Reduction Efficiency (%)	Not Available	
Processes					
Process	Primary Process				
SCC Code	30510205				
	> Industrial Processes				
	> Mineral Products				
	> Bulk Materials Storage Bins				
	> Limestone				
Material Processed	Limestone				
Period Start	1/1/2017		Period End	12/31/2017	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input	Heat Output		Heat Values Convention		
Not Applicable	Not Applicable		Not Applicable		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOx)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PR)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PR)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Filterable (PM25-FIL)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (PM-CON)	Not Available	Not Available	Not Available	Not Available	Not Available
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Process	Secondary Process				
SCC Code	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
Material Processed	Not Applicable				

Period Start	1/1/2017	Period End	12/31/2017		
Throughput					
Total	Summer %	Fall %	Winter %	Spring %	
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input	Heat Output	Heat Values Convention			
Not Applicable	Not Applicable	Not Applicable			
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOx)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PR)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PR)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Filterable (PM25-FIL)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Release Points					
ID	Description	Type	Apportion %		
07	Limestone Storage Silo	Downward-facing Vent	100		
Release Point 07					
Specifications					
ID	07	Type	Downward-facing Vent		
Description	Limestone Storage Silo				
Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
139	0.91	30	21	800	
Geographic Coordinate					
Latitude	63.854947	Longitude	-148.950628	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Location Description	Healy, AK	Retired Date	Not Applicable		
Data Source	Engineering Estimate				

Emission Unit 08					
Specifications					
ID	08		Design Capacity	570 tons	
Description	Flyash Storage Silo		Emission Unit Status	Not Operating	
Manufacturer	Not Available		Manufactured Year	Not Available	
Model Number	Not Available		Serial Number	Not Available	
Initial Startup Date	Installed 1996		Retired Date	Not Applicable	
Regulations					
Regulation/Description					
Not Applicable					
Control Equipment					
System Description	Pulse Jet Baghouse				
Control Measures/Devices	Dust Suppression Fabric Filter/Baghouse				
Control Efficiency (%)	Not Available				
Capture Efficiency (%)	Not Available				
Pollutants Controlled	PM10 Primary (Filt + Cond)		Reduction Efficiency (%)	Not Available	
	PM25 Primary (Filt + Cond)		Reduction Efficiency (%)	Not Available	
	PM2.5 Filterable (PM25-FIL)		Reduction Efficiency (%)	Not Available	
Processes					
Process	Primary Process				
SCC Code	30181003				
	> Industrial Processes				
	> Chemical Manufacturing				
	> General Processes				
	> Storage/Transfer				
Material Processed	Flyash				
Period Start	1/1/2017		Period End	12/31/2017	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input	Heat Output		Heat Values Convention		
Not Applicable	Not Applicable		Not Applicable		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOX)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Filterable (PM25-FIL)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (PM-CON)	Not Available	Not Available	Not Available	Not Available	Not Available
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Process	Secondary Process				
SCC Code	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
Material Processed	Not Applicable				

Period Start	1/1/2017	Period End	12/31/2017		
Throughput					
Total	Summer %	Fall %	Winter %	Spring %	
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input	Heat Output	Heat Values Convention			
Not Applicable	Not Applicable	Not Applicable			
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOX)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PR1)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PR1)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Filterable (PM25-FIL)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Release Points					
ID	Description	Type	Apportion %		
08	Flyash Storage Silo	Horizontal	100		
Release Point 08					
Specifications					
ID	08	Type	Horizontal		
Description	Flyash Storage Silo				
Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
100	0.91	30	128	5,000	
Geographic Coordinate					
Latitude	63.855036	Longitude	-148.951444	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Location Description	Healy, AK	Retired Date	Not Applicable		
Data Source	Engineering Estimate				

Emission Unit 09					
Specifications					
ID	09		Design Capacity	50 tons	
Description	Sodium Bicarbonate Handling System		Emission Unit Status	Operating	
Manufacturer	Not Available		Manufactured Year	Not Available	
Model Number	Not Available		Serial Number	Not Available	
Initial Startup Date	Installed 1998		Retired Date	Not Applicable	
Regulations					
Regulation/Description					
40 CFR 60 Subpart OOO					
Control Equipment					
System Description	Horizon System 58-SF-16 Style II Pulse Air Baghouse				
Control Measures/Devices	Fabric Filter/Baghouse				
Control Efficiency (%)	Not Available				
Capture Efficiency (%)	Not Available				
Pollutants Controlled	PM10 Primary (Filt + Cond)		Reduction Efficiency (%)	Not Available	
	PM25 Primary (Filt + Cond)		Reduction Efficiency (%)	Not Available	
	PM2.5 Filterable (PM25-FIL)		Reduction Efficiency (%)	Not Available	
Processes					
Process	Primary Process				
SCC Code	30181003				
	> Industrial Processes				
	> Chemical Manufacturing				
	> General Processes				
	> Storage/Transfer				
Material Processed	Sodium Bicarbonate				
Period Start	1/1/2017		Period End	12/31/2017	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
Not Applicable	Not Applicable	26	0	10	64
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
0	0	0	39		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input	Heat Output		Heat Values Convention		
Not Applicable	Not Applicable		Not Applicable		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOx)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PR)	0.02	GRAINS	DRY STANDARD CUBIC FOOT	Design Specifications	1.478E-03
PM2.5 Primary (Filt + Cond)(PM25-PR)	0.02	GRAINS	DRY STANDARD CUBIC FOOT	Design Specifications	1.478E-03
PM2.5 Filterable (PM25-FIL)	0.02	GRAINS	DRY STANDARD CUBIC FOOT	Design Specifications	1.478E-03
PM Condensable (PM-CON)	Not Available	Not Available	Not Available	Not Available	Not Available
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Process	Secondary Process				
SCC Code	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
Material Processed	Not Applicable				

Period Start	1/1/2017	Period End	12/31/2017		
Throughput					
Total	Summer %	Fall %	Winter %	Spring %	
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input	Heat Output	Heat Values Convention			
Not Applicable	Not Applicable	Not Applicable			
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOX)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Filterable (PM25-FIL)					
PM Condensable (PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Release Points					
ID	Description	Type	Apportion %		
09	Sodium Bicarbonate Handling System	Downward-facing Vent	100		
Release Point 09					
Specifications					
ID	09	Type	Downward-facing Vent		
Description	Sodium Bicarbonate Handling System				
Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
58	0.45	30	46	440	
Geographic Coordinate					
Latitude	63.854619	Longitude	-148.950214	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Location Description	Healy, AK	Retired Date	Not Applicable		
Data Source	Engineering Estimate				

Emission Unit 10					
Specifications					
ID	10		Design Capacity	240 ton/hr	
Description	Coal Handling System (Dust Collector No. 2)		Emission Unit Status	Operating	
Manufacturer	Not Available		Manufactured Year	Not Available	
Model Number	Not Available		Serial Number	Not Available	
Initial Startup Date	Installed 1996		Retired Date	Not Applicable	
Regulations					
Regulation/Description					
40 CFR 60 Subpart Y					
Control Equipment					
System Description	Air-Cure Environmental, Inc 276RF8 Reverse Pulse Baghouse				
Control Measures/Devices	Fabric Filter/Baghouse				
Control Efficiency (%)	Not Available				
Capture Efficiency (%)	Not Available				
Pollutants Controlled	PM10 Primary (Filt + Cond)		Reduction Efficiency (%)	Not Available	
	PM25 Primary (Filt + Cond)		Reduction Efficiency (%)	Not Available	
	PM2.5 Filterable (PM25-FIL)		Reduction Efficiency (%)	Not Available	
Processes					
Process	Primary Process				
SCC Code	30510103				
	> Industrial Processes				
	> Mineral Products				
	> Bulk Materials Conveyors				
	> Coal				
Material Processed	Coal				
Period Start	1/1/2017		Period End	12/31/2017	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
Not Applicable	Not Applicable	17	29	29	25
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
1	3	7	1,104		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input	Heat Output		Heat Values Convention		
Not Applicable	Not Applicable		Not Applicable		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOx)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	3.43	POUNDS	HOUR	Permit AQ0173TVP02, Table B	1.893E+00
PM2.5 Primary (Filt + Cond)(PM25-PRI)	3.43	POUNDS	HOUR	Permit AQ0173TVP02, Table B	1.893E+00
PM2.5 Filterable (PM25-FIL)	3.43	POUNDS	HOUR	Permit AQ0173TVP02, Table B	1.893E+00
PM Condensable (PM-CON)	Not Available	Not Available	Not Available	Not Available	Not Available
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Process					
Process	Secondary Process				
SCC Code	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
Material Processed	Not Applicable				

Period Start	1/1/2017		Period End	12/31/2017	
Throughput					
Total	Summer %		Fall %	Winter %	Spring %
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input	Heat Output		Heat Values Convention		
Not Applicable	Not Applicable		Not Applicable		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOX)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PR1)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PR1)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Filterable (PM25-FIL)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Release Points					
ID	Description			Type	Apportion %
10A	Coal Handling System (Dust Collector No. 2)			Horizontal	0
10B	Temporary Dust Collector			Horizontal	100
Release Point 10A					
Specifications					
ID	10A	Type		Horizontal	
Description	Coal Handling System (Dust Collector No. 2)				
Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
127	3.32	30	39	20,000	
Geographic Coordinate					
Latitude	63.854989	Longitude	-148.950558	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Location Description	Healy, AK	Retired Date	Not Applicable		
Data Source	Engineering Estimate				
Release Point 10B					
Specifications					
ID	10B	Type		Horizontal	
Description	Temporary Dust Collector				
Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
57	1.07	30	111	6,000	
Geographic Coordinate					
Latitude	63.85520	Longitude	-148.95132	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Location Description	Healy, AK	Retired Date	Not Applicable		
Data Source	Engineering Estimate				

Emission Unit 11					
Specifications					
ID	11		Design Capacity	Not Applicable	
Description	Haul Road (located on GVEA property)		Emission Unit Status	Operating	
Manufacturer	Not Applicable		Manufactured Year	Not Applicable	
Model Number	Not Applicable		Serial Number	Not Applicable	
Initial Startup Date	1967 (estimate)		Retired Date	Not Applicable	
Regulations					
Regulation/Description					
Not Applicable					
Control Equipment					
System Description	Water application				
Control Measures/Devices	Dust Suppression				
Control Efficiency (%)	50				
Capture Efficiency (%)	Not Applicable				
Pollutants Controlled	PM10 Primary (Filt + Cond)		Reduction Efficiency (%)	50	
	PM25 Primary (Filt + Cond)		Reduction Efficiency (%)	50	
	PM2.5 Filterable (PM25-FIL)		Reduction Efficiency (%)	50	
Processes					
Process	Primary Process				
SCC Code	30501090				
	> Industrial Processes				
	> Mineral Products				
	> Coal Mining, Cleaning, and Material Handling				
	> Haul Roads				
Material Processed	Fugitive Dust				
Period Start	1/1/2017		Period End	12/31/2017	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
694	Vehicle Miles Travelled (VMT)	18	29	27	26
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
7	24	52	8,784		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input	Heat Output		Heat Values Convention		
Not Applicable	Not Applicable		Not Applicable		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOX)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	1.54	POUNDS	VMT	AP-42 Section 13.2.2	5.344E-01
PM2.5 Primary (Filt + Cond)(PM25-PRI)	0.15	POUNDS	VMT	AP-42 Section 13.2.2	5.344E-02
PM2.5 Filterable (PM25-FIL)	0.15	POUNDS	VMT	AP-42 Section 13.2.2	5.344E-02
PM Condensable (PM-CON)	Not Available	Not Available	Not Available	Not Available	Not Available
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Process	Secondary Process				
SCC Code	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				

Material Processed	Not Applicable				
Period Start	1/1/2017		Period End	12/31/2017	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input		Heat Output		Heat Values Convention	
Not Applicable		Not Applicable		Not Applicable	
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOx)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PR1)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PR1)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Filterable (PM25-FIL)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Release Points					
ID	Description			Type	Apportion %
11	Haul Road (located on GVEA property)			Fugitive	100
Release Point 11					
Specifications					
ID	11		Type	Fugitive	
Description	Haul Road (located on GVEA property)				
Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	
Geographic Coordinate					
Latitude	63.855392	Longitude	-148.945955	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Location Description	Location determined near split in haul road by substation; Healy, AK		Retired Date	Not Applicable	
Data Source	Engineering Estimate				

Emission Unit 12					
Specifications					
ID	12		Design Capacity	372,000 cubic feet	
Description	Coal Storage Pile		Emission Unit Status	Operating	
Manufacturer	Not Applicable		Manufactured Year	Not Applicable	
Model Number	Not Applicable		Serial Number	Not Applicable	
Initial Startup Date	1967 (estimate)		Retired Date	Not Applicable	
Regulations					
Regulation/Description					
Not Applicable					
Control Equipment					
System Description		Water application			
Control Measures/Devices		Dust Suppression			
Control Efficiency (%)		50			
Capture Efficiency (%)		Not Applicable			
Pollutants Controlled	PM10 Primary (Filt + Cond)		Reduction Efficiency (%)	50	
	PM25 Primary (Filt + Cond)		Reduction Efficiency (%)	50	
	PM2.5 Filterable (PM25-FIL)		Reduction Efficiency (%)	50	
Processes					
Process		Primary Process			
SCC Code	30510303				
	> Industrial Processes				
	> Mineral Products				
	> Bulk Materials Open Stockpiles				
Material Processed		Coal			
Period Start		1/1/2017	Period End	12/31/2017	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
173,463	tons	18	29	27	17
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
7	24	52	8,784		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input		Heat Output		Heat Values Convention	
Not Applicable		Not Applicable		Not Applicable	
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOx)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PR)	4.865E-01	TONS	YEAR	AP-42 Sections 13.2.2, 13.2.4, and 13.2.5	4.865E-01
PM2.5 Primary (Filt + Cond)(PM25-PR)	4.875E-02	TONS	YEAR	AP-42 Sections 13.2.2, 13.2.4, and 13.2.5	4.875E-02
PM2.5 Filterable (PM25-FIL)	4.875E-02	TONS	YEAR	AP-42 Sections 13.2.2, 13.2.4, and 13.2.5	4.875E-02
PM Condensable (PM-CON)	Not Available	Not Available	Not Available	Not Available	Not Available
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Process					
Secondary Process					
SCC Code	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
Material Processed		Not Applicable			

Period Start	1/1/2017			Period End	12/31/2017
Throughput					
Total	Summer %	Fall %	Winter %	Spring %	
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input	Heat Output		Heat Values Convention		
Not Applicable	Not Applicable		Not Applicable		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOX)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Filterable (PM25-FIL)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Release Points					
ID	Description			Type	Apportion %
12	Coal Storage Pile			Fugitive	100
Release Point 12					
Specifications					
ID	12	Type	Fugitive		
Description	Coal Storage Pile				
Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	
Geographic Coordinate					
Latitude	63.854556	Longitude	-148.946703	Datum	World 1984
Base Elevation	1,260	Accuracy	1		
Location Description	Healy, AK	Retired Date	Not Applicable		
Data Source	Engineering Estimate				

Emission Unit 13					
Specifications					
ID	13		Design Capacity	264 HORSEPOWER	
Description	Firewater Pump Engine		Emission Unit Status	Operating	
Manufacturer	Caterpillar		Manufactured Year	1997	
Model Number	3406B		Serial Number	6T814931	
Initial Startup Date	Installed 1997		Retired Date	Not Applicable	
Regulations					
Regulation/Description					
40 CFR 63 Subpart ZZZZ					
Control Equipment					
System Description	Not Applicable				
Control Measures/Devices	Not Applicable				
Control Efficiency (%)	Not Applicable				
Capture Efficiency (%)	Not Applicable				
Pollutants Controlled	Not Applicable		Reduction Efficiency (%)	Not Applicable	
	Not Applicable		Reduction Efficiency (%)	Not Applicable	
> Pollutants Controlled					
Pollutant Description			Reduction Efficiency (%)		
Not Applicable			Not Applicable		
Processes					
Process	Primary Process				
SCC Code	20200102				
	> Internal Combustion Engines				
	> Industrial				
	> Distillate Oil (Diesel)				
	> Reciprocating				
Material Processed	Distillate Oil				
Period Start	1/1/2017		Period End	12/31/2017	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
84	gallons	25	25	25	25
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
0.005	0.02	0.04	6		
Fuel Characteristics					
Heat Content (Btu/1,000 gal)	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
137	0.0015	Not Available	Not Available		
Heating					
Heat Input (MMBtu/hr)	Heat Output (horsepower)		Heat Values Convention		
2	264		HHV		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	6.68E-03	POUNDS	HORSEPOWER-HOUR	AP-42 Table 3.3-1	5.291E-03
Ammonia (NH3)	Not Available	Not Available	Not Available	Not Available	Not Available
Nitrogen Oxides(NOx)	0.031	POUNDS	HORSEPOWER-HOUR	AP-42 Table 3.3-1	2.455E-02
PM10 Primary (Filt + Cond)(PM10-PRI)	2.2E-03	POUNDS	HORSEPOWER-HOUR	AP-42 Table 3.3-1	1.742E-03
PM2.5 Primary (Filt + Cond)(PM25-PRI)	2.2E-03	POUNDS	HORSEPOWER-HOUR	AP-42 Table 3.3-1	1.742E-03
PM2.5 Filterable (PM25-FIL)	2.2E-03	POUNDS	HORSEPOWER-HOUR	AP-42 Table 3.3-1	1.742E-03
PM Condensable (PM-CON)	Not Available	Not Available	Not Available	Not Available	Not Available
Sulfur Dioxide(SO2)	2.05E-04	POUNDS	GALLON	Mass Balance	2.564E-06
Volatile Organic Compounds(VOC)	2.51E-03	POUNDS	HORSEPOWER-HOUR	AP-42 Table 3.3-1	1.988E-03
Lead and lead compounds	Not Available	Not Available	Not Available	Not Available	Not Available
Process					
SCC Code	Secondary Process				
	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				

	Not Applicable				
Material Processed	Not Applicable				
Period Start	1/1/2017		Period End	12/31/2017	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input	Heat Output		Heat Values Convention		
Not Applicable	Not Applicable		Not Applicable		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOx)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Filterable (PM25-FIL)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Release Points					
ID	Description			Type	Apportion %
13	Firewater Pump Engine			Horizontal	100
Release Point 13					
Specifications					
ID	13		Type	Horizontal	
Description	Firewater Pump Engine				
Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
10	1	300	6	283	
Geographic Coordinate					
Latitude	63.854956	Longitude	-148.951181	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Location Description	Healy, AK	Retired Date	Not Applicable		
Data Source	Engineering Estimate				

2017 Actual Emissions Calculations - Fuel and Operating Hour Summary
Golden Valley Electric Association - Healy Power Plant

EU ID	Hours by Season [h]			
	Summer	Fall	Winter	Spring
6	17	29	29	25
7	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A
9	26	-	10	64
10	17	29	29	25
13	25	25	25	23

Fuel Type	Date	Density (g/mL)	Avg. Density (lb/gal)
ULSD	2/7/2017	0.8046	6.84
	7/17/2017	0.8340	

[illegible]

EU ID	Description	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1	Unit 1	16,395	13,523	14,563	15,938	15,076	-	13,485	17,036	16,312	17,314	17,041	16,779	173,463
2	Unit 2	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total	16,395	13,523	14,563	15,938	15,076	-	13,485	17,036	16,312	17,314	17,041	16,779	173,463

EU ID	Fuel Type	MWhBtu
1	ULSD	4,723.7
	Coal	2,449,171.5
2	ULSD	-
	Coal	-

Fuel Type	Moisture (wt. %)
Coal	32.72

EUD	Fuel Type	Fuel Usage by Season (%)			
		Summer	Fall	Winter	Spring
1	USD	25.9	39.9	14.9	19.2
	Coal	17.6	29.2	26.9	26.3
2	USD	25.0	25.0	25.0	25.0
	Coal	25.0	25.0	25.0	25.0
3	USD	24.8	0.1	29.8	45.3
	Coal	-	-	-	-
4	USD	30.0	-	30.0	69.2
	Coal	-	-	-	-
5	USD	25.0	25.0	25.0	25.0
	Coal	25.0	25.0	25.0	25.0

EU ID	Coal Properties
	Fuel HHV (Btu/lb)
1	7,060
2	-
	Ash (wt. %)
1	7.01
2	-
	Sulfur (wt. %)
1	0.122
2	-

Fuel Type	Fuel HHV (Btu/gal)												Average
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
ULSD		132,907	-	-	-	-	140,146	-	-	-	-	-	136,572

[illegible]

2017 Actual Emissions Calculations - Haul Road Particulate Matter Emissions
Golden Valley Electric Association - Healy Power Plant

Emission Unit		Factor Reference	Emission	Emission Factor	2017 Actual Operation	2017 Actual PM Emissions
ID	Description					
11	Coal Haul - Unpaved Portion	AP-42, Section 13.2.2	PM	5.97 lb/VMT	694 VMT	2.07 tpy ¹
			PM ₁₀	1.54 lb/VMT		0.53 tpy ¹
			PM _{2.5}	0.15 lb/VMT		0.05 tpy ¹
Total PM Emissions						2.07 tpy
Total PM ₁₀ Emissions						0.53 tpy
Total PM _{2.5} Emissions						0.05 tpy

Notes:

¹ Coal Haul RoadUnpaved Road Emission Factor

AP-42, Section 13.2.2, Equation 1a:

$$E \left(\frac{\text{lb}}{\text{VMT}} \right) = k \left(\frac{s}{12} \right)^a \left(\frac{W}{3} \right)^b$$

s = surface material silt content (haul road)
 W = mean vehicle weight

a (empirical constant)

b (empirical constant)

E (uncontrolled) =

Efficiency =

E (controlled) =

PM	4.9	PM ₁₀	1.5	PM _{2.5}	0.15
k	5.1		5.1		from AP-42, Table 13.2.2-2
167.5		167.5		167.5	percent, from AP-42, Table 13.2.2-1
0.7		0.9		0.9	tons, estimate - average of full (230 ton) and empty (105 ton) truck
0.45		0.45		0.45	from AP-42, Table 13.2.2-2
16.45		4.24		0.42	from AP-42, Table 13.2.2-2
50%		50%		50%	lb/VMT
8.23		2.12		0.21	assumed control efficiency for water
					lb/VMT

Healy Alaska annually has 100 days with rainfall greater than or equal to 0.01 inches per the Western Regional Climate Center.

AP-42, Section 13.2.2, Equation 2:

$$E_{ext} = E \left(\frac{365 - P}{365} \right)$$

E_{ext} = annual size-specific emission factor extrapolated for water mitigation, lb/VMT

E = emission factor from Equation 1a

P = number of days in a year with at least 0.01 inches of precipitation

PM	5.97	PM ₁₀	1.54	PM _{2.5}	0.15
E (controlled) =					
					lb/VMT

Coal Throughput

Unit 1 actual coal throughput	173,463 tons
Unit 2 actual coal throughput	0 tons
Total actual coal throughput	173,463 tons

2017 Actual Emissions Calculations - Haul Road Particulate Matter Emissions
Golden Valley Electric Association - Healy Power Plant

Vehicle Miles Traveled (VMT)

$$VMT = \frac{\text{Throughput (tons)} \times \text{Round trip Distance} \left(\frac{\text{miles}}{\text{trip}} \right)}{\text{Haul Truck Capacity} \left(\frac{\text{tons}}{\text{trip}} \right)}$$

Haul truck capacity	125 tons, estimate
Unpaved distance from coal pile to paved road (round trip)	0.50 miles/trip
Unpaved road VMT =	693.85 miles

2017 Actual Emissions Calculations - Coal Storage Pile Particulate Matter Emissions
Golden Valley Electric Association - Healy Power Plant

Emission Unit Description		Factor Reference	Emission	Emission Factor	2017 Actual Operation	2017 Actual PM Emissions
ID						
12	Truck Drop Onto Stockpile	AP-42, Section 13.2.4	PM	2.44E-05 lb/ton	173,463 tpy	2.1E-03 tpy ¹
			PM ₁₀	1.15E-05 lb/ton		1.0E-03 tpy ¹
			PM _{2.5}	1.75E-06 lb/ton		1.5E-04 tpy ¹
	Front End Loader Drop Into Grizzly	AP-42, Section 13.2.4	PM	2.44E-05 lb/ton	173,463 tpy	2.1E-03 tpy ¹
			PM ₁₀	1.15E-05 lb/ton		1.0E-03 tpy ¹
			PM _{2.5}	1.75E-06 lb/ton		1.5E-04 tpy ¹
	Front End Loader Movement - Coal Pile to Grizzly	AP-42, Section 13.2.2	PM	3.72 lb/VMT	913 VMT	1.70 tpy ²
			PM ₁₀	1.06 lb/VMT		4.8E-01 tpy ²
			PM _{2.5}	0.11 lb/VMT		4.8E-02 tpy ²
	Stockpile Wind Erosion	AP-42, Section 13.2.5	PM	0 g/m ² -yr	10,150 m ²	0 tpy ³
			PM ₁₀	0 g/m ² -yr		0 tpy ³
			PM _{2.5}	0 g/m ² -yr		0 tpy ³
Total PM Emissions					Total PM Emissions	1.70 tpy
Total PM ₁₀ Emissions					Total PM ₁₀ Emissions	0.49 tpy
Total PM _{2.5} Emissions					Total PM _{2.5} Emissions	0.05 tpy

Notes:

¹ Truck Drop onto Stockpile and Front End Loader Drop to Grizzly

Drop Operation Emission Factor:

AP-42, Section 13.2.4

$$E \left(\frac{\text{lb}}{\text{ton}} \right) = \frac{k \times 0.0037 \times \left(\frac{U}{5} \right)^{1.3}}{\left(\frac{M}{2} \right)^{1.3}}$$

U =

mean wind speed

M =

coal moisture content

k =

0.74

PM

3.03

PM₁₀

3.03

PM_{2.5}

0.053

miles/hr

percent

33.00

lb/ton

1.75E-06

AP-42, Section 13.2.4

Per www.ncei.noaa.gov for CY2016, McKinley Airport ASOS (PAIN)

From CY2017 coal proximate analyses

Annual Stockpile Throughput:

Unit 1 actual coal throughput

Unit 2 actual coal throughput

Total actual coal throughput

173,463 tons

0 tons

173,463 tons

² Front End Loader Movement

Coal moved per trip:

$$Coal \ (tons) = \frac{Coal \ Density \ \left(\frac{\text{lb}}{\text{ft}^3} \right) \times 27 \left(\frac{\text{ft}^3}{\text{yd}^3} \right) \times Bucket \ Size \ (yd^3)}{2000 \ \left(\frac{\text{lb}}{\text{ton}} \right)}$$

Size of load bucket

Density of coal

Coal moved per trip

8 yd³50 lb/ft³

5.4 tons

2017 Actual Emissions Calculations - Coal Storage Pile Particulate Matter Emissions
Golden Valley Electric Association - Healy Power Plant

Emission Factor

AP-42, Section 13.2.2, Equation 1a:

$$E \left(\frac{\text{lb}}{\text{VMT}} \right) = k \left(\frac{s}{12} \right)^{1.6} \left(\frac{W}{3} \right)^{0.8}$$

k	PM	PM ₁₀	PM _{2.5}
s = surface material silt content (haul road)	4.9	1.5	0.15
W = mean vehicle weight	8.4	8.4	8.4
a (empirical constant)	27	27	27
b (empirical constant)	0.7	0.9	0.9
E (uncontrolled) =	0.45	0.45	0.45
Efficiency =	10.26	2.92	0.29
E (controlled) =	50%	50%	50%
	5.13	1.46	0.15
			lb/VMT

Healy Alaska annually has 100 days with rainfall greater than or equal to 0.01 inches per the Western Regional Climate Center.
AP-42, Section 13.2.2, Equation 2:

$$E_{\text{adj}} = E \left(\frac{36.5 - P}{36.5} \right)$$

E_{adj} = annual size-specific emission factor extrapolated for water mitigation, lb/VMT

E = emission factor from Equation 1a

P = number of days in a year with at least 0.01 inches of precipitation

	PM	PM ₁₀	PM _{2.5}
E (controlled) =	3.72	1.06	0.11
			lb/VMT

Vehicle Miles Traveled (VMT)

$$VMT = \frac{\text{Throughput (tons)} \times \text{Round trip Distance (miles)}}{\text{Haul Truck Capacity (tons/trip)}}$$

Total Potential Coal Throughput	173,463 tons
Coal moved per trip	5.4 tons
Approximate distance from coal pile to grizzly (round trip)	150 feet
VMT = vehicles miles traveled per year	913

³ Stockpile Wind Erosion

Coal Pile Surface Area

$$\text{Surface area of active face} = 10,150 \text{ m}^2$$

Engineering estimate of projected use

AP-42 Section 13.2.5, Equation (2)

Emission factor for wind-generated particulate emissions from mixtures of erodible and nonerodible surface material subject to disturbance, EF

$$EF \left(\frac{\text{g}}{\text{m}^2 \cdot \text{yr}} \right) = k \sum_{i=1}^N P_i$$

where

k = particle size multiplier (AP-42 Section 13.2.5.3)

N = number of disturbances per year

P_i = erosion potential corresponding to the fastest mile of wind for the ith period between disturbances, g/m²

2017 Actual Emissions Calculations - Coal Storage Pile Particulate Matter Emissions
Golden Valley Electric Association - Healy Power Plant

AP-42 Section 13.2.5, Equation (3)

Erosion potential function for a dry exposed surface, P

$$P = 58 (u^* - u_t^*)^2 + 25 (u^* - u_t^*)$$

$$P = 0 \text{ for } u^* \leq u_t^*$$

where

u^* = friction velocity (m/s)

u_t^* = threshold friction velocity (m/s)

AP-42 Section 13.2.5, Equation (1)

Friction velocity, u^*

$$u^* = \frac{0.4 \times u(z)}{\ln\left(\frac{z}{z_0}\right)} \text{ where } z > z_0$$

where

u^* = friction velocity (cm/s)

$u(z)$ = wind speed at height z above test surface (cm/s)

z = height above test surface (cm)

z_0 = roughness height, cm

Data:

$u(z)$	10
z	365
N	30
Use maximum wind gust speed recorded at McKinley Airport ASOS for each month in CY2016 (see table below)	
disturbances/year for active face, estimated	
average disturbances/month	

Month-Year	Maximum Wind Speed (u(10)) ^a		Wind Direction	Uncrusted Coal Pile ^b (Table 13.2.5-2)				Ground Coal ^c (Table 13.2.5-2)					
				Roughness Height (z ₀)	Threshold Friction Velocity (u _t)	Calculated Friction Velocity (u*)	Erosion potential function, P	Roughness Height (z ₀)	Threshold Friction Velocity (u _t)	Calculated Friction Velocity (u*)	Erosion potential function, P	P x N	k
	mph	m/s	deg	cm	m/s	m/s		cm	m/s	m/s		g/m ² -yr	
Jan-17	31	13.9	206	0.3	1.12	0.68	0	0.01	0.55	0.48	0	0	
Feb-17	29	13.0	197	0.3	1.12	0.64	0	0.01	0.55	0	0	0	
Mar-17	26	11.6	194	0.3	1.12	0.57	0	0.01	0.55	0.40	0	0	
Apr-17	29	13.0	179	0.3	1.12	0.64	0	0.01	0.55	0.45	0	0	
May-17	26	11.6	164	0.3	1.12	0.57	0	0.01	0.55	0.40	0	0	
Jun-17	30	13.4	177	0.3	1.12	0.66	0	0.01	0.55	0.47	0	0	
Jul-17	20	8.9	172	0.3	1.12	0.44	0	0.01	0.55	0.31	0	0	
Aug-17	25	11.2	178	0.3	1.12	0.55	0	0.01	0.55	0.39	0	0	
Sep-17	34	15.2	193	0.3	1.12	0.75	0	0.01	0.55	0.53	0	0	
Oct-17	30	13.4	194	0.3	1.12	0.66	0	0.01	0.55	0.47	0	0	
Nov-17	23	10.3	232	0.3	1.12	0.51	0	0.01	0.55	0.36	0	0	
Dec-17	31	13.9	224	0.3	1.12	0.68	0	0.01	0.55	0.48	0	0	
PM Annual Total							0				0	0	1
PM ₁₀ Annual Total												0	0.5
PM _{2.5} Annual Total												0.075	0.00

^a Per www.nodc.noaa.gov for CY2016, McKinley Airport ASOS (PAIN).

^b The erosion potential factor for the uncrusted coal pile is zero for all months. Therefore, wind erosion of the uncrusted coal pile is not a significant source of PM emissions.

^c The erosion potential factor for ground coal is zero for all months. Therefore, wind erosion of the ground coal is not a significant source of PM emissions.

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"Owned by those we serve"

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Fairbanks, AK 99701-2999

P.O. Box 71249
Fairbanks, AK 99707-1249

Molly Birnbaum
Alaska Dept of Environmental Conservation
Air Permits Program
PO Box 11180
Juneau, AK 99811-1800

March 30, 2022



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Air Permits Program
ATTN: Air Emissions Inventory
555 Cordova Street
Anchorage, AK 99501

**Subject: Golden Valley Electric Association – Healy Power Plant
2018 Point Source Emission Inventory - REVISED**

Dear Ms. Buck,

Golden Valley Electric Association (GVEA) is submitting a revised 2018 Point Source Emission Inventory for the Healy Power Plant in accordance with Condition 139 of Air Quality Permit No. AQ0173TVP03. The emission inventory report has been revised to update the EU ID 2 PM CEMS emission rate.

The form provided in Section 17 of Air Quality Permit No. AQ0173TVP03 requires reporting of:

- PM10 Primary (Filt + Cond)(PM10-PRI); and
- PM2.5 Primary (Filt + Cond)(PM25-PRI).

Condition 139.4 and the form provided in Section 17 of Air Quality Permit No. AQ0173TVP03 mention both an excel template and guidance document available on the ADEC website at

<http://dec.alaska.gov/Applications/Air/airtoolsweb/PointSourceEmissionInventory>. The guidance document posted on the ADEC website requires reporting of:

- PM10 Primary (Filt + Cond)(PM10-PRI);
- PM2.5 Filterable (PM25-FIL); and
- PM Condensable (PM-CON).

The excel template posted ADEC website requires reporting of:

- PM10 Primary (Filt + Cond)(PM10-PRI).

March 30, 2022

Due to the discrepancies between the permit, excel template, and guidance document, GVEA has chosen to report the following PM-related pollutants in the 2018 Point Source Emission Inventory.

- PM10 Primary (Filt + Cond)(PM10-PRI);
- PM2.5 Primary (Filt + Cond)(PM25-PRI);
- PM2.5 Filterable (PM25-FIL); and
- PM Condensable (PM-CON).

If you have any questions or would like any additional information please contact me by phone at 907-458-4557 or by email at nmknight@gvea.com. The certification from Gary P. Betsill, Vice President of Operations, follows.

Sincerely,



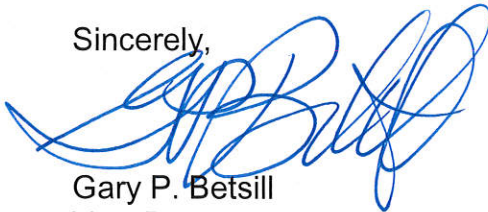
Naomi Morton Knight, P.E.
Environmental Officer

Enclosure

Certification

Based on information and belief formed after reasonable inquiry, I certify that the statements and information in and attached to this document are true, accurate and complete.

Sincerely,



Gary P. Betsill
Vice President of Operations

Stationary Source Detail	
Inventory Start Date	1/1/2018
Inventory End Date	12/31/2018
ADEC ID	173
AFS ID	0229000002
Census Area	Denali Borough (068)
Name	Healy Power Plant
Physical Location	Mile 2.5 Healy Spur Rd
	Healy, AK 99743
	Lat 63.85 Long -148.96
	Legal Description: Not available
Owner Name, Address, and Contact Number	Naomi Morton Knight, P.E.
	Golden Valley Electric Association
	PO Box 71249
	Fairbanks, AK 99707-1249
	907-458-4557
Line of Business (NAICS)	221112
Line of Business (SIC)	4911
Facility Status	Operating
Facility Status Year	1967

Emission Unit 01					
Specifications					
ID	01		Design Capacity	327 MILLION BTU PER HOUR	
Description	Unit No. 1		Emission Unit Status	Operating	
Manufacturer	Foster-Wheeler		Manufactured Year	Prior to 1967	
Model Number	Not Applicable		Serial Number	78-266	
Initial Startup Date	Installed November 1967		Retired Date	Not Applicable	
Regulations					
Regulation/Description					
40 CFR 63 Subpart UUUUU					
Control Equipment					
System Description	Low NOx burners with overfire air (OFA), Selective NO _x -Catalytic Reduction (SNCR), Dry Sorbent Injection (DSI), and Baghouse				
Control Measures/ Devices	Low NOx burners with OFA				
	SNCR to reduce NO _x emissions				
	DSI to neutralize acid gases including SO ₂ and HCl				
	Baghouse to control PM and remove the dry material generated by the DSI				
Control Efficiency (%)	99.9				
Capture Efficiency (%)	99.9				
Pollutants Controlled	Particulate Matter		Reduction Efficiency (%)	99.9	
	Sulfur Dioxide		Reduction Efficiency (%)	Not Available	
	Nitrogen Oxides (NO _x)		Reduction Efficiency (%)	Not Available	
Processes					
Process	Primary Process				
SCC Code	10100224				
	> External Combustion Boilers				
	> Electric Generation				
	> Bituminous/Subbituminous Coal				
	> Spreader Stoker (Subbituminous Coal)				
Material Processed	Coal				
Period Start	1/1/2018		Period End	12/31/2018	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
178,076	Tons	23	25	28	24
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
7	22	49	8,150		
Fuel Characteristics					
Heat Content (MMBtu/ton)	Elem. Sulfur Content (weight %)	H ₂ S Sulfur Content (ppmv)	Ash Content (weight %)		
14.3	0.140	Not Available	8.520		
Heating					
Heat Input (MMBtu/hr)	Heat Output (MMBtu/hr)		Heat Values Convention		
312	Not Applicable		HHV		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	217.8	POUNDS	hour	CEMS	8.876E+02
Ammonia (NH ₃)	0.011	POUNDS	MILLION BTUS	Engineering Test	1.400E+01
Nitrogen Oxides(NO _x)	57.6	POUNDS	hour	CEMS	2.347E+02
PM ₁₀ Primary (Filt + Cond)(PM ₁₀ -PRI)	0.3	POUNDS	hour	CEMS	1.223E+00
PM _{2.5} Primary (Filt + Cond)(PM _{2.5} -PRI)	0.3	POUNDS	hour	CEMS	1.223E+00
PM _{2.5} Filterable (PM _{2.5} -FIL)	0.3	POUNDS	hour	CEMS	1.223E+00
PM Condensable (PM-CON)	Not Available	Not Available	Not Available	Not Available	Not Available
Sulfur Dioxide(SO ₂)	84.9	POUNDS	hour	CEMS	3.460E+02
Lead and lead compounds	0.00042	POUNDS	TON	AP-42 Table 1.1-18	3.740E-02
Volatile Organic Compounds(VOC)	0.06	POUNDS	TON	AP-42 Table 1.1-19	5.342E+00

Emission Unit 01					
Process	Secondary Process				
SCC Code	10100501				
	> External Combustion Boilers				
	> Electric Generation				
	> Distillate Oil - Grades 1 and 2				
	> Boiler				
Material Processed	Distillate Oil				
Period Start	1/1/2018		Period End	12/31/2018	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
40,240	gallons	51	31	1	18
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
0.01	0.05	0.1	17		
Fuel Characteristics					
Heat Content (MMBtu/1,000 gal)	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
134	0.0015	Not Available	Not Available		
Heating					
Heat Input (MMBtu/hr)	Heat Output (MMBtu/hr)		Heat Values Convention		
312	Not Applicable		HHV		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	217.8	POUNDS	HOUR	CEMS	1.881E+00
Ammonia (NH3)	0.011	POUNDS	MILLION BTUS	Engineering Test	2.967E-02
Nitrogen Oxides(NOX)	57.6	POUNDS	HOUR	CEMS	4.975E-01
PM10 Primary (Filt + Cond)(PM10-PRI)	2.3	POUNDS	THOUSAND GALLONS	AP-42 Tables 1.3-2 and 1.3-7	4.628E-02
PM2.5 Primary (Filt + Cond)(PM25-PRI)	1.55	POUNDS	THOUSAND GALLONS	AP-42 Tables 1.3-2 and 1.3-7	3.119E-02
PM2.5 Filterable (PM25-FIL)	0.25	POUNDS	THOUSAND GALLONS	AP-42 Table 1.3-7	5.030E-03
PM Condensable (PM-CON)	1.3	POUNDS	THOUSAND GALLONS	AP-42 Table 1.3-2	2.616E-02
Sulfur Dioxide(SO2)	84.9	POUNDS	HOUR	CEMS	7.334E-01
Lead and lead compounds	9	POUNDS	BILLION GALLONS	AP-42 Table 1.3-10	1.811E-07
Volatile Organic Compounds(VOC)	0.2	POUNDS	THOUSAND GALLONS	AP-42 Table 1.3-3	4.024E-03
Release Points					
ID	Description	Type	Apportion %		
01	Unit No. 1	Vertical	100		
Release Point 01					
Specifications					
ID	01	Type	Vertical		
Description	Unit No. 1				
Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
122	7	294	58	135,460	
Geographic Coordinate					
Latitude	63.854831	Longitude	-148.950006	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Location Description	Healy, AK	Retired Date	Not Applicable		
Data Source	Source Test				

Emission Unit 02					
Specifications					
ID	02	Design Capacity	658 MILLION BTU PER HOUR		
Description	Unit No. 2	Emission Unit Status	Operating		
Manufacturer	TRW	Manufactured Year	1996		
Model Number	Not Applicable	Serial Number	1		
Initial Startup Date	Installed 1996	Retired Date	Not Applicable		
Regulations					
Regulation/Description					
40 CFR 60 Subpart Da, 40 CFR 63 Subpart UUUUU					
Control Equipment					
System Description	Spray Dry Absorber (SDA), Selective Catalytic Reduction, and Baghouse				
Control Measures/ Devices	SDA to neutralize acid gases including SO ₂ and HCl				
	SCR to reduce NOx emissions				
	Baghouse to control PM and remove the dry material generated by the SDA				
Control Efficiency (%)	100				
Capture Efficiency (%)	100				
Pollutants Controlled	Particulate Matter		Reduction Efficiency (%)	99.95	
	Nitrogen Oxides (NOx)		Reduction Efficiency (%)	Not Available	
	Sulfur Dioxide		Reduction Efficiency (%)	Not Available	
Processes					
Process	Primary Process				
SCC Code	10100221				
	> External Combustion Boilers				
	> Electric Generation				
	> Bituminous/Subbituminous Coal				
	> Pulverized Coal: Wet Bottom				
Material Processed	Coal				
Period Start	1/1/2018		Period End	12/31/2018	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
81,668	tons	13.293	73.640	13.067	0.000
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
2	7	15	2,585		
Fuel Characteristics					
Heat Content (MMBtu/ton)	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
14.3	0.125	Not Available	8.060		
Heating					
Heat Input (MMBtu/hr)		Heat Output (MMBtu/hr)		Heat Values Convention	
452		Not Applicable		HHV	
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	3.6	POUNDS	HOUR	CEMS	4.654E+00
Ammonia (NH3)	4.12E-04	POUNDS	MILLION BTU	December 2018 Source Test	2.407E-01
Nitrogen Oxides(NOX)	60.7	POUNDS	HOUR	CEMS	7.847E+01
PM10 Primary (Filt + Cond)(PM10-PRI)	5.060	POUNDS	HOUR	CEMS	6.541E+00
PM2.5 Primary (Filt + Cond)(PM25-PRI)	5.060	POUNDS	HOUR	CEMS	6.541E+00
PM2.5 Filterable (PM25-FIL)	5.060	POUNDS	HOUR	CEMS	6.541E+00
PM Condensable (PM-CON)	Not Available	Not Available	Not Available	Not Available	Not Available
Sulfur Dioxide(SO2)	21.3	POUNDS	HOUR	CEMS	2.753E+01
Lead and lead compounds	0.00042	POUNDS	TON	AP-42 Table 1.1-18	1.715E-02
Volatile Organic Compounds(VOC)	0.04	POUNDS	TON	AP-42 Table 1.1-19	1.633E+00

Emission Unit 02					
Process	Secondary Process				
SCC Code	10100501				
	> External Combustion Boilers				
	> Electric Generation				
	> Distillate Oil - Grades 1 and 2				
	> Boiler				
Material Processed	Distillate Oil				
Period Start	1/1/2018	Period End	12/31/2018		
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
555,638	gallons	58	24	18	0
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
0.1	0.5	1.0	165		
Fuel Characteristics					
Heat Content (MMBtu/1,000 gal)	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
134	0.0015	Not Available	Not Available		
Heating					
Heat Input (MMBtu/hr)	Heat Output (MMBtu/hr)		Heat Values Convention		
452	Not Applicable		HHV		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	3.6	POUNDS	HOUR	CEMS	2.967E-01
Ammonia (NH3)	4.12E-04	POUNDS	MILLION BTU	December 2018 Source Test	1.535E-02
Nitrogen Oxides(NOX)	60.7	POUNDS	HOUR	CEMS	5.003E+00
PM10 Primary (Filt + Cond)(PM10-PRI)	2.3	POUNDS	THOUSAND GALLONS	AP-42 Tables 1.3-2 and 1.3-7	6.390E-01
PM2.5 Primary (Filt + Cond)(PM25-PRI)	1.55	POUNDS	THOUSAND GALLONS	AP-42 Tables 1.3-2 and 1.3-7	4.306E-01
PM2.5 Filterable (PM25-FIL)	0.25	POUNDS	THOUSAND GALLONS	AP-42 Table 1.3-7	6.945E-02
PM Condensable (PM-CON)	1.3	POUNDS	THOUSAND GALLONS	AP-42 Table 1.3-2	3.612E-01
Sulfur Dioxide(SO2)	21.3	POUNDS	HOUR	CEMS	1.756E+00
Lead and lead compounds	9	POUNDS	BILLION GALLONS	AP-42 Table 1.3-10	2.500E-06
Volatile Organic Compounds(VOC)	0.2	POUNDS	THOUSAND GALLONS	AP-42 Table 1.3-3	5.556E-02
Release Points					
ID	Description	Type	Apportion %		
02	Unit No. 2	Vertical	100		
Release Point 02					
Specifications					
ID	02	Type	Vertical		
Description	Unit No. 2				
Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
315	8	208	84.2	253,943	
Geographic Coordinate					
Latitude	63.854183	Longitude	-148.951639	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Location Description	Healy, AK	Retired Date	Not Applicable		
Data Source	Source Test				

Emission Unit 03					
Specifications					
ID	03		Design Capacity	12.554 MILLION BTU PER HOUR	
Description	Auxiliary Heater No. 1		Emission Unit Status	Operating	
Manufacturer	Cleaver-Brooks		Manufactured Year	1967	
Model Number	CB 189-300		Serial Number	L-39759	
Initial Startup Date	Installed 1967		Retired Date	Not Applicable	
Regulations					
Regulation/Description					
40 CFR 63 Subpart JJJJJ					
Control Equipment					
System Description	Not Applicable				
Control Measures/	Not Applicable				
Devices	Not Applicable				
Control Efficiency (%)	Not Applicable				
Capture Efficiency (%)	Not Applicable				
Pollutants Controlled	Not Applicable		Reduction Efficiency (%)	Not Applicable	
	Not Applicable		Reduction Efficiency (%)	Not Applicable	
Processes					
Process	Primary Process				
SCC Code	10200502				
	> External Combustion Boilers				
	> Industrial				
	> Distillate Oil				
	> 10-100 Million Btu/hr				
Material Processed	Distillate Oil				
Period Start	1/1/2018		Period End	12/31/2018	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
5,763	gallons	6	0	0	94
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
0.1	0.4	1.0	161		
Fuel Characteristics					
Heat Content (MMBtu/1,000 gal)	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
134	0.0015	Not Available	Not Available		
Heating					
Heat Input (MMBtu/hr)	Heat Output (MMBtu/hr)		Heat Values Convention		
5	Not Applicable		HHV		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	5	POUNDS	THOUSAND GALLONS	AP-42 Table 1.3-1	1.441E-02
Ammonia (NH3)	Not Available	Not Available	Not Available	Not Available	Not Available
Nitrogen Oxides(NOX)	20	POUNDS	THOUSAND GALLONS	AP-42 Table 1.3-1	5.763E-02
PM10 Primary (Filt + Cond)(PM10-PRI)	2.3	POUNDS	THOUSAND GALLONS	AP-42 Tables 1.3-2 and 1.3-7	6.627E-03
PM2.5 Primary (Filt + Cond)(PM25-PRI)	1.55	POUNDS	THOUSAND GALLONS	AP-42 Tables 1.3-2 and 1.3-7	4.466E-03
PM2.5 Filterable (PM25-FIL)	0.25	POUNDS	THOUSAND GALLONS	AP-42 Table 1.3-7	7.204E-04
PM Condensable (PM-CON)	1.3	POUNDS	THOUSAND GALLONS	AP-42 Table 1.3-2	3.746E-03
Sulfur Dioxide(SO2)	2.1E-04	POUNDS	GALLON	Mass Balance	6.138E-04
Lead and lead compounds	9	POUNDS	BILLION GALLONS	AP-42 Table 1.3-10	2.593E-11
Volatile Organic Compounds(VOC)	0.34	POUNDS	THOUSAND GALLONS	AP-42 Table 1.3-3	9.797E-04

Emission Unit 03					
Process	Secondary Process				
SCC Code	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
Material Processed	Not Applicable				
Period Start	1/1/2018		Period End	12/31/2018	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input (MMBtu/hr)	Heat Output (MMBtu/hr)		Heat Values Convention		
Not Applicable	Not Applicable		Not Applicable		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOx)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Filterable (PM25-FIL)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Release Points					
ID	Description	Type	Apportion %		
03	Auxiliary Heater No. 1	Vertical	100		
Release Point 03					
Specifications					
ID	03	Type	Vertical		
Description	Auxiliary Heater No. 1				
Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
85	1.9	450	21	3,600	
Geographic Coordinate					
Latitude	63.854883	Longitude	-148.950131	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Location Description	Healy, AK	Retired Date	Not Applicable		
Data Source	Engineering Estimate				

Emission Unit 04					
Specifications					
ID	04		Design Capacity	23 MILLION BTU PER HOUR	
Description	Auxiliary Heater No. 2		Emission Unit Status	Operating	
Manufacturer	Cleaver-Brooks		Manufactured Year	1996	
Model Number	CBI 100-800-15		Serial Number	OLO94777	
Initial Startup Date	Installed 1996		Retired Date	Not Applicable	
Regulations					
Regulation/Description					
40 CFR 60 Subpart Dc and 40 CFR 63 Subpart JJJJJ					
Control Equipment					
System Description	Not Applicable				
Control Measures/	Not Applicable				
Devices	Not Applicable				
Control Efficiency (%)	Not Applicable				
Capture Efficiency (%)	Not Applicable				
Pollutants Controlled	Not Applicable			Reduction Efficiency (%)	Not Applicable
	Not Applicable			Reduction Efficiency (%)	Not Applicable
Processes					
Process	Primary Process				
SCC Code	10200502				
	> External Combustion Boilers				
	> Industrial				
	> Distillate Oil				
	> 10-100 Million Btu/hr				
Material Processed	Distillate Oil				
Period Start	1/1/2018		Period End	12/31/2018	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
262	gallons	0	11	0	89
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
0.0	0.0	0.0	3		
Fuel Characteristics					
Heat Content (MMBtu/1,000 gal)	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
134	0.0015	Not Available	Not Available		
Heating					
Heat Input (MMBtu/hr)		Heat Output (MMBtu/hr)		Heat Values Convention	
13		Not Applicable		HHV	
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	5	POUNDS	THOUSAND GALLONS	AP-42 Table 1.3-1	6.541E-04
Ammonia (NH3)	Not Available	Not Available	Not Available	Not Available	Not Available
Nitrogen Oxides(NOX)	20	POUNDS	THOUSAND GALLONS	AP-42 Table 1.3-1	2.617E-03
PM10 Primary (Filt + Cond)(PM10-PRI)	2.3	POUNDS	THOUSAND GALLONS	AP-42 Tables 1.3-2 and 1.3-7	3.009E-04
PM2.5 Primary (Filt + Cond)(PM25-PRI)	1.55	POUNDS	THOUSAND GALLONS	AP-42 Tables 1.3-2 and 1.3-7	2.028E-04
PM2.5 Filterable (PM25-FIL)	0.25	POUNDS	THOUSAND GALLONS	AP-42 Table 1.3-7	3.271E-05
PM Condensable (PM-CON)	1.3	POUNDS	THOUSAND GALLONS	AP-42 Table 1.3-2	1.701E-04
Sulfur Dioxide(SO2)	2.1E-04	POUNDS	GALLON	Mass Balance	2.787E-05
Lead and lead compounds	9	POUNDS	BILLION GALLONS	AP-42 Table 1.3-10	1.177E-12
Volatile Organic Compounds(VOC)	0.34	POUNDS	THOUSAND GALLONS	AP-42 Table 1.3-3	4.448E-05

Emission Unit 04					
Process	Secondary Process				
SCC Code	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
Material Processed	Not Applicable				
Period Start	1/1/2018		Period End	12/31/2018	
Throughput					
Total	Summer %	Fall %	Winter %	Spring %	
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input (MMBtu/hr)	Heat Output (MMBtu/hr)		Heat Values Convention		
Not Applicable	Not Applicable		Not Applicable		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOX)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Filterable (PM25-FIL)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Release Points					
ID	Description	Type	Apportion %		
04	Auxiliary Heater No. 2	Vertical	100		
Release Point 04					
Specifications					
ID	04	Type	Vertical		
Description	Auxiliary Heater No. 2				
Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
152	1.9	450	25	4,269	
Geographic Coordinate					
Latitude	63.854956	Longitude	-148.951181	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Location Description	Healy, AK	Retired Date	Not Applicable		
Data Source	Engineering Estimate				

Emission Unit 05					
Specifications					
ID	05		Design Capacity	2.75 MEGAWATTS	
Description	Diesel Generator Engine No. 1		Emission Unit Status	Not Operating	
Manufacturer	Electro-Motive Diesel		Manufactured Year	1967	
Model Number	20-645-E4		Serial Number	67-B1-1152	
Initial Startup Date	Installed 1967		Retired Date	Not Applicable	
Regulations					
Regulation/Description					
40 CFR 63 Subpart ZZZZ					
Control Equipment					
System Description	Not Applicable				
Control Measures/	Not Applicable				
Devices	Not Applicable				
Control Efficiency (%)	Not Applicable				
Capture Efficiency (%)	Not Applicable				
Pollutants Controlled	Not Applicable		Reduction Efficiency (%)	Not Applicable	
	Not Applicable		Reduction Efficiency (%)	Not Applicable	
Processes					
Process	Primary Process				
SCC Code	20100102				
	> Internal Combustion Engines				
	> Electric Generation				
	> Distillate Oil (Diesel)				
	> Reciprocating				
Material Processed	Diesel				
Period Start	1/1/2018		Period End	12/31/2018	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
0	gallons	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Fuel Characteristics					
Heat Content (MMBtu/1,000 gal)	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input (MMBtu/hr)	Heat Output (Megawatts)		Heat Values Convention		
Not Applicable	Not Applicable		HHV		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOX)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Filterable (PM25-FIL)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

Emission Unit 05					
Process	Secondary Process				
SCC Code	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
Material Processed	Not Applicable				
Period Start	1/1/2018		Period End	12/31/2018	
Throughput					
Total	Summer %	Fall %	Winter %	Spring %	
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input	Heat Output		Heat Values Convention		
Not Applicable	Not Applicable		Not Applicable		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOX)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Filterable (PM25-FIL)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Release Points					
ID	Description	Type	Apportion %		
05	Diesel Generator Engine No. 1	Vertical	100		
Release Point 05					
Specifications					
ID	05	Type	Vertical		
Description	Diesel Generator Engine No. 1				
Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
18.25	3.33	950	25	13,180	
Geographic Coordinate					
Latitude	63.855217	Longitude	-148.948886	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Location Description	Healy, AK	Retired Date	Not Applicable		
Data Source	Engineering Estimate				

Emission Unit 06

Specifications

ID	06	Design Capacity	400 ton/hr
Description	Crusher System (Dust Collector No. 1)	Emission Unit Status	Operating
Manufacturer	Not Available	Manufactured Year	Not Available
Model Number	Not Available	Serial Number	885247 (Secondary Crusher No. 1) 844034 (Secondary Crusher No. 2)
Initial Startup Date	Installed 1996	Retired Date	Not Applicable

Regulations

Regulation/Description

40 CFR 60 Subpart Y

Control Equipment

System Description	Dust Collector No. 1		
Control Measures/ Devices	Fabric Filter/Baghouse		
Control Efficiency (%)	Not Available		
Capture Efficiency (%)	Not Available		
Pollutants Controlled	PM10 Primary (Filt + Cond)	Reduction Efficiency (%)	Not Available
	PM25 Primary (Filt + Cond)	Reduction Efficiency (%)	Not Available
	PM2.5 Filterable (PM25-FIL)	Reduction Efficiency (%)	Not Available

Processes

Process	Primary Process		
SCC Code	30510103		
	> Industrial Processes		
	> Mineral Products		
	> Bulk Materials Conveyors		
	> Coal		
Material Processed	Coal		
Period Start	1/1/2018	Period End	12/31/2018

Throughput

Total	Summer %	Fall %	Winter %	Spring %
259,744 tons	24	44	21	11

Operational Schedule

Days/Week	Hours/Day	Weeks/Period	Hours/Period
1.8	6.1	13.2	2,211

Fuel Characteristics

Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)
Not Applicable	Not Applicable	Not Applicable	Not Applicable

Heating

Heat Input	Heat Output	Heat Values Convention
Not Applicable	Not Applicable	Not Applicable

Emissions

Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOX)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	2.05	POUNDS	HOUR	Permit AQ0173TVP03, Table B	2.266E+00
PM2.5 Primary (Filt + Cond)(PM25-PRI)	2.05	POUNDS	HOUR	Permit AQ0173TVP03, Table B	2.266E+00
PM2.5 Filterable (PM25-FIL)	2.05	POUNDS	HOUR	Permit AQ0173TVP03, Table B	2.266E+00
PM Condensable (PM-CON)	Not Available	Not Available	Not Available	Not Available	Not Available
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

Emission Unit 06					
Process	Secondary Process				
SCC Code	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
Material Processed	Not Applicable				
Period Start	1/1/2018		Period End	12/31/2018	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input	Heat Output		Heat Values Convention		
Not Applicable	Not Applicable		Not Applicable		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOx)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Filterable (PM25-FIL)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (< 1 Micron)(PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Release Points					
ID	Description			Type	Apportion %
06	Crusher System (Dust Collector No. 1)			Downward-facing Vent	100
Release Point 06					
Specifications					
ID	06		Type	Downward-facing Vent	
Description	Crusher System (Dust Collector No. 1)				
Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
13	3.08	30	27	12,000	
Geographic Coordinate					
Latitude	63.855014	Longitude	-148.949925	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Location Description	Healy, AK	Retired Date	Not Applicable		
Data Source	Engineering Estimate				

Emission Unit 07					
Specifications					
ID	07		Design Capacity	314 tons	
Description	Limestone Storage Silo		Emission Unit Status	Operating	
Manufacturer	Not Available		Manufactured Year	Not Available	
Model Number	Not Available		Serial Number	Not Available	
Initial Startup Date	Installed 1996		Retired Date	Not Applicable	
Regulations					
Regulation/Description					
Not Applicable					
Control Equipment					
System Description	Baghouse				
Control Measures/Devices	Dust Suppression Fabric Filter/Baghouse				
Control Efficiency (%)	Not Applicable				
Capture Efficiency (%)	Not Applicable				
Pollutants Controlled	PM10 Primary (Filt + Cond)		Reduction Efficiency (%)	Not Available	
	PM25 Primary (Filt + Cond)		Reduction Efficiency (%)	Not Available	
	PM2.5 Filterable (PM25-FIL)		Reduction Efficiency (%)	Not Available	
Processes					
Process	Primary Process				
SCC Code	30510205				
	> Industrial Processes				
	> Mineral Products				
	> Bulk Materials Storage Bins				
	> Limestone				
Material Processed	Limestone				
Period Start	1/1/2018	Period End	12/31/2018		
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
57	tons	50	50	0	0
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
0.1	0.4	0.8	139		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input	Heat Output		Heat Values Convention		
Not Applicable	Not Applicable		Not Applicable		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOX)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	0.14	POUNDS	HOUR	Permit AQ0173TVP03, Table B	9.695E-03
PM2.5 Primary (Filt + Cond)(PM25-PRI)	0.14	POUNDS	HOUR	Permit AQ0173TVP03, Table B	9.695E-03
PM2.5 Filterable (PM25-FIL)	0.14	POUNDS	HOUR	Permit AQ0173TVP03, Table B	9.695E-03
PM Condensable (PM-CON)	Not Available	Not Available	Not Available	Not Available	Not Available
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

Emission Unit 07					
Process	Secondary Process				
SCC Code	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
Material Processed	Not Applicable				
Period Start	1/1/2018		Period End	12/31/2018	
Throughput					
Total	Summer %	Fall %	Winter %	Spring %	
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input	Heat Output		Heat Values Convention		
Not Applicable	Not Applicable		Not Applicable		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOx)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Filterable (PM25-FIL)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Release Points					
ID	Description	Type	Apportion %		
07	Limestone Storage Silo	Downward-facing Vent	100		
Release Point 07					
Specifications					
ID	07	Type	Downward-facing Vent		
Description	Limestone Storage Silo				
Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
139	0.91	30	21	800	
Geographic Coordinate					
Latitude	63.854947	Longitude	-148.950628	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Location Description	Healy, AK	Retired Date	Not Applicable		
Data Source	Engineering Estimate				

Emission Unit 08					
Specifications					
ID	08	Design Capacity	570 tons		
Description	Flyash Storage Silo	Emission Unit Status	Operating		
Manufacturer	Not Available	Manufactured Year	Not Available		
Model Number	Not Available	Serial Number	Not Available		
Initial Startup Date	Installed 1996	Retired Date	Not Applicable		
Regulations					
Regulation/Description					
Not Applicable					
Control Equipment					
System Description	Pulse Jet Baghouse				
Control Measures/ Devices	Dust Suppression Fabric Filter/Baghouse				
Control Efficiency (%)	Not Available				
Capture Efficiency (%)	Not Available				
Pollutants Controlled	PM10 Primary (Filt + Cond)	Reduction Efficiency (%)	Not Available		
	PM25 Primary (Filt + Cond)	Reduction Efficiency (%)	Not Available		
	PM2.5 Filterable (PM25-FIL)	Reduction Efficiency (%)	Not Available		
Processes					
Process	Primary Process				
SCC Code	30181003				
	> Industrial Processes				
	> Chemical Manufacturing				
	> General Processes				
	> Storage/Transfer				
Material Processed	Flyash				
Period Start	1/1/2018	Period End	12/31/2018		
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
Not Applicable	Not Applicable	25	62	13	0
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
2.2	7.5	16.4	2,750		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input		Heat Output		Heat Values Convention	
Not Applicable		Not Applicable		Not Applicable	
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOX)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	0.86	POUNDS	HOUR	Permit AQ0173TVP03, Table B	1.183E+00
PM2.5 Primary (Filt + Cond)(PM25-PRI)	0.86	POUNDS	HOUR	Permit AQ0173TVP03, Table B	1.183E+00
PM2.5 Filterable (PM25-FIL)	0.86	POUNDS	HOUR	Permit AQ0173TVP03, Table B	1.183E+00
PM Condensable (PM-CON)	Not Available	Not Available	Not Available	Not Available	Not Available
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

Emission Unit 08					
Process	Secondary Process				
SCC Code	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
Material Processed	Not Applicable				
Period Start	1/1/2018		Period End	12/31/2018	
Throughput					
Total	Summer %	Fall %	Winter %	Spring %	
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input	Heat Output		Heat Values Convention		
Not Applicable	Not Applicable		Not Applicable		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOX)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Filterable (PM25-FIL)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Release Points					
ID	Description	Type		Apportion %	
08	Flyash Storage Silo	Horizontal		100	
Release Point 08					
Specifications					
ID	08	Type	Horizontal		
Description	Flyash Storage Silo				
Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
100	0.91	30	128	5,000	
Geographic Coordinate					
Latitude	63.855036	Longitude	-148.951444	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Location Description	Healy, AK	Retired Date	Not Applicable		
Data Source	Engineering Estimate				

Emission Unit 09					
Specifications					
ID	09		Design Capacity	50 tons	
Description	Sodium Bicarbonate Handling System		Emission Unit Status	Operating	
Manufacturer	Not Available		Manufactured Year	Not Available	
Model Number	Not Available		Serial Number	Not Available	
Initial Startup Date	Installed 1998		Retired Date	Not Applicable	
Regulations					
Regulation/Description					
40 CFR 60 Subpart 000					
Control Equipment					
System Description	Horizon System 58-SF-16 Style II Pulse Air Baghouse				
Control Measures/ Devices	Fabric Filter/Baghouse				
Control Efficiency (%)	Not Available				
Capture Efficiency (%)	Not Available				
Pollutants Controlled	PM10 Primary (Filt + Cond)		Reduction Efficiency (%)	Not Available	
	PM25 Primary (Filt + Cond)		Reduction Efficiency (%)	Not Available	
	PM2.5 Filterable (PM25-FIL)		Reduction Efficiency (%)	Not Available	
Processes					
Process	Primary Process				
SCC Code	30181003				
	> Industrial Processes				
	> Chemical Manufacturing				
	> General Processes				
	> Storage/Transfer				
Material Processed	Sodium Bicarbonate				
Period Start	1/1/2018	Period End	12/31/2018		
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
383	tons	47	12	25	15
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
0.1	0.2	0.4	70		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input	Heat Output		Heat Values Convention		
Not Applicable	Not Applicable		Not Applicable		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOX)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	0.02	GRAINS	DRY STANDARD CUBIC FOOT	Design Specifications	2.637E-03
PM2.5 Primary (Filt + Cond)(PM25-PRI)	0.02	GRAINS	DRY STANDARD CUBIC FOOT	Design Specifications	2.637E-03
PM2.5 Filterable (PM25-FIL)	0.02	GRAINS	DRY STANDARD CUBIC FOOT	Design Specifications	2.637E-03
PM Condensable (PM-CON)	Not Available	Not Available	Not Available	Not Available	Not Available
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

Emission Unit 09					
Process	Secondary Process				
SCC Code	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
Material Processed	Not Applicable				
Period Start	1/1/2018		Period End	12/31/2018	
Throughput					
Total	Summer %	Fall %	Winter %	Spring %	
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input	Heat Output		Heat Values Convention		
Not Applicable	Not Applicable		Not Applicable		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOX)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Filterable (PM25-FIL)					
PM Condensable (PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Release Points					
ID	Description		Type	Apportion %	
09	Sodium Bicarbonate Handling System		Downward-facing Vent	100	
Release Point 09					
Specifications					
ID	09	Type	Downward-facing Vent		
Description	Sodium Bicarbonate Handling System				
Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
58	0.45	30	46	440	
Geographic Coordinate					
Latitude	63.854619	Longitude	-148.950214	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Location Description	Healy, AK	Retired Date	Not Applicable		
Data Source	Engineering Estimate				

Emission Unit 10					
Specifications					
ID	10		Design Capacity	240 ton/hr	
Description	Coal Handling System (Dust Collector No. 2)		Emission Unit Status	Operating	
Manufacturer	Not Available		Manufactured Year	Not Available	
Model Number	Not Available		Serial Number	Not Available	
Initial Startup Date	Installed 1996		Retired Date	Not Applicable	
Regulations					
Regulation/Description					
40 CFR 60 Subpart Y					
Control Equipment					
System Description	Air-Cure Environmental, Inc 276RF8 Reverse Pulse Baghouse				
Control Measures/ Devices	Fabric Filter/Baghouse				
Control Efficiency (%)	Not Available				
Capture Efficiency (%)	Not Available				
Pollutants Controlled	PM10 Primary (Filt + Cond)		Reduction Efficiency (%)	Not Available	
	PM25 Primary (Filt + Cond)		Reduction Efficiency (%)	Not Available	
	PM2.5 Filterable (PM25-FIL)		Reduction Efficiency (%)	Not Available	
Processes					
Process	Primary Process				
SCC Code	30510103				
	> Industrial Processes				
	> Mineral Products				
	> Bulk Materials Conveyors				
	> Coal				
Material Processed	Coal				
Period Start	1/1/2018		Period End	12/31/2018	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
259,744	tons	24	44	21	11
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
2	6	13	2,211		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input	Heat Output		Heat Values Convention		
Not Applicable	Not Applicable		Not Applicable		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOX)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PR)	3.43	POUNDS	HOUR	Permit AQ0173TVP03, Table B	3.792E+00
PM2.5 Primary (Filt + Cond)(PM25-PR)	3.43	POUNDS	HOUR	Permit AQ0173TVP03, Table B	3.792E+00
PM2.5 Filterable (PM25-FIL)	3.43	POUNDS	HOUR	Permit AQ0173TVP03, Table B	3.792E+00
PM Condensable (PM-CON)	Not Available	Not Available	Not Available	Not Available	Not Available
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

Emission Unit 10					
Process	Secondary Process				
SCC Code	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
Material Processed	Not Applicable				
Period Start	1/1/2018		Period End	12/31/2018	
Throughput					
Total	Summer %	Fall %	Winter %	Spring %	
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input	Heat Output		Heat Values Convention		
Not Applicable	Not Applicable		Not Applicable		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOx)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Filterable (PM25-FIL)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Release Points					
ID	Description	Type	Apportion %		
10A	Coal Handling System (Dust Collector No. 2)	Horizontal	0		
10B	Temporary Dust Collector	Horizontal	100		
Release Point 10A					
Specifications					
ID	10A	Type	Horizontal		
Description	Coal Handling System (Dust Collector No. 2)				
Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
127	3.32	30	39	20,000	
Geographic Coordinate					
Latitude	63.854989	Longitude	-148.950558	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Location Description	Healy, AK	Retired Date	Not Applicable		
Data Source	Engineering Estimate				
Release Point 10B					
Specifications					
ID	10B	Type	Horizontal		
Description	Temporary Dust Collector				
Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
57	1.07	30	111	6,000	
Geographic Coordinate					
Latitude	63.85520	Longitude	-148.95132	Datum	NAD 1983

Emission Unit 10			
Base Elevation	1,260	Accuracy	1
Location Description	Healy, AK	Retired Date	Not Applicable
Data Source	Engineering Estimate		

Emission Unit 11					
Specifications					
ID	11		Design Capacity	Not Applicable	
Description	Haul Road (located on GVEA property)		Emission Unit Status	Operating	
Manufacturer	Not Applicable		Manufactured Year	Not Applicable	
Model Number	Not Applicable		Serial Number	Not Applicable	
Initial Startup Date	1967 (estimate)		Retired Date	Not Applicable	
Regulations					
Regulation/Description					
Not Applicable					
Control Equipment					
System Description	Water application				
Control Measures/Devices	Dust Suppression				
Control Efficiency (%)	50				
Capture Efficiency (%)	Not Applicable				
Pollutants Controlled	PM10 Primary (Filt + Cond)		Reduction Efficiency (%)	50	
	PM25 Primary (Filt + Cond)		Reduction Efficiency (%)	50	
	PM2.5 Filterable (PM25-FIL)		Reduction Efficiency (%)	50	
Processes					
Process	Primary Process				
SCC Code	30501090				
	> Industrial Processes				
	> Mineral Products				
	> Coal Mining, Cleaning, and Material Handling				
	> Haul Roads				
Material Processed	Fugitive Dust				
Period Start	1/1/2018	Period End	12/31/2018		
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
945	Vehicle Miles Travelled (VMT)	20	40	23	17
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
7	24	52	8,760		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input	Heat Output		Heat Values Convention		
Not Applicable	Not Applicable		Not Applicable		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOX)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	1.32	POUNDS	VMT	AP-42 Section 13.2.2	6.214E-01
PM2.5 Primary (Filt + Cond)(PM25-PRI)	0.13	POUNDS	VMT	AP-42 Section 13.2.2	6.214E-02
PM2.5 Filterable (PM25-FIL)	0.13	POUNDS	VMT	AP-42 Section 13.2.2	6.214E-02
PM Condensable (PM-CON)	Not Available	Not Available	Not Available	Not Available	Not Available
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

Emission Unit 11					
Process	Secondary Process				
SCC Code	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
Material Processed	Not Applicable				
Period Start	1/1/2018		Period End	12/31/2018	
Throughput					
Total	Summer %	Fall %	Winter %	Spring %	
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input	Heat Output		Heat Values Convention		
Not Applicable	Not Applicable		Not Applicable		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOX)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Filterable (PM25-FIL)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Release Points					
ID	Description	Type	Apportion %		
11	Haul Road (located on GVEA property)	Fugitive	100		
Release Point 11					
Specifications					
ID	11	Type	Fugitive		
Description	Haul Road (located on GVEA property)				
Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	
Geographic Coordinate					
Latitude	63.855392	Longitude	-148.945955	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Location Description	Location determined near split in haul road by substation; Healy, AK	Retired Date	Not Applicable		
Data Source	Engineering Estimate				

Emission Unit 12					
Specifications					
ID	12	Design Capacity	372,000 cubic feet		
Description	Coal Storage Pile	Emission Unit Status	Operating		
Manufacturer	Not Applicable	Manufactured Year	Not Applicable		
Model Number	Not Applicable	Serial Number	Not Applicable		
Initial Startup Date	1967 (estimate)	Retired Date	Not Applicable		
Regulations					
Regulation/Description					
Not Applicable					
Control Equipment					
System Description	Water application				
Control Measures/ Devices	Dust Suppression				
Control Efficiency (%)	50				
Capture Efficiency (%)	Not Applicable				
Pollutants Controlled	PM10 Primary (Filt + Cond)		Reduction Efficiency (%)	50	
	PM25 Primary (Filt + Cond)		Reduction Efficiency (%)	50	
	PM2.5 Filterable (PM25-FIL)		Reduction Efficiency (%)	50	
Processes					
Process	Primary Process				
SCC Code	30510303				
	> Industrial Processes				
	> Mineral Products				
	> Bulk Materials Open Stockpiles				
	> Coal				
Material Processed	Coal				
Period Start	1/1/2018		Period End	12/31/2018	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
259,744	tons	20	40	23	17
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
7	24	52	8,760		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input		Heat Output		Heat Values Convention	
Not Applicable		Not Applicable		Not Applicable	
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOX)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	4.416E-01	TONS	YEAR	AP-42 Sections 13.2.2, 13.2.4, and 13.2.5	4.416E-01
PM2.5 Primary (Filt + Cond)(PM25-PRI)	4.424E-02	TONS	YEAR	AP-42 Sections 13.2.2, 13.2.4, and 13.2.5	4.424E-02
PM2.5 Filterable (PM25-FIL)	4.424E-02	TONS	YEAR	AP-42 Sections 13.2.2, 13.2.4, and 13.2.5	4.424E-02
PM Condensable (PM-CON)	Not Available	Not Available	Not Available	Not Available	Not Available
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

Emission Unit 12					
Process	Secondary Process				
SCC Code	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
Material Processed	Not Applicable				
Period Start	1/1/2018		Period End	12/31/2018	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input	Heat Output		Heat Values Convention		
Not Applicable	Not Applicable		Not Applicable		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOx)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Filterable (PM25-FIL)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Release Points					
ID	Description	Type		Apportion %	
12	Coal Storage Pile	Fugitive		100	
Release Point 12					
Specifications					
ID	12	Type		Fugitive	
Description	Coal Storage Pile				
Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	
Geographic Coordinate					
Latitude	63.854556	Longitude	-148.946703	Datum	World 1984
Base Elevation	1,260	Accuracy	1		
Location Description	Healy, AK	Retired Date	Not Applicable		
Data Source	Engineering Estimate				

Emission Unit 13					
Specifications					
ID	13	Design Capacity	264 HORSEPOWER		
Description	Firewater Pump Engine	Emission Unit Status	Operating		
Manufacturer	Caterpillar	Manufactured Year	1997		
Model Number	3406B	Serial Number	6TB14931		
Initial Startup Date	Installed 1997	Retired Date	Not Applicable		
Regulations					
Regulation/Description					
40 CFR 63 Subpart ZZZZ					
Control Equipment					
System Description	Not Applicable				
Control Measures/	Not Applicable				
Devices	Not Applicable				
Control Efficiency (%)	Not Applicable				
Capture Efficiency (%)	Not Applicable				
Pollutants Controlled	Not Applicable	Reduction Efficiency (%)	Not Applicable		
	Not Applicable	Reduction Efficiency (%)	Not Applicable		
> Pollutants Controlled					
Pollutant Description		Reduction Efficiency (%)			
Not Applicable		Not Applicable			
Processes					
Process	Primary Process				
SCC Code	20200102				
	> Internal Combustion Engines				
	> Industrial				
	> Distillate Oil (Diesel)				
	> Reciprocating				
Material Processed	Distillate Oil				
Period Start	1/1/2018	Period End	12/31/2018		
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
82.70429931	gallons	25	25	25	25
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
0.005	0.02	0.04	6		
Fuel Characteristics					
Heat Content (MMBtu/1,000 gal)	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
134	0.0015	Not Available	Not Available		
Heating					
Heat Input (MMBtu/hr)	Heat Output (horsepower)		Heat Values Convention		
2	264		HHV		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	6.68E-03	POUNDS	HORSEPOWER-HOUR	AP-42 Table 3.3-1	5.291E-03
Ammonia (NH3)	Not Available	Not Available	Not Available	Not Available	Not Available
Nitrogen Oxides(NOx)	0.031	POUNDS	HORSEPOWER-HOUR	AP-42 Table 3.3-1	2.455E-02
PM10 Primary (Filt + Cond)(PM10-PRI)	2.2E-03	POUNDS	HORSEPOWER-HOUR	AP-42 Table 3.3-1	1.742E-03
PM2.5 Primary (Filt + Cond)(PM25-PRI)	2.2E-03	POUNDS	HORSEPOWER-HOUR	AP-42 Table 3.3-1	1.742E-03
PM2.5 Filterable (PM25-FIL)	2.2E-03	POUNDS	HORSEPOWER-HOUR	AP-42 Table 3.3-1	1.742E-03
PM Condensable (PM-CON)	Not Available	Not Available	Not Available	Not Available	Not Available
Sulfur Dioxide(SO2)	2.13E-04	POUNDS	GALLON	Mass Balance	2.663E-06
Volatile Organic Compounds(VOC)	2.51E-03	POUNDS	HORSEPOWER-HOUR	AP-42 Table 3.3-1	1.988E-03
Lead and lead compounds	Not Available	Not Available	Not Available	Not Available	Not Available

Emission Unit 13					
Process	Secondary Process				
SCC Code	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
Material Processed	Not Applicable				
Period Start	1/1/2018	Period End	12/31/2018		
Throughput					
Total	Summer %	Fall %	Winter %	Spring %	
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input	Heat Output		Heat Values Convention		
Not Applicable	Not Applicable		Not Applicable		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOx)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Filterable (PM25-FIL)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Release Points					
ID	Description	Type	Apportion %		
13	Firewater Pump Engine	Horizontal	100		
Release Point 13					
Specifications					
ID	13	Type	Horizontal		
Description	Firewater Pump Engine				
Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
10	1	300	6	283	
Geographic Coordinate					
Latitude	63.854956	Longitude	-148.951181	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Location Description	Healy, AK	Retired Date	Not Applicable		
Data Source	Engineering Estimate				

2018 Actual Emissions Calculations - Fuel and Operating Hour Summary
Golden Valley Electric Association - Healy Power Plant

EU ID	Description	Fuel Type	Fuel Consumption (gallons)												Total
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1	Unit 1	ULSD	15	3	397	3,548	3,256	5,206	11,662	3,646	9,440	2,873	-	194	40,240
2	Unit 2	ULSD	-	-	-	-	-	-	83,320	258,358	45,182	67,557	20,620	100,601	555,638
3	Auxiliary Boiler 1	ULSD	-	-	85	5,268	43	367	-	-	-	-	-	-	5,763
4	Auxiliary Boiler 2	ULSD	-	-	232	-	-	-	-	-	30	-	-	-	262
5	Diesel Electric Generator	ULSD	-	-	-	-	-	-	-	-	-	-	-	-	-
13	Firewater Pump	ULSD	7	7	7	7	7	7	7	7	7	7	7	7	83

EU ID	Description	Coal Consumption (tons)												Total
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1	Unit 1	16,779	15,956	17,367	9,738	16,024	14,155	12,672	34,532	14,460	13,083	16,542	16,767	178,076
2	Unit 2	-	-	-	-	-	-	84	10,772	26,843	6,487	26,810	10,672	81,668
	Total	16,779	15,956	17,367	9,738	16,024	14,155	12,756	25,304	41,302	19,570	43,352	27,439	259,744

EU ID	Coal Properties	
	Fuel HHV (Btu/lb)	
1	7,146	
2	7,153	
	Ash (wt. %)	
1	8.52	
2	8.06	
	Sulfur (wt. %)	
1	0.140	
2	0.125	

EU ID	Fuel Type	Fuel Usage by Season (%)			
		Summer	Fall	Winter	Spring
1	ULSD	51.0	30.6	0.5	17.9
	Coal	23.2	24.8	27.8	24.2
2	ULSD	57.9	24.0	18.1	-
	Coal	13.3	73.6	13.1	-
3	ULSD	6.4	-	-	93.6
4	ULSD	-	11.4	-	88.6
5	ULSD	25.0	25.0	25.0	25.0

EU ID	Fuel Type	MMBtu
1	ULSD	9,394.9
	Coal	2,545,217.5
2	ULSD	24,493.3
	Coal	1,168,268.0

Fuel Type	Moisture (wt. %)
Coal	31.73

EU ID	Hours by Season (%)			
	Summer	Fall	Winter	Spring
6	24	44	21	11
7	50	50	-	-
8	25	62	13	-
9	47	12	25	15
10	24	44	21	11
13	25	25	25	25

EU ID	Coal Consumption by Season (%)			
	Summer	Fall	Winter	Spring
11 and 12	20	40	23	17

Fuel Type	Avg. Density (lb/gal)
ULSD	7.10

Source: AP 42, Table 3.4-1, footnote a

EU ID	Material	Throughput (tons)
7	Limestone	57
9	Bicarbonate	383

Fuel Type	Fuel HHV (Btu/gal)												Average
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
ULSD	-	-	-	-	-	-	134,068	-	-	-	-	-	134,068

EU ID	Description	Operating Hours												Total
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1	Unit 1 Coal	-	-	-	-	-	-	-	-	-	-	-	-	8,150
	Unit 1 Oil	-	-	-	-	-	-	-	-	-	-	-	-	17
	Unit 1 Total	744	672	744	432	727	643	648	743	720	691	720	744	8,168
2	Unit 2 Coal	-	-	-	-	-	-	-	-	-	-	-	-	2,585
	Unit 2 Oil	-	-	-	-	-	-	-	-	-	-	-	-	165
	Unit 2 Total	-	-	-	-	-	-	-	-	-	-	-	-	2,750
3	Auxiliary Boiler 1	-	-	3	144	1	13	-	-	-	-	-	-	161
4	Auxiliary Boiler 2	-	-	2	-	-	-	-	1	-	-	-	-	3
5	Diesel Electric Generator	-	-	-	-	-	-	-	-	-	-	-	-	-
6	Crusher	111	101	108	50	82	86	74	370	395	168	400	757	2,211
7	Lime Storage Silo	-	-	-	-	-	-	-	69	395	-	-	-	139
8	Plyash Storage Silo	-	-	-	-	-	-	-	148	543	720	282	344	2,750
9	Sodium Bicarbonate System	5	5	-	5	6	12	18	6	-	4	5	9	70
10	Coal Handling System	111	101	108	59	82	86	74	370	395	168	400	757	2,211
13	Firewater Pump	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	6

2018 Actual Emissions Calculations - Haul Road Particulate Matter Emissions
Golden Valley Electric Association - Healy Power Plant

Emissions Unit		Factor Reference	Emission	Emission Factor	2018 Actual Operation	2018 Actual PM Emissions
ID	Description					
11	Coal Haul - Unpaved Portion	AP-42, Section 13.2.2			945 VMT	
			PM	5.10 lb/VMT		2.41 tpy ¹
			PM ₁₀	1.32 lb/VMT		0.62 tpy ¹
			PM _{2.5}	0.13 lb/VMT		0.06 tpy ¹
Total PM Emissions						2.41 tpy
Total PM ₁₀ Emissions						0.62 tpy
Total PM _{2.5} Emissions						0.06 tpy

Notes:

¹ Coal Haul RoadUnpaved Road Emission Factor

AP-42, Section 13.2.2, Equation 1a:

$$E \left(\frac{\text{lb}}{\text{VMT}} \right) = k \left(\frac{s}{12} \right)^a \left(\frac{W}{3} \right)^b$$

	PM	PM ₁₀	PM _{2.5}	
k	4.9	1.5	0.15	from AP-42, Table 13.2.2-2
s = surface material silt content (haul road)	5.1	5.1	5.1	percent, from AP-42, Table 13.2.2-1
W = mean vehicle weight	193.75	193.75	193.75	tons, estimate - average of full (262.5 ton) and empty (125 ton) truck
a (empirical constant)	0.7	0.9	0.9	from AP-42, Table 13.2.2-2
b (empirical constant)	0.45	0.45	0.45	from AP-42, Table 13.2.2-2
E (uncontrolled) =	17.56	4.53	0.45	lb/VMT
Efficiency =	60%	60%	60%	assumed control efficiency for water
E (controlled) =	7.03	1.81	0.18	lb/VMT

Healy Alaska annually has 100 days with rainfall greater than or equal to 0.01 inches per the Western Regional Climate Center.
AP-42, Section 13.2.2, Equation 2:

$$E_{\text{ext}} = E \left(\frac{365 - P}{365} \right)$$

E_{ext} = annual size-specific emission factor extrapolated for water mitigation, lb/VMT

E = emission factor from Equation 1a

P = number of days in a year with at least 0.01 inches of precipitation

	PM	PM ₁₀	PM _{2.5}	
E (controlled) =	5.10	1.32	0.13	lb/VMT

Coal Throughput

Unit 1 actual coal throughput	178,076 tons
Unit 2 actual coal throughput	81,668 tons
Total actual coal throughput	259,744 tons

Vehicle Miles Traveled (VMT)

$$\text{VMT} = \frac{\text{Throughput (tons)} \times \text{Roundtrip Distance} \left(\frac{\text{miles}}{\text{trip}} \right)}{\text{Haul Truck Capacity} \left(\frac{\text{tons}}{\text{trip}} \right)}$$

Haul truck capacity	137.5 tons, estimate
Unpaved distance from coal pile to paved road (round trip)	0.50 miles/trip
Unpaved road VMT =	944.52 miles

2018 Actual Emissions Calculations - Coal Storage Pile Particulate Matter Emissions
Golden Valley Electric Association - Healy Power Plant

Emissions Unit		Factor Reference	Emission	Emission Factor	2018 Actual Operation	2018 Actual PM Emissions
ID	Description					
12	Truck Drop Onto Stockpile	AP-42, Section 13.2.4	PM	1.26E-05 lb/ton	259,744 tpy	1.6E-03 tpy ¹
			PM ₁₀	5.97E-06 lb/ton		7.8E-04 tpy ¹
			PM _{2.5}	9.04E-07 lb/ton		1.2E-04 tpy ¹
	Front End Loader Drop Into Grizzly	AP-42, Section 13.2.4	PM	1.26E-05 lb/ton	259,744 tpy	1.6E-03 tpy ¹
			PM ₁₀	5.97E-06 lb/ton		7.8E-04 tpy ¹
			PM _{2.5}	9.04E-07 lb/ton		1.2E-04 tpy ¹
	Front End Loader Movement - Coal Pile to Grizzly	AP-42, Section 13.2.2	PM	3.27 lb/VMT	944 VMT	1.54 tpy ²
			PM ₁₀	0.93 lb/VMT		4.4E-01 tpy ²
			PM _{2.5}	0.09 lb/VMT		4.4E-02 tpy ²
	Stockpile Wind Erosion	AP-42, Section 13.2.5	PM	0 g/m ² -yr	10,150 m ²	0 tpy ³
			PM ₁₀	0 g/m ² -yr		0 tpy ³
			PM _{2.5}	0 g/m ² -yr		0 tpy ³
Total PM Emissions					1.55 tpy	
Total PM ₁₀ Emissions					0.44 tpy	
Total PM _{2.5} Emissions					0.04 tpy	

Notes:

¹ Truck Drop onto Stockpile and Front End Loader Drop to Grizzly

Drop Operation Emission Factor:

AP-42, Section 13.2.4

$$E \left(\frac{\text{lb}}{\text{ton}} \right) = \frac{k \times 0.0032 \times \left(\frac{U}{S} \right)^{1.3}}{\left(\frac{M}{2} \right)^{1.4}}$$

	PM	PM ₁₀	PM _{2.5}
k	0.74	0.35	0.053
U = mean wind speed	1.75	1.75	1.75
M = coal moisture content	31.73	31.73	31.73
E =	1.26E-05	5.97E-06	9.04E-07
	lb/ton	lb/ton	lb/ton

AP-42, Section 13.2.4

Per www.ncdc.noaa.gov for CY2018, McKinley Airport ASOS (PAIN)

From CY2018 coal proximate analyses

Annual Stockpile Throughput:

Unit 1 actual coal throughput	178,076 tons
Unit 2 actual coal throughput	81,668 tons
Total actual coal throughput	259,744 tons

² Front End Loader Movement

Coal moved per trip:

$$\text{Coal (tons)} = \frac{\text{Coal Density} \left(\frac{\text{lb}}{\text{ft}^3} \right) \times 27 \left(\frac{\text{ft}^3}{\text{yd}^3} \right) \times \text{Bucket Size (yd}^3\text{)}}{2000 \left(\frac{\text{lb}}{\text{ton}} \right)}$$

Size of load bucket	11 yd ³
Density of coal	52.63 lb/ft ³
Coal moved per trip	7.82 tons

Emission Factor

AP-42, Section 13.2.2, Equation 1a:

$$E \left(\frac{\text{lb}}{\text{VMT}} \right) = k \left(\frac{s}{12} \right)^a \left(\frac{W}{3} \right)^b$$

	PM	PM ₁₀	PM _{2.5}	
k	4.9	1.5	0.15	from AP-42, Table 13.2.2-2
s = surface material silt content (haul road)	8.4	8.4	8.4	percent, from AP-42, Table 13.2.2-1
W = mean vehicle weight	33.2	33.2	33.2	tons, estimate
a (empirical constant)	0.7	0.9	0.9	from AP-42, Table 13.2.2-2
b (empirical constant)	0.45	0.45	0.45	from AP-42, Table 13.2.2-2
E (uncontrolled) =	11.26	3.21	0.32	lb/VMT
Efficiency =	60%	60%	60%	assumed control efficiency for water
E (controlled) =	4.50	1.28	0.13	lb/VMT

Healy Alaska annually has 100 days with rainfall greater than or equal to 0.01 inches per the Western Regional Climate Center.

AP-42, Section 13.2.2, Equation 2:

$$E_{ext} = E \left(\frac{365 - P}{365} \right)$$

E_{ext} = annual size-specific emission factor extrapolated for water mitigation, lb/VMT

E = emission factor from Equation 1a

P = number of days in a year with at least 0.01 inches of precipitation

	PM	PM ₁₀	PM _{2.5}
E (controlled) =	3.27	0.93	0.09
	lb/VMT	lb/VMT	lb/VMT

Vehicle Miles Traveled (VMT)

$$\text{VMT} = \frac{\text{Throughput (tons)} \times \text{Roundtrip Distance} \left(\frac{\text{miles}}{\text{trip}} \right)}{\text{Haul Truck Capacity} \left(\frac{\text{tons}}{\text{trip}} \right)}$$

Total Potential Coal Throughput	259,744 tons
Coal moved per trip	7.82 tons
Approximate distance from coal pile to grizzly (round trip)	150 feet
VMT = vehicles miles traveled per year	944

³ Stockpile Wind Erosion

Coal Pile Surface Area

Surface area of active face =	10,150 m ²
-------------------------------	-----------------------

Engineering estimate of projected use

AP-42 Section 13.2.5, Equation (2)

Emission factor for wind-generated particulate emissions from mixtures of erodible and nonerodible surface material subject to disturbance, EF

$$EF \left(\frac{\text{g}}{\text{m}^2\text{-yr}} \right) = k \sum_{i=1}^N P_i$$

where

k = particle size multiplier (AP-42 Section 13.2.5.3)

N = number of disturbances per year

P_i = erosion potential corresponding to the fastest mile of wind for the ith period between disturbances, g/m²

2018 Actual Emissions Calculations - Coal Storage Pile Particulate Matter Emissions
Golden Valley Electric Association - Healy Power Plant

AP-42 Section 13.2.5, Equation (3)

Erosion potential function for a dry exposed surface, P

$$P = 58 (u^* - u_{t*}^*)^2 + 25 (u^* - u_{t*}^*)$$

$$P = 0 \text{ for } u^* \leq u_{t*}^*$$

where

 u^* = friction velocity (m/s) u_{t*}^* = threshold friction velocity (m/s)

AP-42 Section 13.2.5, Equation (1)

Friction velocity, u^*

$$u^* = \frac{0.4 \times u(z)}{\ln\left(\frac{z}{z_o}\right)} \text{ when } z > z_o$$

where

 u^* = friction velocity (cm/s) $u(z)$ = wind speed at height z above test surface (cm/s)

z = height above test surface (cm)

 z_o = roughness height, cm

Data:

$u(z)$
z
N

Use maximum wind gust speed recorded at McKinley Airport ASOS for each month in CY2018 (see table below)
meters
365
30 disturbances/year for active face, estimated
average disturbances/month

Month-Year	Maximum Wind Speed ($u(10)$) ^a		Wind Direction	Uncrusted Coal Pile ^b (Table 13.2.5-2)				Ground Coal ^c (Table 13.2.5-2)					
				Roughness Height (z_o)	Threshold Friction Velocity (u_t)	Calculated Friction Velocity (u^*)	Erosion potential function, P	Roughness Height (z_o)	Threshold Friction Velocity (u_t)	Calculated Friction Velocity (u^*)	Erosion potential function, P	P x N	k
	mph	m/s		cm	m/s	m/s		cm	m/s	m/s			Emission Factor, EF g/m ² -yr
Jan-18	12.9	5.8	220	0.3	1.12	0.28	0	0.01	0.55	0.20	0	0	
Feb-18	13.4	6.0	199	0.3	1.12	0.30	0	0.01	0.55	0.21	0	0	
Mar-18	10.3	4.6	207	0.3	1.12	0.23	0	0.01	0.55	0.16	0	0	
Apr-18	11.3	5.1	187	0.3	1.12	0.25	0	0.01	0.55	0.18	0	0	
May-18	11.8	5.3	170	0.3	1.12	0.26	0	0.01	0.55	0.18	0	0	
Jun-18	9.3	4.2	238	0.3	1.12	0.21	0	0.01	0.55	0.14	0	0	
Jul-18	Climate Data Not Available for July 2018												
Aug-18	8.8	3.9	167	0.3	1.12	0.19	0	0.01	0.55	0.14	0	0	
Sep-18	12.9	5.8	219	0.3	1.12	0.28	0	0.01	0.55	0.20	0	0	
Oct-18	12.4	5.5	199	0.3	1.12	0.27	0	0.01	0.55	0.19	0	0	
Nov-18	10.8	4.8	259	0.3	1.12	0.24	0	0.01	0.55	0.17	0	0	
Dec-18	12.9	5.8	248	0.3	1.12	0.28	0	0.01	0.55	0.20	0	0	
PM Annual Total													
PM ₁₀ Annual Total							0				0	0	1 0.5 0.075
PM _{2.5} Annual Total													0.00 0.00 0.00

^a Per www.ndbc.noaa.gov for CY2018, McKinley Airport ASOS (PAIN).^b The erosion potential factor for the uncrusted coal pile is zero for all months. Therefore, wind erosion of the uncrusted coal pile is not a significant source of PM emissions.^c The erosion potential factor for ground coal is zero for all months. Therefore, wind erosion of the ground coal is not a significant source of PM emissions.

DEPARTMENT OF ENVIRONMENTAL CONSERVATION

AIR QUALITY OPERATING PERMIT

Permit No. AQ0173TVP03

Issue Date: December 24, 2018

Expiration Date: December 24, 2023

The Alaska Department of Environmental Conservation, under the authority of AS 46.14 and 18 AAC 50, issues an operating permit to the Permittee, **Golden Valley Electric Association (GVEA)**, for the operation of the **Healy Power Plant**.

This permit satisfies the obligation of the owner and operator to obtain an operating permit as set out in AS 46.14.130(b).

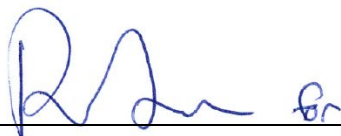
As set out in AS 46.14.120(c), the Permittee shall comply with the terms and conditions of this operating permit.

Citations listed herein are contained within the effective version of 18 AAC 50 at permit issuance. All federal regulation citations are from those sections adopted by reference in this version of regulation in 18 AAC 50.040 unless otherwise specified.

This permit incorporates all applicable terms and conditions of Air Quality Permit to Operate 9431-AA001 issued May 12, 1994, Construction Permit No. 9831-AC018 issued December 29, 1998, Minor Permit No. AQ0173MSS01 issued April 14, 2014, and Minor Permit No. AQ0173MSS02 issued May 21, 2018.

Upon effective date of this permit, Operating Permit No. AQ0173TVP02 Revision 1 expires.

This Operating Permit becomes effective January 23, 2019.



James R. Plosay, Manager
Air Permits Program

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Abbreviations and Acronyms

AAAQS	Alaska Ambient Air Quality Standards	FOB	Free On Board
AAC.....	Alaska Administrative Code	GAPCP	Good Air Pollution Control Practices
acfm	actual cubic feet per minute	GPH.....	gallons per hour
ADEC	Alaska Department of Environmental Conservation	HAPs	hazardous air pollutants [HAPs as defined in AS 46.14.990]
AIDEA.....	Alaska Industrial Development and Export Authority	Hp	horsepower
AS	Alaska Statutes	ID.....	emissions unit identification number
ASTM.....	American Society for Testing and Materials	kPa.....	kiloPascals
BACT	best available control technology	LAER	lowest achievable emission rate
BART	Best Available Retrofit Technology	lbs	pounds
bHp	brake horsepower	lb/hr	pound per hour
CAA, The Act....	Clean Air Act	lb/MMBtu.....	pound per million British thermal unit
CAM.....	Compliance Assurance Monitoring	LEE	low emitting EGU
CD	Consent Decree Civil Action No. 4:12-cv-00025-RRB, filed November 19, 2012	MACT	maximum achievable control technology [MACT as defined in 40 C.F.R. 63]
CDX.....	Central Data Exchange	MMBtu/hr.....	million British thermal units per hour
CEDRI	Compliance and Emissions Data Reporting Interface	MMSCF.....	million standard cubic feet
CEMS	Continuous Emission Monitoring System	MR&R.....	monitoring, recordkeeping, and reporting
cfm.....	cubic feet per minute	MOA.....	Memorandum of Agreement, November 9, 1993, by GVEA, AIDEA, US DOI, NPS, US DOE
C.F.R.	Code of Federal Regulations	MW	megawatt
CO	carbon monoxide	N/A	Not applicable
COMS.....	Continuous Opacity Monitoring System	NESHAPs.....	National Emission Standards for Hazardous Air Pollutants [NESHAPs as contained in 40 C.F.R. 61 and 63]
CMS.....	Continuous Monitoring System	ng/J	nanograms per joule
CO ₂ e	Carbon Dioxide Equivalent	NH ₃	Ammonia
CPMS	Continuous Parameter Monitoring System	NO _x	nitrogen oxides
Department	Alaska Department of Environmental Conservation	NSPS	New Source Performance Standards [NSPS as contained in 40 C.F.R. 60]
dscf	dry standard cubic foot	NSR	New Source Review
EGUs	electric utility steam generating units	NTE.....	not to exceed
EPA	US Environmental Protection Agency	O ₂	oxygen
EU ID	emissions unit identification	O & M	operation and maintenance
g/dscm	grain per dry standard cubic meter	ORL.....	owner-requested limit
gr/dscf.....	grain per dry standard cubic foot (1 pound = 7000 grains)		

PAL	plantwide applicability limitation	SO ₂	sulfur dioxide
Pb.....	Lead	SPC.....	Standard Permit Condition
PM.....	particulate matter	TBtu.....	Trillion British thermal unit
PM ₁₀	particulate matter less than or equal to a nominal 10 microns in diameter	TPH	tons per hour
PM _{2.5}	particulate matter less than or equal to a nominal 2.5 microns in diameter	TPY	tons per year
ppm	parts per million	US DOE.....	United States Department of Energy
ppmv, ppmvd.....	parts per million by volume on a dry basis	US DOI/ NPS	United States Department of the Interior/ National Park Service
psia	pounds per square inch (absolute)	VE	visible emissions
PSD	prevention of significant deterioration	VOC	volatile organic compound [VOC as defined in 40 C.F.R. 51.100(s)]
PTE.....	potential to emit	VOL.....	volatile organic liquid [VOL as defined in 40 C.F.R. 60.111b, Subpart Kb]
SCR	Selective Catalytic Reduction	vol%	volume percent
SIC.....	Standard Industrial Classification	wt%	weight percent
SIP.....	State Implementation Plan	wt% _{fuel}	weight percent of sulfur in fuel
SN.....	Serial number		
SNCR	Selective Non-Catalytic Reduction		

Section 1. Stationary Source Information

Identification

Permittee:	Golden Valley Electric Association (GVEA) P.O. Box 71249 Fairbanks, Alaska 99707-1249	
Stationary Source Name:	Healy Power Plant	
Location:	63° 50' North; 148° 58' West	
Physical Address:	Mile 2.5 Healy Spur Road Healy, Alaska 99743	
Owner:	Golden Valley Electric Association (GVEA) P.O. Box 71249 Fairbanks, Alaska 99707-1249	
Operator:	Golden Valley Electric Association P.O. Box 71249 Fairbanks, Alaska 99707-1249	
Permittee's Responsible Official:	Lynn Thompson, Vice President of Power Supply P.O. Box 71249 Fairbanks, Alaska 99707-1249	
Designated Agent:	Naomi Morton Knight, P.E., Environmental Officer P.O. Box 71249 Fairbanks, Alaska 99707-1249	
Stationary Source and Building Contact:	Richard Lusby, Plant Manager Mile 2.5 Healy Spur Road Healy, Alaska 99743 (907) 683-8318 ralusby@gvea.com	
Fee Contact:	Naomi Morton Knight, P.E., Environmental Officer P.O. Box 71249 Fairbanks, Alaska 99707-1249 (907) 458-4557 nmknight@gvea.com	
Permit Contact:	Naomi Morton Knight, P.E., Environmental Officer P.O. Box 71249 Fairbanks, Alaska 99707-1249 (907) 458-4557 nmknight@gvea.com	
Process Description:	SIC Code	4911- Electrical Power Generation
	NAICS Code:	221112 - Fossil Fuel Electric Power Generation

[18 AAC 50.040(j)(3) & 50.326(a)]
[40 C.F.R. 71.5(c)(1) & (2)]

Section 2. Emissions Unit Inventory and Description

Emissions units listed in Table A have specific monitoring, recordkeeping, or reporting conditions in this permit. Except as noted elsewhere in the permit, emissions unit descriptions and ratings are given for identification purposes only.

Table A - Emissions Unit Inventory

EU ID	Emissions Unit Name	Emissions Unit Description	Rating/Size	Construction Date
1	Unit No. 1	Foster-Wheeler Boiler, pulverized coal fired steam generator with a 12 module ICA baghouse, SN 78-266	327 MMBtu/hr	November 1967
2 ¹	Unit No. 2	TRW Integrated Entrained Combustion System, pulverized coal-fired steam generator with Joy activated recycle spray dryer absorber and Joy pulse jet fabric filter, SN 1	658 MMBtu/hr	1996
3	Auxiliary Boiler No. 1	Cleaver Brooks CB 189-300, Standby process and building boiler, SN L-39759, Diesel-fired	12.554 MMBtu/hr	1967
4	Auxiliary Boiler No. 2	Cleaver Brooks CB 100-800-15, Standby process and building boiler, SN OLO94777, Diesel-fired	23.0 MMBtu/hr	1996
5	Diesel Generator No. 1	Electro-Motive Diesel, EMD 20-645-E4, SN 67-B1-1152 (engine) Standby diesel generator, SN A-20-D (generator)	2.75 MW	1967
6	Crusher System	Crusher System ² SN 885247 (Secondary Crusher No. 1) SN 844034 (Secondary Crusher No. 2)	12,000 cfm	1996
7 ³	Limestone Storage Silo	Limestone Storage Silo with baghouse	800 cfm	1996
8	Flyash Storage Silo	Flyash Storage Silo with baghouse	5,000 cfm	1996
9	Sodium Bicarbonate Handling System	Sodium bicarbonate handling system ⁴	440 cfm	1998
10	Coal Handling System (dust collector #2)	Coal Handling System ⁵	20,000 cfm	1996
13	Firewater Pump Engine	Caterpillar Diesel Model 3406B, Diesel-fired firewater pump engine; SN 6TB14931	264 hp	1997
Fugitive Emission Sources				
11	Haul Road	Haul Road (located on GVEA property) from Usibelli Coal Mine property line to coal pile	0.25 miles	1967

EU ID	Emissions Unit Name	Emissions Unit Description	Rating/Size	Construction Date
12	Coal Storage Pile	Open Coal Storage Piles	Up to 15-day coal supply, with both EU IDs 1 and 2 in operation	1967

Notes:

1. EU ID 2 was previously named “Healy Clean Coal Project (HCCP)” but is now renamed Unit No. 2. EU ID 2 was first operated at Healy Power Plant in 1997-1998 but was suspended for approximately 15 years. EU ID 2 was restarted on May 28, 2015 firing ULSD and first fired coal on August 4, 2015.
2. The crusher system, EU ID 6, consists of 2 grizzlies, 1 primary Stamler crusher, 2 belt feeders, 2 secondary Flextooth Dresser crushers, 2 hoppers, and the No. 1 conveyor belt (tail-end), all commonly vented to Dust Collector No. 1 (baghouse/exhaust fan).
3. EU ID 7 will be replaced with two new lime silos (1,800 acfm each, installed in 2016) which are insignificant units when the SCR is commissioned on EU ID 2.
4. The sodium bicarbonate handling system, EU ID 9, consists of mills, sodium bicarbonate silo, and baghouse.
5. The coal handling system, EU ID 10, consists of #1 conveyor belt (head-end), #2a conveyor belt, #2b conveyor belt, one bucket elevator, #3 conveyor belt, #4 conveyor belt, two 600 ton EU ID 2 coal storage silos, two Unit #1 bunkers, all commonly vented to dust collector #2 (baghouse/exhaust fan). When EU ID 2 is not operational, dust is collected at the EU ID 1 transfer points via a temporary dust collector #3.

[18 AAC 50.326(a)]
[40 C.F.R. 71.5(c)(3)]

Section 3. State Requirements

Visible Emissions Standard

- 1. Industrial Process and Fuel-Burning Equipment Visible Emissions.** The Permittee shall not cause or allow visible emissions, excluding condensed water vapor, emitted from EU IDs 3 through 10, and 13 listed in Table A to reduce visibility through the exhaust effluent by more than 20 percent averaged over any six consecutive minutes.

[18 AAC 50.040(j), 50.055(a)(1), & 50.326(j)]
[40 C.F.R. 71.6(a)(1)]

- 1.1. For EU IDs 6, 8, and 10, monitor, record and report in accordance with Conditions 2 through 4.
- 1.2. For EU ID 3, as long as the emissions unit does not exceed the limit in Condition 21, monitoring shall consist of an annual compliance certification under Condition 138 with the visible emissions standard based on reasonable inquiry. Otherwise, monitor, record, and report in accordance with Conditions 2 through 4 for the remainder of the permit term.
- 1.3. For each of EU IDs 4, 5, and 13, as long as each emissions unit does not exceed the thresholds in 18 AAC 50.326(e)¹, monitoring shall consist of an annual compliance certification under Condition 138 with the visible emissions standard based on reasonable inquiry. Otherwise, monitor, record and report in accordance with Conditions 2 through 4 for the remainder of the permit term for that emissions unit.
- 1.4. For EU IDs 7 and 9, monitoring shall consist of an annual compliance certification under Condition 138 for the visible emissions standard based on reasonable inquiry.

[18 AAC 50.040(j), 50.326(j), & 50.346(c)]
[40 C.F.R. 71.6(a)(3)]

Visible Emissions Monitoring, Recordkeeping, and Reporting (MR&R)

Liquid Fuel-Fired Emissions Units (EU ID(s) 3 through 5 and 13) and Baghouses (EU IDs 6, 8, and 10)

- 2. Visible Emissions Monitoring.** When required by any of Conditions 1.1 through 1.3 and Condition 27.5.a,² or in the event of replacement of any of EU IDs 3 through 6, 8, 10, and 13 during the permit term, the Permittee shall observe the exhaust of the emissions unit for visible emissions using the Method 9 Plan under Condition 2.2.

¹ The equivalent maximum number of operational hours at which the emission units would not exceed the thresholds in 18 AAC 50.326(e) are 1,170 hours for EU ID 4, 45 hours for EU ID 5, and 485 hours for EU ID 13 per 12 consecutive-month period.

² EU IDs 6, 8, and 10 are also subject to more stringent PM BACT limits (see Table B). Visible emissions monitoring is used in this permit as a screening tool for determining if Method 5 PM source testing is warranted.

- 2.1. The Permittee may for each unit elect to continue the visible emissions monitoring schedule in effect from the previous permit at the time a renewed permit is issued, if applicable.

[18 AAC 50.040(j), 50.326(j), & 50.346(c)]
[40 C.F.R. 71.6(a)(3)(i)]

- 2.2. **Method 9 Plan.** For all 18-minute observations in this plan, observe exhaust, following 40 C.F.R. 60, Appendix A-4, Method 9, adopted by reference in 18 AAC 50.040(a), for 18 minutes to obtain 72 consecutive 15-second opacity observations.

- a. **First Method 9 Observation.** Except as provided in Condition 2.1, for each of EU IDs 3 through 6, 8, 10, and 13, observe exhaust for 18 minutes within six months after the issue date of this permit.
- (i) For any unit replaced during the term of this permit, observe exhaust for 18 minutes within 30 days of startup.
- (ii) For each existing emissions unit that exceeds the operational thresholds in Condition 1.2 or 1.3, observe the exhaust for 18 minutes of operations within 30 days after the calendar month during which that threshold has been exceeded, or within 30 days of the unit's next scheduled operations, whichever is later.
- b. **Monthly Method 9 Observations.** After the first Method 9 observation, perform 18-minute observations at least once in each calendar month that an emissions unit operates.
- c. **Semiannual Method 9 Observations.** After observing emissions for three consecutive operating months under Condition 2.2.b, unless a six-minute average is greater than 15 percent and one or more observations are greater than 20 percent, perform 18-minute observations:
- (i) within six months after the preceding observation, or
- (ii) for an emissions unit with intermittent operations, during the next scheduled operation immediately following six months after the preceding observation.
- d. **Annual Method 9 Observations.** After at least two semiannual 18-minute observations, unless a six-minute average is greater than 15 percent and one or more individual observations are greater than 20 percent, perform 18-minute observations:
- (i) within twelve months after the preceding observation; or
- (ii) for an emissions unit with intermittent operations, during the next scheduled operation immediately following twelve months after the preceding observation
- e. **Increased Method 9 Frequency.** If a six-minute average opacity is observed during the most recent set of observations to be greater than 15 percent and one

or more observations are greater than 20 percent, then increase or maintain the 18-minute observation frequency for that emissions unit to at least monthly intervals as described in Condition 2.2.b, until the criteria in Condition 2.2.c for semiannual monitoring are met.

3. Visible Emissions Recordkeeping. When visible emissions monitoring is conducted, the Permittee shall keep records as follows:

[18 AAC 50.040(j), 50.326(j), & 50.346(c)]
[40 C.F.R. 71.6(a)(3)(ii)]

3.1. The observer shall record

- a. the name of the stationary source, emissions unit and location, emissions unit type, observer's name and affiliation, and the date on the Visible Emission Observation Form in Section 14;
- b. the time, estimated distance to the emissions location, sun location, approximate wind direction, estimated wind speed, description of the sky condition (presence and color of clouds), plume background, and operating mode (load or fuel consumption rate or best estimate if unknown) on the sheet at the time opacity observations are initiated and completed;
- c. the presence or absence of an attached or detached plume and the approximate distance from the emissions outlet to the point in the plume at which the observations are made;
- d. opacity observations to the nearest five percent at 15-second intervals on the Visible Emission Observation Form in Section 14, and
- e. the minimum number of observations required by the permit; each momentary observation recorded shall be deemed to represent the average opacity of emissions for a 15-second period.

3.2. To determine the six-minute average opacity, divide the observations recorded on the record sheet into sets of 24 consecutive observations; sets need not be consecutive in time and in no case shall two sets overlap; for each set of 24 observations, calculate the average by summing the opacity of the 24 observations and dividing this sum by 24; record the average opacity on the sheet.

3.3. Calculate and record the highest six- and 18-consecutive-minute average opacities observed.

4. Visible Emissions Reporting. When visible emissions monitoring is conducted, the Permittee shall report visible emissions as follows:

[18 AAC 50.040(j), 50.326(j) & 50.346(c)]
[40 C.F.R. 71.6(a)(3)(iii)]

4.1. Include in each operating report required under Condition 137:

- a. for each emissions unit under the Method 9 Plan,

- (i) copies of the observation results (i.e. opacity observations) for each emissions unit that used the Method 9 Plan, except for the observations the Permittee has already supplied to the Department; and
 - (ii) a summary to include:
 - (A) number of days observations were made;
 - (B) highest six-minute average observed; and
 - (C) dates when one or more observed six-minute averages were greater than 20 percent;
 - b. a summary of any monitoring or recordkeeping required under Conditions 2 and 3 that was not done;
- 4.2. Report under Condition 136:
- a. the results of Method 9 observations that exceed an average of 20 percent opacity for any six-minute period; and
 - b. if any monitoring under Condition 2 was not performed when required, report within three days of the date the monitoring was required.

Particulate Matter Emissions Standard

5. **Industrial Process and Fuel-Burning Equipment Particulate Matter.** The Permittee shall not cause or allow particulate matter emitted from EU IDs 3 through 10, and 13 listed in Table A to exceed 0.05 grains per cubic foot of exhaust gas corrected to standard conditions and averaged over three hours.

[18 AAC 50.040(j), 50.055(b)(1) & 50.326(j)]
[40 C.F.R. 71.6(a)(1)]

- 5.1. For EU IDs 6, 8, and 10, monitor, record and report in accordance with Conditions 12 through 14.
- 5.2. For EU ID 3, as long as the emissions unit does not exceed the limit in Condition 21, monitoring shall consist of an annual compliance certification under Condition 138 with the particulate matter standard based on reasonable inquiry. Otherwise, monitor, record and report in accordance with Conditions 9 through 11 for the remainder of the permit term for that emissions unit.
- 5.3. For each of EU IDs 4, 5, and 13, as long as each emissions unit does not exceed the thresholds in 18 AAC 50.326(e),³ monitoring shall consist of an annual compliance certification under Condition 138 with the particulate matter emissions standard based on reasonable inquiry. Otherwise, monitor, record and report in accordance

³ The equivalent maximum number of operational hours at which the emission units would not exceed the thresholds in 18 AAC 50.326(e) are 1,170 hours for EU ID 4, 45 hours for EU ID 5, and 485 hours for EU ID 13 per 12 consecutive-month period.

with Conditions 6 through 11 for the remainder of the permit term for that emissions unit.

- 5.4. For EU IDs 7 and 9, monitoring shall consist of an annual compliance certification under Condition 138 for the particulate matter standard based on reasonable inquiry.

[18 AAC 50.040(j), 50.326(j) & 50.346(c)]
[40 C.F.R. 71.6(a)(3) & (c)(6)]

Particulate Matter MR&R

Liquid Fuel-Fired Engines (EU IDs 5 and 13)

- 6. Particulate Matter Monitoring.** When required by Conditions 5.3 and 27.3.a, the Permittee shall conduct source tests on diesel engines, EU IDs 5 and 13, to determine the concentration of particulate matter in the exhaust of each emissions unit as follows:

[18 AAC 50.040(j), 50.326(j), & 50.346(c)]
[40 C.F.R. 71.6(a)(3)(i)]

- 6.1. If any of EU IDs 5 and 13 exceeded the criteria of Conditions 6.2.a or 6.2.b, the Permittee shall within six months of exceedance, either:
- a. except as exempted in Condition 6.4, conduct a particulate matter source test according to requirements set out in Section 9; or
 - b. make repairs and observe emissions as described in Condition 2.2 to show that emissions no longer exceed the criteria of Condition 6.2 under load conditions comparable to those when the criteria were exceeded.
- 6.2. Conduct the PM source test or make repairs according to Condition 6.1 if
- a. Method 9 observations, as calculated under Condition 3.3, result in an 18-minute average opacity greater than 20 percent; or
 - b. for an emissions unit with an exhaust stack diameter that is less than 18 inches, Method 9 observations, as calculated under Condition 3.3, result in an 18-minute average opacity that is greater than 15 percent, unless the Department has waived this requirement in writing.
- 6.3. During each one-hour particulate matter source test run, observe the exhaust for 60 minutes in accordance with Method 9 and calculate the highest 18-minute average opacity measured during each one-hour test run. Submit a copy of these observations with the source test report.
- 6.4. The particulate matter source test requirements in Conditions 6.1 and 6.2 are waived for an emissions unit if a particulate matter source test on that unit has shown compliance with the particulate matter standard during this permit term.

- 7. Particulate Matter Recordkeeping.** The Permittee shall comply with the following:

- 7.1. Keep records of the results of any particulate matter testing and visible emissions observations conducted under Condition 6.

[18 AAC 50.040(j), 50.326(j), & 50.346(c)]
[40 C.F.R. 71.6(a)(3)(ii)]

8. Particulate Matter Reporting. The Permittee shall report as follows:

[18 AAC 50.040(j), 50.326(j), & 50.346(c)]
[40 C.F.R. 71.6(a)(3)(iii)]

8.1. Report under Condition 136

- a. if the results of any particulate matter source test conducted under Condition 6.1.a exceed the particulate matter emissions limit; or
- b. within the next 24 hours of the date compliance with Condition 6.1 was required, if the Permittee did not comply with either Condition 6.1.a or 6.1.b when required;

8.2. Report observations in excess of the threshold of Condition 6.2.b within 30 days of the end of the month in which the observations occur;

8.3. In each operating report under Condition 137, include:

- a. the dates, EU ID(s), and results when an observed 18-minute average was greater than an applicable threshold in Condition 6.2;
- b. a summary of the results of any particulate matter testing under Condition 6; and
- c. copies of any visible emissions observation results (opacity observations) greater than the thresholds of Condition 6.2, if they were not already submitted.

Liquid Fuel-Fired Boilers (EU IDs 3 and 4)

9. Particulate Matter Monitoring. When required by Conditions 5.2, 5.3, and 27.3.a, the Permittee shall conduct source tests on liquid fuel-fired boilers, EU IDs 3 and 4, to determine the concentration of particulate matter in the exhaust of each emissions unit as follows:

[18 AAC 50.040(j), 50.326(j) & 50.346(c)]
[40 C.F.R. 71.6(a)(3)(i)]

- 9.1. Except as exempted under Condition 9.3, conduct a particulate matter source test according to the requirements set out in Section 9 no later than 90 calendar days after any time corrective maintenance fails to eliminate visible emissions greater than the 20 percent opacity thresholds (as described in Condition 2.2) for two or more 18-minute observations in a consecutive six-month period.

- 9.2. During each one-hour particulate matter source test run, observe the exhaust for 60 minutes in accordance with Method 9 and calculate the average opacity that was measured during each one-hour test run. Submit a copy of these observations with the source test report.

- 9.3. The particulate matter source test requirement in Condition 9.1 is waived for an emissions unit if:
- a particulate matter source test on that unit has shown compliance with the particulate matter standard during the permit term; or
 - take corrective action and conduct two 18-minute visible emissions observations in a consecutive six-month period to show that the excess visible emissions described in Condition 9.1 no longer occur.
- 10. Particulate Matter Recordkeeping.** The Permittee shall keep records of the results of any particulate matter testing and visible emissions observations conducted under Condition 9.
[18 AAC 50.040(j), 50.326(j) & 50.346(c)]
[40 C.F.R. 71.6(a)(3)(ii)]
- 11. Particulate Matter Reporting.** The Permittee shall report as follows:
[18 AAC 50.040(j), 50.326(j) & 50.346(c)]
[40 C.F.R. 71.6(a)(3)(iii)]
- 11.1. In each operating report required by Condition 137, include for the period covered by the report:
- the dates, EU ID(s), and results when an 18-minute opacity observation was greater than the applicable threshold criterion in Condition 9.1.
 - a summary of the results of any particulate matter testing and visible emissions observations conducted under Condition 9.
- 11.2. Report as excess emissions, in accordance with Condition 136, any time the results of a source test for particulate matter exceed the particulate matter emission limit stated in Condition 5.

For Baghouses (EU IDs 6, 8, and 10)⁴

- 12. Particulate Matter Monitoring.** When required by Conditions 5.1 and 27.5.a, the Permittee shall monitor particulate matter emissions from the exhaust of each of EU IDs 6, 8, and 10, as follows:
[18 AAC 50.040(j), and 18 AAC 50.326(j)(4),]
[40 C.F.R. 71.6(a)(3)(i) & (c)(6),]
- 12.1. If any of EU IDs 6, 8, and 10 exceeds the criteria of Condition 12.2.a or 12.2.b,
- perform an inspection of the bags and baghouse assembly to ascertain the integrity of the system;
 - take steps to clean the bags of excess trapped dust;

⁴ EU IDs 6, 8, and 10 are also subject to more stringent PM BACT limits (see Table B). Visible emissions monitoring is used in this permit as a screening tool for determining if Method 5 particulate matter source testing is warranted.

- (ii) if any bags are found with holes or tears or deterioration which renders them ineffectual, the bags shall be replaced within 24 hours;
 - (iii) if after cleaning the bags of excess dust or replacing torn or deteriorated bags, Method 9 observations, as calculated under Condition 3.3, result in an 18-minute average opacity greater than 20 percent conduct a particulate matter source test within six months according to the requirements set out in Section 9 to confirm whether or not the particulate matter emissions limits in Condition 5 and Table B are being maintained;
- b. maintain the results of baghouse inspections, records of bags replaced, and repairs conducted at the source for inspection at the request of the Department.

12.2. Monitor according to Condition 12.1 if

- a. Method 9 observations, as calculated under Condition 3.3, result in an 18-minute average opacity greater than 20 percent for each of EU IDs 6, 8, and 10; or
- b. for an emissions unit with an exhaust stack diameter that is less than 18 inches, 18 consecutive minutes of Method 9 observations result in an 18-minute average opacity that is greater than 15 percent and not more than 20 percent, unless the Department has waived this requirement in writing.

13. Particulate Matter Recordkeeping. The Permittee shall keep records of the results of any PM testing conducted under Condition 12.1.a(iii).

[18 AAC 50.040(j) & 50.326(j)(4)]
[40 C.F.R. 71.6(a)(3)(ii) & (c)(6)]

14. Particulate Matter Reporting. The Permittee shall report as follows:

[18 AAC 50.040(j) & 50.50.326(j)(4)]
[40 C.F.R. 71.6(a)(3)(iii) & (c)(6)]

- 14.1. In each operating report required by Condition 137, include a summary of the results of any PM testing conducted under Condition 12.1.a(iii).
- 14.2. Report as excess emissions, in accordance with Condition 136 any time the results of a source test for PM exceeds the PM emission limit in Condition 5.

Sulfur Compound Emissions Standard

15. Sulfur Compound Emissions. The Permittee shall not cause or allow sulfur compound emissions, expressed as SO₂, from EU IDs⁵ 3 through 5 and 13 listed in Table A to exceed 500 ppm averaged over three hours.

[18 AAC 50.040(j), 50.055(c) & 50.326(j)]
[40 C.F.R. 71.6(a)(1)]

⁵ EU IDs 6 through 10 are industrial processes; however, these units do not process materials, or contain equipment, that generate sulfur compound emissions.

Sulfur Compound MR&R

Fuel Oil⁶(EU IDs 3 through 5 and 13)

16. Sulfur Compound Monitoring and Recordkeeping. The Permittee shall comply with the following:

- 16.1. The Permittee shall do one of the following for each shipment of fuel:
- a. If the fuel grade requires a sulfur content less than 0.5 percent by weight, keep receipts that specify fuel grade and amount; or
 - b. If the fuel grade does not require a sulfur content less than 0.5 percent by weight, keep receipts that specify fuel grade and amount and
 - (i) test the fuel for sulfur content; or
 - (ii) obtain test results showing the sulfur content of the fuel from the supplier or refinery; the test results must include a statement signed by the supplier or refinery of what fuel they represent.
- 16.2. Fuel testing under Condition 16.1 must follow an appropriate method listed in 18 AAC 50.035(b)-(c) and 40 C.F.R. 60.17 incorporated by reference in 18 AAC 50.040(a)(1).
- 16.3. If a load of fuel contains greater than 0.75 percent sulfur by weight, the Permittee shall calculate SO₂ emissions in ppm using either the material balance calculation in Section 15 or Method 19 of 40 C.F.R. 60, Appendix A-7, adopted by reference in 18 AAC 50.040(a).

17. Sulfur Compound Reporting. The Permittee shall report as follows:

- 17.1. If SO₂ emissions calculated under Condition 16.3 exceed 500 ppm, the Permittee shall report under Condition 136. When reporting under this condition, include the calculation under Section 15 or Method 19.
- 17.2. The Permittee shall include in the operating report required by Condition 137
- a. a list of the fuel grades received at the stationary source during the reporting period;
 - b. for any grade with a maximum fuel sulfur greater than 0.5 percent sulfur, the fuel sulfur of each shipment; and
 - c. for fuel with a sulfur content greater than 0.75 percent, the calculated SO₂ emissions in ppm.

[18 AAC 50.040(j), 50.326(j), & 50.346(c)]
[40 C.F.R. 71.6(a)(3)]

⁶ *Oil* means crude oil or petroleum or a liquid fuel derived from crude oil or petroleum, including distillate and residual oil, as defined in 40 C.F.R. 60.41b, effective 7/1/07.

Insignificant Emissions Units

18. For emissions units at the stationary source that are insignificant as defined in 18 AAC 50.326(d)-(i) that are not listed in this permit, the following apply:

18.1. Visible Emissions Standard: The Permittee shall not cause or allow visible emissions, excluding condensed water vapor, emitted from an industrial process, fuel-burning equipment, or an incinerator to reduce visibility through the exhaust effluent by more than 20 percent averaged over any six consecutive minutes.

[18 AAC 50.050(a) & 50.055(a)(1)]

18.2. Particulate Matter Standard: The Permittee shall not cause or allow particulate matter emitted from an industrial process or fuel-burning equipment to exceed 0.05 grains per cubic foot of exhaust gas corrected to standard conditions and averaged over three hours.

[18 AAC 50.055(b)(1)]

18.3. Sulfur Standard: The Permittee shall not cause or allow sulfur compound emissions, expressed as SO₂, from an industrial process or fuel-burning equipment, to exceed 500 ppm averaged over three hours.

[18 AAC 50.055(c)]

18.4. General MR&R for Insignificant Emissions Units:

- a. The Permittee shall submit the compliance certifications of Condition 138 based on reasonable inquiry;
- b. The Permittee shall comply with the requirements of Condition 118;
- c. The Permittee shall report in the operating report required by Condition 137 if an emissions unit has historically been classified as insignificant because of actual emissions less than the thresholds of 18 AAC 50.326(e) and current actual emissions become greater than any of those thresholds; and
- d. No other monitoring, recordkeeping or reporting is required.

[18 AAC 50.346(b)(4)]

Section 4. Preconstruction Permit,⁷ BART, and Consent Decree Requirements

Best Available Control Technology (BACT) and Owner Requested Limits (ORLs)⁸

19. The Permittee shall comply with the short-term and calendar-year emissions BACT limits and ORLs for EU IDs 1 through 8 and 10 through 12, as indicated in Table B.

[18 AAC 50.040(j) & 50.326(j)]

[40 C.F.R. 71.6(a)(1)]

Table B – BACT Emissions Limits and ORLs^a

Pollutant	EU ID	EU Description	Short-Term Emission Limits	Calendar Year Emission (TPY)
PM	1	Unit No. 1	0.05 gr/dscf (hourly average) and 36.7 lb/hr ^d	161
	2	Unit No. 2	0.020 lb/MMBtu (30-boiler operating day rolling average; compliance determined by PM CEMS) ^{b, c} or 0.020 lb/MMBtu (hourly average; compliance determined by source testing) ^c , and 13.2 lb/hr ^e	58 ^c
	3	Auxiliary Boiler No. 1	0.05 gr/dscf (hourly average) or 0.8 lb/hr ^f , and 20% load factor (annual average)	1
	4	Auxiliary Boiler No. 2	0.05 gr/dscf (hourly average) or 1.5 lb/hr ^f , and 45% load factor (annual average)	3
	5	Diesel Generator No. 1	0.05 gr/dscf (hourly average) or 2.1 lb/hr ^f , and 20% load factor (annual average)	2.88
	6	Crusher System	0.02 gr/dscf (hourly average) ^c and 2.05 lb/ hr (hourly average) ^{f, g}	3.00
	7	Limestone Storage Silo	0.02 gr/dscf, hourly average ^c and 0.14 lb/hr (hourly average) ^{f, g}	0.05
	8	Flyash Storage Silo	0.02 gr/dscf (hourly average) ^c and 0.86 lb/hr (hourly average) ^{f, g}	3.8
	10	Coal Handling System	0.02 gr/dscf (hourly average) ^c and 3.43 lb/hr, (hourly average) ^{f, g}	5.01

⁷ Preconstruction Permit refers to federal PSD permits, state-issued permits-to-operate issued on or before January 17, 1997 (these permits cover both construction and operations), construction permits issued on or after January 18, 1997, and minor permits issued on or after October 1, 2004.

⁸ Best Available Control Technology (BACT) and Owner Requested Limits (ORLs) limits were established to fulfill the Prevention of Significant Deterioration (PSD) program requirements and to protect the Ambient Air Quality Standards (AAQS).

Pollutant	EU ID	EU Description	Short-Term Emission Limits	Calendar Year Emission (TPY)
	Fugitive Sources (EU IDs 11 and 12)		None	4
	Total PM for EU IDs 1 through 8, 10, 11, and 12			241.74
NO _x	1	Unit No. 1	None	429
	2	Unit No. 2	0.325 lb/MMBtu (30-boiler operating day rolling average) ^j	937 ^c
	3	Auxiliary Boiler No. 1	20 lb NO _x /1,000 gal distillate fuel (annual average) and 20% load factor (annual average)	2
	4	Auxiliary Boiler No. 2	20 lb NO _x /1,000 gal distillate fuel (annual average) and 45% load factor (annual average)	7
	5	Diesel Generator No. 1	370 lb NO _x /1,000 gal (annual average) and 20% load factor (annual average)	78
	Total NO _x for EU IDs 1 through 5			1,453
SO ₂	1	Unit No. 1	258 lb/hr (24-hour average, calendar day) ^d and 367 lb/hr (3-hour rolling average) ^d	472
	2	Unit No. 2	0.086 lb/MMBtu (annual average) ^c and 0.10 lb/MMBtu (30-boiler operating day rolling average) ^{b, c} and 65.8 lb/hr (3-hour rolling average) ^{c, h}	248 ^c
	3	Auxiliary Boiler No. 1	0.3% S in oil (annual average) and 0.5% S in oil (3-hour average)	4
	4	Auxiliary Boiler No. 2	0.3% S in oil (annual average) and 0.5% S in oil (3-hour average)	15
	5	Diesel Generator No. 1	0.3% S in oil (annual average) and 0.5% S in oil (3-hour average)	10
	Total SO ₂ for EU IDs 1 through 5			749
CO	2	Unit No. 2	0.20 lb/MMBtu, 30-boiler operating day rolling average ^{b, c} and 132 lb/hr (hourly average) ⁱ	577
	4	Auxiliary Boiler No. 2	5 lb/1000 gal or 0.8 lb/hr (hourly average) ^f , and 45% load factor (annual average)	2

Pollutant	EU ID	EU Description	Short-Term Emission Limits	Calendar Year Emission (TPY)
		Total CO for EU IDs 2 and 4		579

Notes:

- ^a Limits apply at all times except during periods of startup, shutdown, and malfunction, except for EU ID 2 NO_x limit (see note j).
- ^b Operating days are days with at least 18 hours of valid CEMS data, except for EU ID 2 NO_x limit (see note j).
- ^c BACT limits.
- ^d Limit to protect AAAQS and PSD increments. For EU ID 1, the 36.7 lb/hr PM short-term mass emissions limit is calculated from the modelled emission rate of 0.08 gr/dscf, based on 9,780 dscf/MMBtu (Fd, dry oxygen F-factor for coal) and the unit's maximum (worst-case) heat input rating of 327 MMBtu/hr. Compliance with this limit is verified based on actual heat input during operations using CEMS data or source testing. The short-term SO₂ limits in lb/hr are from Construction Permit 9831-AC018 resulting from the air quality dispersion modeling (using the ISCPRIME model) to demonstrate compliance with AAAQS and PSD increments.
- ^e Limit to protect AAAQS and PSD increments. For EU ID 2, the 13.2 lb/hr PM short-term mass emissions limit is calculated from the 0.020 lb/MMBtu BACT limit, and on the unit's maximum (worst-case) heat input rating of 658 MMBtu/hr. Compliance with this limit is verified based on actual heat input during operations using CEMS data or source test data.
- ^f For EU IDs 3 through 8 and 10, the lb/hr limits are worst-case emission rate limits and may be used to verify compliance with the calendar year tons-per-year limits using actual operational hours of each unit.
- ^g Limit to protect AAAQS and PSD increments. For EU IDs 6 through 8 and 10, the PM short-term mass emissions lb/hr limits are calculated from the 0.02 gr/dscf BACT limit and each unit's maximum (worst-case) baghouse rating in cubic foot per minute (cfm).
- ^h Limit to protect AAAQS and PSD increments. For EU ID 2, the SO₂ short-term mass emissions limit of 65.8 lb/hr is calculated from the modelled emission rate of 0.10 lb/MMBtu (3-hour rolling average) and on the unit's maximum (worst-case) heat input rate of 658 MMBtu/hr. Compliance with this limit is verified based on actual heat input during operations using CEMS data or source test data.
- ⁱ For EU ID 2, the CO short-term mass emissions limit of 132 lb/hr is calculated from the 0.20 lb/MMBtu BACT limit and on the unit's maximum (worst-case) heat input rating of 658 MMBtu/hr. Compliance with this limit is verified based on actual heat input during operations using CEMS data or source test data.
- ^j For EU ID 2, the NO_x limit to protect AAAQS and PSD increments from Permit No. 9431-AA001 (0.350 lb/MMBtu) was replaced by the Consent Decree NO_x limit (0.325 lb/MMBtu) in 2013; this limit applies at all times and until the effective date of the NO_x limit in Condition 37. "Operating day" is defined in accordance with Footnote 11.

[Permit No. AQ0173MSS02, Condition 6 and Table 2, May 21, 2018]

[Permit No. 9831-AC018, Condition 21.2, 12/29/1998]

Monitoring, Recordkeeping and Reporting

20. Continuous Monitoring System (CMS) Requirements for EU IDs 1 and 2. The Permittee shall comply with the following:

- 20.1. Operate a certified continuous opacity monitoring system (COMS) on each of EU IDs 1 and 2, in accordance with the requirements of Condition 54.1, to measure and record the opacity emissions discharged to the atmosphere.

- 20.2. Operate a certified continuous emission monitoring system (CEMS) on each of EU IDs 1 and 2 exhaust duct to measure and record the SO₂, NO_x, and O₂ or CO₂ emissions discharged to the atmosphere.
- a. Each CEMS required under this permit must be maintained, operated, and calibrated as specified in the applicable Performance Specification set out in 40 C.F.R. Part 60, Appendix B or 40 C.F.R. Part 75 when the monitored emissions unit is operating.
 - b. Develop a CEMS Quality Assurance Plan (QAP) for each monitor required by this permit, conforming with 40 C.F.R. 60 Appendix F or applicable portions of 40 C.F.R. Part 75. An alternate emission monitoring plan may be proposed if it can be shown to ensure continuous compliance.
 - c. Submit to the Department the QAP developed for each CEMS, or an alternate emission monitoring plan, as described in Condition 20.2.b.
- 20.3. If a new CMS is to be installed, the selection, siting, and installation shall be approved by the Department.

[18 AAC 50.040(j) and 18 AAC 50.326(j)]

[40 C.F.R. 71.6(a)(3)]

[Permit No. AQ0173MSS02, Condition 7, May 21, 2018]

[Permit No. 9831-AC018, Condition 15, 12/29/1998]

Load Requirements (EU IDs 3, 4, and 5)

21. The Permittee shall operate EU ID 3 at no more than 20% of annual load capacity and combust only distillate fuel.

[18 AAC 50.040(j) & 50.326(j)(4)]

[40 C.F.R. 71.6(a)(3) & (c)(6)]

[Permit No. 9431-AA001, Condition 6, 5/12/1994]

- 21.1. For EU ID 3, monitor and record the monthly hours of operation, operational load, and type of fuel combusted.
- 21.2. Report in the operating report of Condition 137 the monthly hours of operation totals, the monthly operational load totals, the calendar year-to-date totals, and the type of fuel combusted.
- 21.3. Report in accordance with Condition 136 whenever the load (%) multiplied by the operating hours exceeds 20% of the annual load capacity (i.e., greater than 0.20 X 8,760 hrs X 12.554 MMBtu/hr) per calendar year or if other than distillate fuel is combusted.
- 21.4. Permittee may monitor, record, and report gallons of fuel combusted instead of operation load if only distillate fuel with a heating value of approximately 134,716 Btu/gallon is combusted in EU ID 3. Report in accordance with Condition 136 whenever the gallons combusted in EU ID 3 exceed 163,266 gallons per calendar year.

22. The Permittee shall operate EU ID 4 at no more than 45% of annual load capacity and combust only distillate fuel.

[18 AAC 50.040(j) & 50.326(j)(4)]

[40 C.F.R. 71.6(a)(3) & (c)(6)]

[Permit No. 9431-AA001, Condition 7, 5/12/1994]

- 22.1. For EU ID 4, monitor and record the monthly hours of operation, operational load, and type of fuel combusted.
- 22.2. Report in the operating report required by Condition 137 the monthly hours of operation totals, the monthly operational load totals, the calendar year-to-date totals, and the type of fuel combusted.
- 22.3. Report in accordance with Condition 136 whenever the load (%) multiplied by the operating hours exceeds 45% of the annual load capacity (i.e., greater than $0.45 \times 8,760 \text{ hrs} \times 23.0 \text{ MMBtu/hr}$) per calendar year or if fuel other than distillate fuel is combusted.
- 22.4. Permittee may monitor, record, and report gallons of fuel combusted instead of operation load if only distillate fuel with a heating value of approximately 134,716 Btu/gallon is combusted in EU ID 4. Report in accordance with Condition 136 whenever the gallons combusted in EU ID 4 exceed 672,978 gallons per calendar year.
23. The Permittee shall operate EU ID 5 at no more than 20% of annual load capacity.

[18 AAC 50.040(j) & 50.326(j)(4)]

[40 C.F.R. 71.6(a)(3) & (c)(6)]

[Permit No. 9431-AA001, Condition 5, 5/12/1994]

- 23.1. For EU ID 5, monitor and record the monthly hours of operation and operational load.
- 23.2. Report in the operating report required by Condition 137 the monthly hours of operation totals, the monthly operational load totals, and the calendar year-to-date totals.
- 23.3. Report in accordance with Condition 136 whenever the load (%) multiplied by the operating hours exceeds 20% of the annual load capacity (i.e., greater than $0.20 \times 8,760 \text{ hrs} \times 32.33 \text{ MMBtu/hr}$) per calendar year.
- 23.4. Permittee may monitor, record, and report gallons of fuel combusted instead of operation load if only distillate fuel with a heating value of approximately 134,716 Btu/gallon is combusted in EU ID 5. Report in accordance with Condition 136 whenever the gallons combusted in EU ID 5 exceed 420,480 gallons per calendar year.

NO_x Emissions

- 24.** The Permittee shall monitor, record, and report compliance with the short-term and calendar-year NO_x emissions limits indicated in Table B for EU IDs 1 through 5, as follows:

[18 AAC 50.040(j) and 18 AAC 50.326(j)(4)]

[40 C.F.R. 71.6(a)(3) & (c)(6)]

[Permit No. 9431-AA001, Exhibits C & D, 5/12/1994]

- 24.1. For each of EU IDs 1 and 2, monitor, record, and report compliance with the NO_x emissions limits indicated in Table B using CEMS data in accordance with 40 C.F.R. 60 Appendix A, Method 19 and as follows:

- a. For EU ID 2, comply with the short-term NO_x emissions limit in lb/MMBtu 30-boiler operating day rolling average, as follows:
 - (i) Calculate and record 30-boiler operating day rolling average emissions in lb/MMBtu in accordance with Condition 37.3.
 - (ii) For each month of the reporting period, include in the operating report required under Condition 137 the highest 30-operating day rolling average NO_x emissions in lb/MMBtu, as calculated in Condition 24.1.a(i).
- b. For each of EU IDs 1 and 2, comply with the calendar-year NO_x emissions limits in TPY, as follows:
 - (i) For each month, calculate and record the monthly and cumulative calendar-month emissions in tons for each unit and for combined emissions of EU IDs 1 and 2; and
 - (ii) For each month of the reporting period, include in the operating report required by Condition 137:
 - (A) the monthly and calendar year-to-date NO_x emissions to the nearest ton for each unit and for the combined emissions of EU IDs 1 and 2 as determined in Condition 24.1.b(i); and
 - (B) a summary of calculations and data used to support the reported monthly NO_x emissions in tons for each of EU IDs 1 and 2, as required in Condition 24.1.b(ii)(A).

- 24.2. For each of EU IDs 3 through 5, monitor, record, and report compliance with the corresponding limits in Table B, as follows:

- a. To ensure compliance with the calendar-year NO_x emission limits in Table B, comply with the annual load operational limits and associated MR&R, as described in Conditions 21 through 23;
- b. Calculate and record the monthly and calendar year-to-date NO_x emissions in tons using EPA AP-42 emission factors, hours of operation, and/or fuel consumed by each emission unit; and

- c. For each month of the reporting period, include in the operating report required by Condition 137 the monthly and calendar year-to-date NO_x emissions to the nearest ton, as determined in Condition 24.2.b, from each of EU IDs 3 through 5.
- 24.3. Report in accordance with Condition 136 should any of the short-term and/or calendar-year NO_x emissions from any of EU IDs 1 through 5 exceed the corresponding individual or combined limits, as indicated in Table B.

SO₂ Emissions

25. The Permittee shall monitor, record, and report compliance with the short-term and calendar-year SO₂ emissions limits indicated in Table B for EU IDs 1 through 5, as follows:

[18 AAC 50.040(j) and 18 AAC 50.326(j)]

[40 C.F.R. 71.6(a)(3) and (c)(6)]

[Permit No. 9431-AA001, Exhibits C & D, 5/12/1994]

[Permit No. 9831-AC018, Conditions 21.3 and 21.4, 12/29/1998]

- 25.1. For each of EU IDs 1 and 2, monitor, record, and report compliance with the SO₂ emissions limits indicated in Table B using CEMS data in accordance with 40 C.F.R. 60 Appendix A, Method 19 and as follows:
- a. For the short-term SO₂ emissions limit in lb/MMBtu 30-boiler operating day rolling average of EU ID 2:
 - (i) Calculate and record 30-boiler operating day rolling average emissions in lb/MMBtu in accordance with Condition 73.5.a.
 - (ii) For each month of the reporting period, include in the operating report required under Condition 137 the highest 30-day rolling average SO₂ emissions in lb/MMBtu, as calculated in Condition 25.1.a(i).
 - b. For the short-term SO₂ emissions limit in lb/MMBtu annual average emissions of EU ID 2:
 - (i) Calculate the annual average SO₂ emissions for the calendar-year by dividing the sum of each lb/MMBtu hourly emission rates (as calculated under Condition 73.5.a) by the number of hours the unit operated during the calendar year.
 - (ii) For each month of the reporting period, include in the operating report required under Condition 137 the calendar-year average SO₂ emissions in lb/MMBtu, as determined in Condition 25.1.b(i).
 - c. For the short-term SO₂ emissions limit in lb/hr of EU IDs 1 and 2:
 - (i) Calculate and record the rolling three-hour (for EU IDs 1 and 2) and 24-hour average (for EU ID 1) SO₂ emissions rates on a calendar day basis.

- (ii) For each month of the reporting period, include in the operating report required under Condition 137 the highest three-hour average SO₂ emissions in lb/hr for each of EU IDs 1 and 2 and the highest 24-hour average SO₂ emission in lb/hr for EU ID 1, as determined in Condition 25.1.c(i).
 - d. For the calendar-year SO₂ emissions limits in TPY of EU IDs 1 and 2:
 - (i) For each month, calculate and record the monthly and cumulative calendar-month emissions in tons for each unit and for combined emissions of EU IDs 1 and 2; and
 - (ii) For each month of the reporting period, include in the operating report required by Condition 137:
 - (A) the monthly and calendar year-to-date SO₂ emissions to the nearest ton for each unit and for the combined emissions of EU IDs 1 and 2, as determined in Condition 25.1.d(i); and
 - (B) a summary of calculations and data used to support the reported monthly SO₂ emissions in tons for each of EU IDs 1 and 2, as required in Condition 25.1.d(ii)(A).
- 25.2. For EU IDs 3 through 5, monitor, record, and report compliance with the fuel sulfur content limits indicated in Table B, as follows:
 - a. For each shipment of fuel, keep receipts that specify fuel grade and amount.
 - (i) Keep a list of the fuel sulfur contents and amount of each shipment of fuel.
 - (ii) For EU IDs 3 and 4, if the fuel grade does not require a sulfur content less than 0.3 percent by weight, conduct fuel sulfur testing in accordance with Conditions 16.1.b(i) or 16.1.b(ii) and Condition 16.2.
 - (iii) For EU ID 5, comply with the ULSD fuel requirements in Condition 85.
 - b. Include the following with the operating report required in Condition 137 for the period covered by the report:
 - (i) the records prepared under Condition 25.2.a(i) and 25.2.a(ii); and
 - (ii) a statement that the fuel burned in EU ID 5 meets the ULSD fuel requirements in Condition 85.
- 25.3. For EU IDs 3 through 5, monitor, record, and report compliance with the calendar-year SO₂ emissions limits indicated in Table B, as follows:
 - a. Determine by mass balance calculations the monthly and calendar year-to-date SO₂ emissions in tons using sulfur content of the fuel as determined in Condition 25.2 and the amount of fuel consumed by each of EU IDs 3 through 5;

- b. Keep records of the calculations and the monthly and calendar year-to-date SO₂ emissions from each of EU IDs 3 through 5, as determined in Condition 25.3.a; and
 - c. For each month of the reporting period, include in the operating report required by Condition 137 the monthly and calendar year-to-date SO₂ emissions to the nearest ton, from each of EU IDs 3 through 5, as determined in Condition 25.3.a.
- 25.4. Report in accordance with Condition 136 should any of the short-term fuel sulfur content limits and/or calendar-year limits for SO₂ emissions for any of EU IDs 1 through 5 exceed the corresponding individual or combined limits, as indicated in Table B.

CO Emissions

- 26.** The Permittee shall monitor, record, and report compliance with the short-term and calendar-year CO emissions limits indicated in Table B for EU IDs 2 and 4, as follows:
- [18 AAC 50.040(j) and 18 AAC 50.326(j)]
[40 C.F.R. 71.6(a)(3) and (c)(6)]
- 26.1. For EU ID 2, monitor, record, and report compliance with the short-term CO emissions limits in lb/MMBtu (based on 30-boiler operating day rolling average) and in lb/hr (based on hourly average) using CEMS data in accordance with 40 C.F.R. 60 Appendix A, Method 19 and as follows:
- a. Calculate and record 30-boiler operating day rolling average emissions consistent with the procedures described in Condition 73.5, as applied to CO.
 - b. Measure and record the hourly average emission rate of CO in lb/hr using CEMS data for each calendar month that the unit operates.
 - c. For each month of the reporting period, include in the operating report required by Condition 137:
 - (i) the highest 30-boiler operating day rolling average CO emissions in lb/MMBtu, as calculated in Condition 26.1.a; and
 - (ii) the highest hourly average CO emissions in lb/hr measured in Condition 26.1.b during the reporting period.
- 26.2. For EU ID 2, monitor, record, and report compliance with the calendar-year CO emissions limits in TPY using CEMS data and as follows:
- a. For each month, calculate and record the monthly and calendar-year-to-date CO emissions in tons for EU ID 2.
 - b. For each month of the reporting period, include in the operating report required by Condition 137:

- (i) the monthly and calendar year-to-date CO emissions to the nearest ton, as determined in Condition 26.2.a; and
 - (ii) a summary of calculations and data used to support the reported monthly CO emissions in tons, as required in Condition 25.1.d(ii)(A).
- 26.3. For EU ID 4, monitor, record, and report compliance with the corresponding CO limits in Table B, as follows:
 - a. To ensure compliance with the calendar-year CO emission limits in Table B, comply with the annual load operational limits and associated MR&R, as described in Condition 22;
 - b. For each month, calculate and record the monthly and calendar year-to-date CO emissions in tons, using EPA AP-42 emission factors, hours of operation, and/or fuel consumed by the emission unit; and
 - c. For each month during the reporting period, report in the operating report required by Condition 137 the monthly and calendar year-to-date CO emissions to the nearest ton, as determined in Condition 26.3.b.
- 26.4. Report in accordance with Condition 136 should any of the short-term and/or calendar-year CO emissions from any of EU IDs 2 and 4 exceed the corresponding limits, as indicated in Table B.

PM Emissions

27. The Permittee shall monitor, record, and report compliance with the short-term and calendar-year PM emissions limits indicated in Table B for EU IDs 1 through 8 and 10 through 12, as follows:

[18 AAC 50.040(j) and 18 AAC 50.326(j)]
[40 C.F.R. 71.6(a)(3) and (c)(6)]

- 27.1. For EU IDs 1 and 2:
- a. Monitor, record, and report compliance with the short-term PM emissions limits in lb/hr and gr/dscf for EU ID 1, and in lb/hr and lb/MMBtu (hourly average) for EU ID 2, based on source test results or using the PM CEMS data in accordance with 40 C.F.R 60 Appendix A, Method 19.
 - (i) Conduct the tests and report the results in accordance with Section 9, following the same schedule established under Condition 58.2.b. Include in the operating report required under Condition 137 the test results in gr/dscf, lb/hr, and lb/MMBtu, as specified in Condition 27.1.a, of each PM source test conducted during the reporting period; OR
 - (ii) Use the PM CEMS to calculate and record the PM emissions for EU ID 1 in gr/dscf and lb/hr and for EU ID 2 in lb/hr and lb/MMBtu.
 - (iii) Include in the operating report required by Condition 138:

- (A) if source testing is used, the average PM emissions in lb/hr and gr/dscf for EU ID 1, and the average PM emissions in lb/hr and lb/MMBtu for EU ID 2; or
 - (B) if the PM CEMS is used, the highest average PM emissions in lb/hr and gr/dscf for EU ID 1, and the highest average PM emissions in lb/hr and lb/MMBtu for EU ID 2.
 - b. Monitor, record, and report compliance with the calendar-year PM emissions limits in TPY, as follows:
 - (i) For each of EU IDs 1 and 2, calculate and record monthly PM emissions by multiplying the average lb/hr PM emissions rate obtained from the latest source test results by the corresponding total number of hours of each unit operated during that month, or by using the PM CEMS data ; convert the emissions to tons per month.
 - (ii) For each month, calculate and record the cumulative calendar-month PM emissions in tons to obtain the calendar year-to-date emissions for each of EU IDs 1 and 2.
 - (iii) For each month of the reporting period, include in the operating report required by Condition 137 the monthly and calendar year-to-date PM emissions to the nearest ton, as determined in Conditions 27.1.b(i) and 27.1.b(ii), for each of EU IDs 1 and 2.
- 27.2. For EU ID 2:
- a. For the short-term limit in lb/MMBtu 30-boiler operating day rolling averages for EU ID 2, calculate the 30-day rolling averages using the average of 30 consecutive daily average emission rates, as determined in accordance with Condition 73.2, on a rolling basis.
 - b. For each month of the reporting period, include in the operating report required under Condition 137 the highest 30-boiler operating day rolling average PM emissions in lb/MMBtu, as calculated in Condition 27.2.a.
- 27.3. For each of EU IDs 3 through 5:
- a. Monitor, record, and report compliance with the short-term limit in gr/dscf, in accordance with Conditions 1.2 and 5.2 (for EU ID 3) and Conditions 1.3 and 5.3 (for EU IDs 4 and 5).
 - b. To ensure compliance with the calendar-year PM emission limits in Table B, comply with the annual load operational limits and associated MR&R, as described in Conditions 21 through 23.
 - c. For each month, calculate and record the monthly and calendar year-to-date emissions in tons from each emissions unit, using the corresponding short-term limit in lb/hr as specified in Table B, or the most recent source test results, and actual hours of operation.

- d. For each month of the reporting period, include in the operating report required by Condition 137 the monthly and calendar year-to-date PM emissions to the nearest ton for EU IDs 3 and 4 and nearest 0.01 ton for EU ID 5, as determined in Condition 27.3.c.
- 27.4. Report under Condition 136 should any of the short-term and/or calendar-year PM emissions from EU IDs 1 through 5 exceed the corresponding limits indicated in Table B.
- 27.5. For EU IDs 6 through 8 and 10:
- a. Monitor, record, and report compliance with the short-term limit in gr/dscf, in accordance with Conditions 2 through 4 and 12 through 14.1.
 - b. For each month, calculate and record the monthly and calendar year-to-date emissions in tons from each emissions unit, using the corresponding short-term limit in lb/hr as specified in Table B, or the most recent source test results, and actual hours of operation.
- 27.6. For EU IDs 11 and 12, control fugitive PM emissions, as follows:
- a. Clean the paved roads as needed to prevent fugitive emissions from the Haul Road, EU ID 11. Monitor, record and report in accordance with the requirements for reasonable precautions to prevent fugitive dust in Condition 116.
 - b. For EU ID 12, maintain the existing wind fence around the coal storage pile, EU ID 12.
- 27.7. For each month, calculate the monthly and calendar year-to-date combined emissions in tons from EU IDs 11 and 12, using EPA AP-42 emission factors and actual operations data.
- 27.8. Include in the operating report required by Condition 137 the monthly and the calendar year-to-date PM emissions for each of EU IDs 6 through 8 and 10, and for the combined emissions of EU IDs 11 and 12, as determined in Conditions 27.5 and 27.7, respectively.
- 27.9. Report in accordance with Condition 136 should any of the short-term and/or calendar-year PM emissions from any of EU IDs 6 through 8 and 10 through 12 exceed the corresponding individual or combined limits, as indicated in Table B.

Memorandum of Agreement (MOA) Provisions,⁹ EU IDs 1 and 2

- 28.** The Permittee shall limit calendar-year emissions from EU IDs 1 and 2, as follows:

⁹ GVEA and AIDEA have entered into a Memorandum of Agreement with the U.S. DOI/ NPS, and the U.S. DOE dated November 9, 1993. A condition of the Memorandum of Agreement is the inclusion of the Environmental Mitigation Measures set forth in Section III of the Agreement as enforceable permit conditions. Parts of these MOA provisions that were already completed or are no longer relevant are not included in this permit.

- a. no more than 429 TPY of NO_x from EU ID 1;
- b. no more than 472 TPY of SO₂ from EU ID 1;
- c. no more than 1,439 TPY of NO_x, from EU IDs 1 and 2, combined; and
- d. no more than 721 TPY of SO₂, from EU IDs 1 and 2, combined.

[Permit No. 9431-AA001, Conditions 45 through 47, 5/12/1994]

28.1. Monitor, record, and report compliance with the limits in Condition 28 as set out in Conditions 24.1.b, 24.3, 25.1.d, and 25.4.

28.2. Report in accordance with Condition 136 should any of the NO_x and SO₂ emissions from EU IDs 1 and 2 exceed the corresponding individual or combined limits, as indicated in Conditions 28.a through 28.d.

[18 AAC 50.040(j) & 50.326(j)]
[40 C.F.R. 71.6(a) & (c)(6)]

29. The Permittee shall not request from the Department amendments to this permit, which would result in calendar-year emission levels that would exceed 1,439 TPY for NO_x or 721 TPY for SO₂ for the combined operation of EU IDs 1 and 2.

[Permit No. 9431-AA001, Condition 48, 5/12/1994]

30. If EU ID(s) 1 and/or 2 are operating and generating a NO_x or other pollutant plume (exclusive of water vapor, steam, and ice crystal plumes) or a sulfate or other pollutant haze which impairs visibility and which is reasonably attributable to the operation of EU ID(s) 1 and/or 2, and is observed or otherwise detected within Denali National Park and Preserve (DNPP) boundaries by observers trained in pollutant plume and haze identification, the Permittee shall, upon notification by National Park Service (NPS) or an order by the Department, immediately implement the procedures as follows:

[Permit No. 9431-AA001, Condition 50, 5/12/1994]

30.1. All notifications of plume or haze observation or detection reasonably attributable to the operation of EU ID(s) 1 and/or 2 shall be relayed to the Permittee by the Park Superintendent or his or her designated representative.

30.2. The Park Superintendent or his or her designated representative shall notify the Permittee's Healy Plant Superintendent by telephone of plume or haze observation or detection, which is reasonably attributable to the operation of EU ID(s) 1 and/or 2, if the Park Superintendent determines that the report of such plume or haze observation or detection is credible.

30.3. Upon receipt of a notification of plume or haze observation or detection, the Permittee will investigate the situation and proceed within 90 minutes of notification as follows:

- a. If the Permittee concurs with the NPS determination in Condition 30.2 above, Permittee will reduce the combined emissions from EU ID(s) 1 and/or 2 to the level of EU ID 1 emissions prior to construction of EU ID 2 (approximately 200 lb/hour NO_x and 150 lb/hour SO₂) for a minimum of 12 hours. This period of

time will be extended for additional 12 hour periods by mutual agreement of the parties, as defined in this condition, if the plume and/or haze persist, or conditions conducive to plume and/or haze formation persist. At any time during this period of reduced emissions, the Permittee may resume full operations upon a determination, by the mutual agreement of the parties, as defined in this condition, that the plume and/or haze is no longer detectable and conditions conducive to plume and/or haze formation no longer exist. The phrase “by mutual agreement of the parties,” as used in this condition, means that the Permittee’s Healy Plant Superintendent and the Park Superintendent, or their designated representatives, will discuss the issue requiring decision and undertake to reach agreement on the decision. If such decision cannot be agreed upon, the Permittee may proceed to resume operations, and both parties will keep a record of the disagreement.

- b. If Permittee does not concur with the Park Superintendent’s determination in Condition 30.2 above within 90 minutes or if the Park Superintendent does not concur with Permittee’s decision to resume operations in Condition 30.3.a above, the Park Superintendent or his or her designated representative may notify air quality control personnel in the Department. The Department may then order Permittee to reduce the combined emissions as set forth in Condition 30.3.a above if, after an opportunity for consultation with Permittee and the Park Superintendent, the Department concurs with the NPS determination based on an observation or detection made or confirmed by appropriately trained person or persons. Because this process depends on prompt decision-making and communication, telephone transactions are contemplated.
 - c. For purposes of any order issued under Condition 30.3.b above, the Permittee hereby waives rights to advance notice and opportunity for hearing provided by AS 46.03.850 (Compliance Orders) and stipulates to the imposition of any emergency order under AS 46.03.820.
- 30.4. In emergency conditions (defined as the loss of a significant portion of the Permittee’s generating resources and/or the Alaska Intertie), the Permittee will undertake the reductions in Condition 30.3.a when the emergency conditions end.
31. The Permittee shall provide reasonable technical and administrative support for any related ongoing studies that the US Department of Energy (US DOE) and the US Department of the Interior (US DOI) agree to pursue.
- [Permit No. 9431-AA001, Condition 53, 5/12/1994]
32. At the request of the NPS, the Permittee shall provide NPS with fly ash and slag ash, as available, FOB¹⁰ Healy plant site, at no charge.

¹⁰ *FOB*, Free On Board, is a transportation term that indicates that the price for goods includes delivery at the Seller’s expense to a specified point and no further. The FOB term is used with an identified physical location to determine 1) the responsibility and basis for payment of freight charges, and 2) the point at which title for the shipment passes from Seller to Buyer. [Reference: http://www.dsi-tms.com/hs-fs/hub/1987/file-18496826-pdf/docs/fob_definition.pdf]

[Permit No. 9431-AA001, Condition 54, 5/12/1994]

33. Consistent with prudent utility practices, the Permittee shall schedule one of its two routine EU ID 1 maintenance shutdowns (typically 2 to 8 weeks in duration) and its major maintenance shut-downs during the June, July, or August time period.

[Permit No. 9431-AA001, Condition 56, 5/12/1994]

34. The Permittee shall comply with its obligations as described by the provisions of Healy Clean Coal Project Memorandum of Agreement, Section III and Addendum No. 1.

[Permit No. 9431-AA001, Condition 57, 5/12/1994]

35. Compliance with Conditions 29 through 34 shall consist of an annual certification, in accordance with Condition 138, that the stationary source has met the requirements of Conditions 29 through 34.

[18 AAC 50.040(j) & 50.326(j)]
[40 C.F.R. 71.6(a) & (c)(6)]

Requirements and Limits Mandated by Consent Decree, EU IDs 1 and 2

36. The Permittee shall comply with the requirements and limits mandated by Consent Decree (CD) Civil Action No. 4:12-cv-00025-RRB dated November 19, 2012, and as amended August 1, 2017, as provided in Conditions 37 through 47.

[18 AAC 50.040(j) and 18 AAC 50.326(j)]
[40 C.F.R. 71.6(a) & (c)(6)]

NO_x Emissions

37. The Permittee shall install and operate a Selective Catalytic Reduction (SCR) system on EU ID 2 no later than 120 unit operating days¹¹ after restart¹² of EU ID 2. No later than 150 unit operating days after restart of EU ID 2, the NO_x emission rate for EU ID 2 shall not exceed 0.080 lb/MMBtu, 30-day rolling average.¹³

- 37.1. Report each of the following events in the operating report, required by Condition 137, that addresses the reporting period in which the event occurs:

- a. the restart date of EU ID 2 (as defined in footnote 12);
- b. date that installation of the SCR was completed; and
- c. the date of initial startup of the SCR on EU ID 2¹⁴.

¹¹ *Unit Operating Day* means, for EU ID 1, any day on which EU ID 1 fires fossil fuel; and for EU ID 2, any day on which EU ID 2 fires fossil fuel. *Fossil fuel* means any hydrocarbon fuel, including coal, petroleum coke, petroleum oil, or natural gas.

¹² *Restart* means the first time that EU ID 2 is fired with fossil fuel after August 1, 2017.

¹³ A *30-Day Rolling Average Emission Rate* for a Unit shall be expressed in lb/MMBTU and includes emissions during the current Unit Operating Day and the previous 29 Unit Operating Days.

¹⁴ *Initial Startup of the SCR* is defined as the first calendar day that the control equipment is fully operational following any commissioning and testing periods.

- 37.2. If the Permittee does not comply with the deadline for the installation and operation of the SCR on EU ID 2 as described in Condition 36, report as required by Condition 136.
- 37.3. Monitor and calculate the 30-day rolling average for NO_x emissions in lb/MMBtu using the CEMS data, as follows:
- Sum the total pounds of NO_x emitted from the emissions unit during the current operating day and the previous 29 operating days. Include all emissions that occur during all periods within the operating day, including emissions from startup, shutdown, and malfunctions;
 - Sum the total heat input to the emissions unit in million British thermal units (MMBtu) during the current operating day and the previous 29 operating days;
 - Divide the total number of pounds of NO_x during the 30 operating days by the total heat input during the 30 days to obtain the 30-day average; and
 - Calculate a new 30-day rolling average for each new operating day.
- 37.4. Record all 30-day rolling averages calculated in Condition 37.3.c. The recording may be in electronic format.
- 37.5. Report, as required by Condition 136, all 30-day rolling averages that exceed the limit in Condition 37.

[Permit No. AQ0173MSS02, Condition 8, May 21, 2018]

- 38.** The Permittee shall operate and maintain a Selective Non-Catalytic Reduction (SNCR) system on EU ID 1. Effective January 1, 2017, the NO_x emission rate for EU ID 1 shall not exceed 0.20 lb/MMBtu, 30-day rolling average. This emission limit shall be in effect until the date of initial startup of an SCR system on EU ID 1.
- 38.1. Measure and record the amount of coal and fuel oil burned in EU ID 1 each day the emissions unit operates.
- 38.2. Monitor and calculate the 30-day rolling average for NO_x emissions from EU ID 1 as described in Condition 37.3.
- 38.3. Record all 30-day rolling averages calculated in Condition 38.2. The recording may be in electronic format.
- 38.4. Report, as required by Condition 136 all 30-day rolling averages that exceed the limit in Condition 38.

[Permit No. AQ0173MSS01, Condition 2, 04/14/2014]

- 39.** No later than December 31, 2022, the Permittee shall elect to either retire¹⁵ EU ID 1 or install and operate an SCR system or an alternative NO_x control technology approved by the US Environmental Protection Agency (EPA) on EU ID 1.
- 39.1. If the Permittee elects to retire EU ID 1, then the Permittee shall retire EU ID 1 no later than December 31, 2024.
- a. Report, in the next operating report required by Condition 137, the date that EU ID 1 was retired.
 - b. If the Permittee elects to retire EU ID 1 under Condition 39.1 and does not retire EU ID 1 by the deadline in Condition 39.1, report as required by Condition 136.
- 39.2. If the Permittee elects to continue operating EU ID 1, then the Permittee shall install and operate an SCR system or an alternative NO_x control technology approved by EPA on EU ID 1 no later than December 31, 2024. Upon initial startup of the SCR system on EU ID 1, the NO_x emission rate for EU ID 1 shall not exceed 0.070 lb/MMBtu, 30-day rolling average.
- a. Report, in the next operating report described in Condition 137, the date that installation of the SCR was completed, and the date of initial startup of the SCR on EU ID 1.
 - b. If the Permittee does not comply with the deadline for the installation and operation of the SCR on EU ID 1 as described in Condition 39.2, report as required by Condition 136.
 - c. Monitor and calculate the 30-day rolling average for NO_x emissions from EU ID 1 as described in Condition 37.3.
 - d. Record all 30-day rolling averages calculated in Condition 39.2.c. The recording may be in electronic format.
 - e. Report, as required by Condition 136, all 30-day rolling averages that exceed the limit in Condition 39.2.

[Permit No. AQ0173MSS01, Condition 3, 04/14/2014]

PM Emissions

- 40.** The Permittee shall “Continuously Operate”¹⁶ the baghouses on EU IDs 1 and 2 to the extent practicable. “Continuously Operate” each compartment of the baghouses regardless

¹⁵ *Retire* means that GVEA shall permanently shut down and cease to operate EU ID 1 such that it cannot legally burn any fuel nor produce any steam for electricity production and that GVEA shall comply with applicable state and federal requirements for permanently retiring a coal-fired electric generating unit, including amending all applicable permits so as to reflect the permanent shutdown status of EU ID 1.

¹⁶ *Continuously Operate* means that when a pollution control technology or combustion control is required to be used at an EU pursuant to the Consent Decree, it shall be operated at all times when such EU is in operation, except in the event of Force Majeure, so as to minimize emissions to the greatest extent practicable, consistent with the technological limitations, manufacturers’ specifications, and good engineering and maintenance practices for such equipment and the EU.

of whether operating each compartment continuously is needed to comply with opacity limits.

- 40.1. Repair any failed baghouse compartment of the emissions unit at the next planned outage or unplanned outage of sufficient length of the respective emissions unit.
- 40.2. Maintain and replace bags on the baghouses to maximize collection efficiency, in a manner consistent with the definition of “Continuously Operate.”
- 40.3. Report in Condition 137 all periods during which the baghouse on either EU ID 1 or EU ID 2 was not in operation while the respective emissions unit was operating.
- 40.4. The requirement in Condition 40 does not apply during correlation testing under 40 C.F.R. 60 Appendix B, Performance Specification 11 and Appendix F, Quality Assurance Requirements Procedure 2.

[Permit No. AQ0173MSS01, Condition 4, 04/14/2014]

- 41.** Maintain and operate the particulate matter continuous emission monitoring system (PM CEMS)¹⁷ on EU IDs 1 and 2 in accordance with the GVEA’s PM CEMS Quality Assurance/Quality Control (QA/QC) Plan:
 - 41.1. The PM CEMS shall consist of a continuous particle mass monitor measuring filterable PM concentration, directly or indirectly, on an hourly average basis, and a diluent monitor used to convert the concentration to units expressed in lb/MMBtu.
 - 41.2. The PM CEMS installed on EU IDs 1 and 2 must be appropriate for the anticipated stack conditions of the respective emissions unit.
 - 41.3. Maintain, in an electronic database for at least five years, the hourly average emission values of all PM CEMS measurements in lb/MMBtu.
 - 41.4. Except for periods of monitor malfunction, maintenance, repair, calibration, or testing as identified in the PM CEMS plan and protocols, continuously operate the PM CEMS at all times when the respective emissions unit is operating.
 - 41.5. Use the criteria in 40 C.F.R. Appendix B, Performance Specification 11, and Appendix F, Procedure 2 when developing the plan for the installation and correlation of the PM CEMS and the QA/QC protocol. Operate the PM CEMS for EU ID 1 and EU ID 2 in accordance with the plan for installation and correlation and the QA/QC protocol.
 - 41.6. Conduct performance specification tests on the PM CEMS as required and demonstrate compliance with the PM CEMS installation and correlation plan submitted to EPA according to the PM CEMS QA/QC protocol.
 - 41.7. Report the data recorded by the PM CEMS during the respective emissions unit operation, expressed in lb/MMBtu on a rolling 30-day average basis in compact

¹⁷ PM CEMS means, for obligations involving the monitoring of PM emissions under the Consent Decree, the equipment that samples, analyzes, measures, and provides, by readings taken at frequent intervals, an electronic and/or paper record of PM emissions.

disc-electronic format or other EPA-approved format to EPA, as required by Condition 47.

- a. Identify in the report any PM emission rates in excess of the applicable PM emission rate and any concentrations measured by the PM CEMS that are greater than 125 percent of the highest PM concentration level used in the most recent correlation testing performed pursuant to Performance Specification 11 in 40 C.F.R. 60, Appendix B.

[Permit No. AQ0173MSS01, Condition 5, 04/14/2014]

42. Upon the date on which EU ID 2 first fires coal after November 19, 2012, the filterable PM emission rate from EU ID 2 shall not exceed 0.0200 lb/MMBtu, 30-day rolling average. On September 30, 2015 or 18 months after EU ID 2 first fires coal after November 19, 2012, whichever is later,¹⁸ the filterable PM emission rate from EU ID 1 shall not exceed 0.0200 lb/MMBtu, 30-day rolling average.

- 42.1. Monitor and calculate the 30-day rolling average filterable PM emissions, in terms of lb/MMBtu using the PM CEMS data, for each respective emissions unit as follows:

- a. Sum the total pounds of filterable PM emitted from the respective emissions unit during the current operating day and the previous 29 operating days. Include all emissions that occur during all periods within the operating day, including emissions from startup, shutdown, and malfunctions;
- b. Sum the total heat input to the respective emissions unit in MMBtu during the current operating day and the previous 29 operating days;
- c. Divide the total number of pounds of filterable PM emitted from the respective emissions unit during the 30 operating days by the total heat input for the respective emissions unit during the 30 days to obtain the 30-day average for the respective emissions unit;
- d. Calculate a new 30-day rolling average for each new operating day for each of EU IDs 1 and 2.

- 42.2. Record all 30-day rolling averages calculated in Condition 42.1.c for the respective emissions unit. The recording may be in electronic format.

- 42.3. Report, as required by Condition 136, all 30-day rolling average for EU ID 1 or EU ID 2 that exceed the limit in Condition 42.

[Minor Permit No. AQ0173MSS01, Condition 6]

Hg Emissions

43. For EU IDs 1 and 2, the Permittee shall comply with the requirements for mercury (Hg) emissions from existing coal-fired electric generating units established by the National

¹⁸ EU ID 2 first fired coal on August 4, 2015; therefore, due date for the filterable PM emission rate limit of 0.0200 lb/MMBtu for EU ID 1 is February 4, 2017.

Emission Standards for Hazardous Air Pollutants (NESHAP) for Coal and Oil-Fired Electric Utility Steam Generating Units in Table 2 to 40 C.F.R. 63, Subpart UUUUU (Mercury and Air Toxics Standards rule), as set out in the applicable requirements for Hg emissions in Conditions 94 through 100.

- 43.1. The Permittee shall make available to the National Parks Service the results of any mercury emissions monitoring required by law conducted on EU IDs 1 and 2 within 45 days of receiving a request for such data from the National Park Service.

[Permit No. AQ0173MSS01, Condition 7, 04/14/2014]

SO₂ Emissions

44. Effective February 4, 2017, the SO₂ emission rate from EU ID 2 shall not exceed 0.10 lb/MMBtu, 30-day rolling average.

- 44.1. Operate the spray dry absorber (SDA), the existing SO₂ emissions controls on EU ID 2, when EU ID 2 is in operation.

- a. If the Permittee does not operate the SDA as described in Condition 44.1, report as required by Condition 136.

- 44.2. Monitor and calculate the 30-day rolling average for SO₂ emissions, in terms of lb/MMBtu using the SO₂ CEMS data, as follows:

- a. Sum the total pounds of SO₂ emitted from the emissions unit during the current operating day and the previous 29 operating days. Include all emissions that occur during all periods within the operating day, including emissions from startup, shutdown, and malfunctions;
- b. Sum the total heat input to the emissions unit in MMBtu during the current operating day and the previous 29 operating days;
- c. Divide the total number of pounds of SO₂ during the 30 operating days by the total heat input during the 30 days to obtain the 30-day average;
- d. Calculate a new 30-day rolling average for each new operating day.

- 44.3. Record all 30-day rolling averages calculated in Condition 44.2.c. The recording may be in electronic format.

- 44.4. Report, as required by Condition 136, all 30-day rolling averages that exceed the limit in Condition 44.

[Permit No. AQ0173MSS01, Condition 8, 04/14/2014]

45. Effective February 4, 2017, the SO₂ emission rate from EU ID 1 shall not exceed 0.30 lb/MMBtu, 30-day rolling average.

- 45.1. Operate the dry sorbent injection (DSI), the existing SO₂ emissions controls on EU ID 1, when EU ID 1 is in operation to achieve and maintain SO₂ emission rate not to exceed the limit in Condition 45.

- a. If the Permittee does not operate the DSI as described in Condition 45.1, report as required by Condition 136.
- 45.2. Monitor and calculate the 30-day rolling average for SO₂ emissions from EU ID 1 as described in Condition 44.2.
- 45.3. Record all 30-day rolling averages calculated in Condition 45.2. The recording may be in electronic format.
- 45.4. Report, as required by Condition 136, all 30-day rolling averages that exceed the limit in Condition 45.

[Permit No. AQ0173MSS01, Condition 9]

Annual NO_x and SO₂ Emissions Limits

- 46. For each 12-month period beginning on January 1, the combined calendar-year emissions from EU IDs 1 and 2, including periods of startup, shutdown, and malfunctions, shall not exceed the limits in Conditions 46.1 and 46.2.
 - 46.1. Limit the combined NO_x emissions from EU IDs 1 and 2, beginning on January 1 of the first full year following the:
 - a. Installation of SNCR on EU ID 1, to 1,239 TPY until effective date of Condition 46.1.b;
 - b. Installation of SCR on EU ID 2, through 2024, to 533 TPY;
 - c. Installation of SCR on EU ID 1, to 352 TPY, if EU ID 1 is not retired; and
 - d. Retirement EU ID 1, to 231 TPY, if EU ID 1 is retired.
 - 46.2. Limit the combined SO₂ emissions from EU IDs 1 and 2 to:
 - a. 701 TPY beginning January 1, 2016 and continuing each calendar year thereafter, and
 - b. if EU ID 1 is retired, 248 TPY beginning January 1 of the first calendar year after the retirement of EU ID 1 and continuing each calendar year thereafter.
 - 46.3. Monitor, record and report the monthly and calendar year-to-date NO_x and SO₂ emissions from EU ID 1 and 2, in accordance with Conditions 24.1.b and 25.1.d.

[Permit No. AQ0173MSS01, Condition 10]

- 47. The Permittee shall submit to the EPA a report by August 29 for the period January 1 to June 30 of the current year and by March 1 (or February 29 on a leap year) for the period July 1 to December 31 of the previous year. The report shall include:
 - 47.1. all information necessary to determine compliance during the reporting period with all applicable:
 - a. 30-day rolling average NO_x and SO₂ emission rates in lb/MMBtu;

- b. 30-day rolling average filterable PM emission rates in lb/MMBtu;
 - c. EU IDs 1 and 2 combined annual emissions for NO_x and SO₂ in TPY;
 - d. the obligation to monitor NO_x, SO₂, and PM emissions; and
 - e. the obligation to optimize PM emission controls;
- 47.2. the scheduled date or date of installation and commencement of operation of new or upgraded pollution control devices required in Conditions 37, 38, and 39, including the nature and cause of any actual or anticipated delays, and any steps taken to mitigate such delays;
- 47.3. the date on which EU ID 2 first fires coal after November 19, 2012;
- 47.4. all affirmative defenses asserted pursuant to Paragraphs 110 through 118 of the CD during the period covered by the report; and
- 47.5. if any pollution control device required by Condition 37, 38, 39, 40, 44, or 45 did not “Continuously Operate”:
- a. an identification of all periods any control equipment did not operate;
 - b. the reason(s) for the equipment for not operating; and
 - c. the basis for compliance or non-compliance with the continuous operation requirements of Condition 37, 38, 39, 40, 44, or 45.

[Permit No. AQ0173MSS01, Condition 11, 04/14/2014]

BART Requirements,¹⁹ EU IDs 1 and 3.

- 48.** The Permittee shall comply with the requirements of Best Available Retrofit Technology (BART) under the regional haze rule set out in Conditions 49 through 51, as expeditiously as practicable, but in no case later than March 18, 2018.

[18 AAC 50.040(j), 50.260(n) & (o), and 50.326(j)]
[40 C.F.R. 71.6(a) & (c)(6)]

- 49. BART Controls.** The Permittee shall comply with the following as BART for EU IDs 1 and 3:

49.1. For EU ID 1:

- a. maintain and operate the existing dry sorbent injection system to control SO₂ emissions;
- b. maintain and operate the existing Selective Non-Catalytic Reduction system (SNCR) to control NO_x emissions; and

¹⁹ The Best Available Retrofit Technology (BART) requirements were established under the Federal Regional Haze Rule in 40 C.F.R. 51.300 through 309 and Appendix Y, adopted by reference under 18 AAC 50.260.

- c. maintain and operate the existing reverse gas baghouse system to control PM₁₀ emissions;
- 49.2. For EU ID 3, the existing configuration (i.e., no air pollution control system required) is BART for SO₂, NO_x, and PM₁₀ emissions.

[18 AAC 50.040(j), 50.260(l) & (o), and 50.326(j)]

[40 C.F.R. 71.6(a) & (c)(6)]

[Final BART Determination Report, Rev. 1, 06/01/2010]

[State of Alaska Air Quality Control Plan, Volume II: Section III.K.6, Regional Haze SIP, 2/11/2011; and Volume III: Appendix III.K.6, BART Documentation, 9/18/2014]

- 50. BART Limits** The Permittee shall limit PM₁₀, NO_x, and SO₂ emissions from EU IDs 1 and 3 in accordance with the BART limits indicated in Table C.

Table C –BART Emission Limits^a

EU ID No.	EU Description	Criteria Pollutants		
		PM ₁₀ ^b	NO _x	SO ₂
1	Unit No. 1	0.015 lb/MMBtu (based on compliance source testing)	0.20 lb/MMBtu (30-day rolling average)	0.30 lb/MMBtu (30-day rolling average)
3	Auxiliary Boiler No. 1	0.05 gr/dscf, hourly average 0.8 lb/hr (at full load) 20% load factor, annual average	0.15 lb/MMBtu (30-day rolling average)	0.53 lb/MMBtu (30-day rolling average).

Notes:

^a BART emissions limits are based on an eight-year remaining useful life for EU ID 1, from calendar years 2016 through 2024.

^b The BART emission limit for particulate matter (PM) reflects filterable PM₁₀.

[18 AAC 50.040(j), 50.260(l), and 50.326(j)]

[40 C.F.R. 71.6(a) & (c)(6)]

[Final BART Determination Report, Rev. 1, 06/01/2010]

- 51. Monitoring, Recordkeeping, and Reporting.** The Permittee shall demonstrate compliance with the BART NO_x, SO₂, and PM₁₀ emissions limits in Table C for EU IDs 1 and 3, as follows:

For EU ID 1:

- 51.1. Use CEMS to determine emissions of NO_x and SO₂ from EU ID 1. Maintain, operate, and calibrate the CEMS installed on EU ID 1 in accordance with Condition 20.2.
- 51.2. Monitor, record, and report, as follows:
- a. Measure and record for each operating day
- (i) the 60-minute average emission rates of NO_x and SO₂ (in lb/MMBtu);

- (ii) the average daily NO_x and SO₂ emission rates (in lb/MMBtu);
 - (iii) the 60-minute average stack gas concentration of O₂ or CO₂ (in percent);
and
 - (iv) the 60-minute average coal feed rate to EU ID 1.
 - b. To determine the 30-boiler operating day rolling average emissions rates, calculate and record the arithmetic average of all hourly NO_x and SO₂ emission rates in accordance with Condition 73.5.a, as applied to EU ID 1.²⁰
 - c. Record all instances of startup, shutdown and malfunction or emergency conditions occurring during each 30-day rolling averaging period.
 - d. For each calendar month of the reporting period, include with the operating report required in Condition 137 the highest 30-day rolling average NO_x and SO₂ emission rates in lb/MMBtu.
 - e. Submit an excess emissions report in accordance with Condition 136 whenever the 30-day rolling average NO_x or SO₂ emission rate (lb/MMBtu) exceeds the respective allowable rate in Table C.
- 51.3. Use source test results to determine emissions of PM₁₀ from EU ID 1.
- a. Conduct source tests for PM₁₀ and report the results in accordance with Section 9 and as follows:
 - (i) Conduct an initial test on EU ID 1 within six months before or after the final BART emission limit compliance date in Condition 48;
 - b. Comply with the monitoring, recordkeeping and reporting requirements of the Compliance Assurance Monitoring (CAM) Plan in Condition 101.

EU ID 3:

- 51.4. Monitor, record, and report in accordance with Conditions 1.2 and 5.2 to demonstrate compliance with the PM limit in Table C for EU ID 3;
- 51.5. Comply with the sulfur compound emissions standard in Condition 15 and monitor, record, and report in accordance with Conditions 16 and 17 to demonstrate compliance with the SO₂ limit in Table C for EU ID 3; and
- 51.6. Comply with the NO_x emissions BACT limits and MR&R requirements described in Condition 24, as applicable to EU ID 3, to demonstrate compliance with the BART NO_x limit for EU ID 3 in Table C.

[18 AAC 50.040(j), 50.260(l) & (o), and 50.326(j)]

²⁰ The revised 2010 BART determination report specifically indicates that startup, shutdown and malfunction, or emergency conditions should be excluded. Emergency conditions exist only when the sulfur dioxide control system malfunctions and the boiler cannot be shut down and the events leading to the malfunction were not reasonably foreseeable or preventable. A process and emission control malfunction or breakdown is not an emergency condition, in and of itself. [Ref. US EPA Applicability Determination Index, Control Number PS27, 9/16/1992]

[40 C.F.R. 71.6(a)(3)(i) through (iii) &(c)(6)]
[Final BART Determination Report, Rev. 1, 06/01/2010]

52. Initial Notification of Compliance Status. By December 31, 2018, submit to the Department an initial notification of compliance status with the BART requirements set out in Conditions 48 through 51. Include the following information with the report:

- 52.1. Company name, stationary source, and address;
- 52.2. Statement by the responsible official, with the official's name, title, phone number, email address, and signature, certifying the truth, accuracy and completeness of the notification and a statement of whether EU ID 1 and EU ID 3 have complied with the corresponding BART limits in Table C and associated requirements in Conditions 48 through 51;
- 52.3. The notification must include the following certification of compliance, and signed by a responsible official: "This stationary source complies with the BART requirements under 18 AAC 50.260(n) and (o) by complying with the established BART emission limits and the established maintenance and operations procedures for the BART control equipment for each of EU IDs 1 and 3;"
- 52.4. Supporting documents to demonstrate initial compliance with the BART emissions limits applicable to EU ID 1, including but not limited to the following:
 - a. the 30-day rolling averages for each of NO_x and SO₂ emission rates in lb/MMBtu, as determined under Condition 51.2.b, during the 30-boiler operating day period immediately preceding the compliance due date in Condition 48; and
 - b. results of the PM source test conducted under Condition 51.3.a(i).
- 52.5. If EU ID 1 or EU ID 3 experienced any deviations from the applicable requirements since the compliance due date in Condition 48, include a description of deviations, the time periods during which the deviations occurred, and the corrective actions taken.

[18 AAC 50.040(j), 50.260(l) & (o), and 50.326(j)]
[40 C.F.R. 71.6(a)(3)(iii) &(c)(6)]
[Final BART Determination Report, Rev. 1, 06/01/2010]

Section 5. State Requirements for Coal-Fired Boilers

Visible Emissions Standards, EU IDs 1 and 2

- 53. Coal-Fired Boiler Visible Emissions.** The Permittee shall not cause or allow visible emissions, excluding condensed water vapor, emitted from EU IDs 1 and 2 listed in Table A to reduce visibility through the exhaust effluent, as follows:

[18 AAC 50.040(j) & 50.326(j)]
[40 C.F.R. 71.6(a)(1)]

- 53.1. For EU ID 1, by more than 20 percent for more than three minutes in any one hour, except for an additional three minutes in any one hour, if

[18 AAC 50.055(a)(9)]

- a. the visible emissions are caused by startup, shutdown, soot blowing, grate cleaning, or other routine maintenance activities specified in Condition 54.1.b;
- b. the Permittee monitors visible emissions by continuous opacity monitoring instrumentation that conforms to the requirements set out in Conditions 54.1.a and 54.1.c;
- c. the Permittee provides the Department with a demonstration that the particulate matter emissions from EU ID 1 allowed by this opacity limit will not cause or contribute to a violation of the ambient air quality standards for PM₁₀ in 18 AAC 50.010, or to cause the maximum allowable increases for PM₁₀ in 18 AAC 50.020 to be exceeded; and
- d. the federal Administrator approves a stationary source-specific revision to the State Implementation Plan, required under 42 U.S.C. 7410, authorizing the application of this opacity limit instead of the opacity limit otherwise applicable under this section.

[18 AAC 50.055(a)(9)(A) through (D)]

- 53.2. For EU ID 2, by more than 20 percent averaged over any six consecutive minutes.

[18 AAC 50.055(a)(1)]

Visible Emissions MR&R, EU IDs 1 and 2

- 54. Coal Fired Boiler Visible Emissions Monitoring.** The Permittee shall monitor visible emissions from EU IDs 1 and 2 using COMS, as required in Conditions 20.1 and 20.2.

- 54.1. Comply with the following procedures for operation of a COMS:

- a. The COMS must meet the performance specifications in 40 C.F.R. 60, Appendix B, Performance Specification 1, adopted by reference in 18 AAC 50.040(a);
- b. Operate and maintain the COMS in accordance with the manufacturer's written requirements and recommendations;

- c. Except during COMS breakdowns, repairs, calibration checks, and zero and upscale adjustments, complete one cycle of sampling and analyzing for each successive 15-second period of emissions unit operation; from this data, calculate and record the average opacity for each successive one-minute period; and
- d. At least once daily, conduct a zero and upscale (span) check in accordance with a written procedure, as described in 40 C.F.R. 60.13(d), and; adjust whenever the zero or upscale drift exceeds four percent opacity in a 24-hour period.
- e. Conduct performance audits as follows:
 - (i) For a COMS that was new, relocated, replaced, or substantially refurbished on or after April 9, 2001, perform an audit that includes the following elements as described in the Department's *Performance Audits for COMS*, adopted by reference in 18 AAC 50.030, at least once in each 12 months:
 - (A) optical alignment;
 - (B) zero and upscale response assessment;
 - (C) zero compensation assessment;
 - (D) calibration error check; and
 - (E) zero alignment assessment;
 - (ii) For a COMS that was new, relocated, replaced, or substantially refurbished before April 9, 2001, perform the same audits required under Condition 54.1.e(i), except that Conditions 54.1.e(i)(A) through 54.1.e(i)(D) must be performed at least quarterly; this frequency may be reduced if
 - (A) the Permittee demonstrates, by applying measurable criteria to the results of quarterly audits, that quarterly audits are not necessary; and
 - (B) the Department gives written approval for the reduction in frequency.
- f. If any of the COMS on the coal-fired boilers, EU IDs 1 and 2, is out of service for more than 24 hours, or the COMS has failed the performance audit, the Permittee shall observe the visible emissions in accordance with Condition 2.2 once during each month that the emissions unit is in operation until the COMS is in good working condition or the COMS has passed the performance audit.

[18 AAC 50.040(j), 50.326(j), & 50.346(c)]

[40 C.F.R. 71.6(a)(3)(i) & (c)(6)]

[Permit No. AQ0173MSS02, Condition 8, May 21, 2018]

55. Coal Fired Boiler Visible Emissions Recordkeeping. For EU IDs 1 and 2 listed in Table A, the Permittee shall keep records as follows:

- 55.1. Maintain records of all calculated one-minute average opacity values for COMS and records of the COMS performance audits required under Condition 54.1.e, according to the requirements of Condition 132.
- 55.2. Maintain records of information required under Condition 3.1 for all Method 9 visible emissions monitoring conducted pursuant to Condition 54.1.f.

[18 AAC 50.040(j) & 50.326(j)(4)]
[40 C.F.R. 71.6(a)(3)(ii) & (c)(6)]

56. Coal Fired Boiler Visible Emissions Reporting. For EU IDs 1 and 2 listed in Table A, the Permittee shall report as follows:

[18 AAC 50.040(j) & 50.326(j)(4)]
[40 C.F.R. 71.6(a)(3)(iii) & (c)(6)]

- 56.1. If any of the COMS is malfunctioning or non-operable for three or more consecutive days, the Permittee shall notify the Department by telephone or in writing on the fourth day, indicating the cause of failure and anticipated time required to repair or replaced the instrument.
- 56.2. Include in the operating report required under Condition 137 the information recorded under Condition 55.2 for all Method 9 visible emissions monitoring conducted pursuant to Condition 54.1.f during the period covered by the report.
- 56.3. For EU ID 1, report a violation of the emission standard in Condition 53.1 by filing an Excess Emission Notification Form under Condition 136 if:
 - a. the total number of one-minute values that exceed 20 percent opacity is greater than three during any given hour when the boiler **is not** operating under the conditions described in Conditions 53.1.a and 53.1.b; or
 - b. the total number of one-minute values that exceed 20 percent opacity is greater than six during any given hour when the boiler **is** operating under the conditions described in Conditions 53.1.a and 53.1.b.
- 56.4. For EU ID 2, report a violation of the emission standard in Condition 53.2 by filing an Excess Emission Notification Form under Condition 136 if visible emissions exceed a six-minute average of 20 percent opacity.

Particulate Matter Emissions Standards, EU IDs 1 and 2

57. Coal Fired Boiler Particulate Matter. The Permittee shall not cause or allow particulate matter emitted from EU IDs 1 and 2 listed in Table A to exceed the following:

[18 AAC 50.040(j) & 50.326(j)]
[40 C.F.R. 71.6(a)(1)]

- 57.1. For EU ID 1, 0.1 grains per cubic foot of exhaust gas corrected to standard conditions and averaged over three hours; and

[18 AAC 50.055(b)(2)(A)]

- 57.2. For EU ID 2, 0.05 grains per cubic foot of exhaust gas corrected to standard conditions and averaged over three hours

[18 AAC 50.055(b)(1)]

Particulate Matter Emissions MR&R, EU IDs 1 and 2

- 58. Coal Fired Boiler Particulate Matter Monitoring and Recordkeeping.** The Permittee shall do the following:

[18 AAC 50.040(j), 50.326(j), & 50.346]
[40 C.F.R. 71.6(a)(3)(i) & (ii) & (c)(6)]

- 58.1. At least once every 12 months, for each boiler that has operated 90 days or more during that period, inspect the exhaust duct work and the internal components of the dust collector for the presence of leaks; prior to restarting the boiler, repair all leaks in the exhaust ductwork and all leaks that would allow dirty gas to pass into the clean gas side of the dust collector;
- 58.2. If PM CEMS does not collect data as required by Condition 42.1, conduct source tests for particulate matter as follows:
- a. Conduct the tests and report the results in accordance with Section 9; for tests required under Condition 58.2.b, submit the test plan required by Condition 128 at least 30 days before conducting the test;
 - b. Conduct the tests on each boiler according to the following schedule where each test means a three-hour average consistent with Condition 131.
 - (i) If the most recent source test exceeded 90 percent of the applicable emission limit in Condition 57, conduct a source test within 8,760 operating hours of the previous test;
 - (ii) If the most recent source test exceeded 75 percent of the applicable emission limit in Condition 57, conduct a source test within 17,520 operating hours of the previous test; and
 - (iii) Within five years of the previous source test, conduct a test of each boiler operated during that time.
- 58.3. Keep records of
- a. the PM emissions from EU ID 1 and 2 in gr/dscf averaged over three hours as calculated from PM CEMS data;
 - b. the results of source tests conducted under Condition 58.2; and
 - c. the inspection and any corrective actions taken under Condition 58.1.

- 59. Coal Fired Boiler Particulate Matter Reporting.** The Permittee shall

[18 AAC 50.040(j), 50.326(j), & 50.346(c)]
[40 C.F.R. 71.6(a)(3)(iii) & (c)(6)]

- 59.1. Submit a report in accordance with Condition 136 whenever the results of a source test conducted under Condition 58.2 or PM CEMS data collected under Condition 42.1 exceed the applicable particulate matter emissions limit under Condition 57.
- 59.2. Include in the operating report required under Condition 137
 - a. the highest PM emissions from each of EU ID 1 and 2 in gr/dscf averaged over three hours, as calculated from PM CEMS data, for each month covered by the reporting period;
 - b. the results of each particulate matter source test conducted during the reporting period (if previously submitted, cite the source test submittal date in lieu of providing source test results); and
 - c. a summary of inspection findings and corrective actions taken under Condition 58.1.

Sulfur Compound Emissions Standard, EU IDs 1 and 2

- 60. Coal Fired Boiler Sulfur Compound Emissions.** The Permittee shall not cause or allow sulfur compound emissions, expressed as sulfur dioxide, from EU IDs 1 and 2 to exceed 500 ppm averaged over a period of three hours.

[18 AAC 50.055(c)]

Sulfur Compound Emissions MR&R , EU IDs 1 and 2

- 61.** For EU IDs 1 and 2, the Permittee shall:

- 61.1. demonstrate compliance with the applicable state SO₂ standard in Condition 60 by complying with the units' corresponding SO₂ limits in Table B and associated MR&R requirements in Conditions 20.2 and 25.1;
- 61.2. keep records of the sulfur dioxide concentration in ppm averaged over three-hours, as measured by the CEMS required under Condition 20.2; and
- 61.3. submit a report in accordance with Condition 136 whenever a three-hour exhaust concentration recorded under Condition 61.2 is greater than 500 ppm.

[18 AAC 50.035(c), 50.040(a) & (j), & 50.326(j)(4)]
[40 C.F.R. 71.6(a)(3)(i) through (iii) & (c)(6)]

Section 6. Performance Audits for COMS, EU IDs 1 and 2

- 62. Performance Audits.** The following elements shall be included in performance audits for COMS, unless the Department gives written approval for unit-specific audit procedures.

[18 AAC 50.030(9), 50.040(j), & 50.326(j)]
[40 C.F.R. 71.6(a)(3)(i)]

- 62.1. Optical Alignment Assessment.** The status of the optical alignment of the monitor components shall be checked and recorded according to the procedures specified by the monitor manufacturer. Realign as necessary.
- 62.2. Zero and Upscale Response Assessment.** The zero and upscale response errors shall be determined and recorded according to the calibration drift procedures of paragraphs 8.1(4)(i) and (ii) in 40 C.F.R. 60, Appendix B, Performance Specification 1 (PS-1), adopted by reference in 18 AAC 50.040(a). The error is defined as the difference (in percent opacity) between the correct value and the observed value for the zero and high-level calibration checks.
- 62.3. Zero Compensation Assessment.** The value of the zero compensation applied at the time of the audit shall be calculated as equivalent opacity, corrected to stack exit conditions as necessary, according to the procedures specified by the manufacturer. Record the compensation applied to the effluent recorded by the monitor system.
- 62.4. Calibration Error Check.** Conduct a three-point calibration error test using three calibration attenuators that produce outlet path length corrected, single-pass opacity values shown in ASTM D 6216, Section 7.5, adopted by reference in 18 AAC 50.035(c). Confirm the external audit device produces the proper zero value on the COMS data recorder. Separately, insert each calibration attenuator (low, mid, and high-level) into the external audit device. While inserting each attenuator, (1) ensure that the entire light beam passes through the attenuator; (2) minimize interference from reflected light; and (3) leave the attenuator in place for at least two times the shortest recording interval on the COMS data recorder. Make a total of five non-consecutive readings for each attenuator. At the end of the test, correlate each attenuator insertion to the corresponding value from the data recorder. Subtract the single-pass calibration attenuator values corrected to the stack exit conditions from the COMS responses. Calculate the arithmetic mean difference, standard deviation, and confidence coefficient of the five measurements value using equations 1-3, 1-4, and 1-5 of PS-1. Calculate the calibration error as the sum of the absolute value of the mean difference and the 95 percent confidence coefficient for each of the three test attenuators using equations 1-6 of PS-1. Report the calibration error test results for each of the three attenuators.
- 62.5. Zero Alignment Assessment.** Compare the COMS simulated zero to the actual clear path zero of the installation. The assessment may be conducted in conjunction with, but prior to, other performance audit elements.
- a. Primary Zero Alignment Method.** The primary zero alignment shall be performed under clear path conditions. This may be accomplished if the process is not operating and the monitor path length is free of particulate matter or the

monitor may be removed from its installation and set up under clear path conditions. The absence of particulate matter shall be demonstrated prior to conducting the test at the installed site. No adjustment to the monitor is allowed other than the establishment of the proper monitor path length and correct optical alignment of the monitor components. Record the monitor response to a clear path condition and to the monitor's simulated zero condition as percent opacity corrected to stack exit conditions as necessary. For monitors with automatic zero compensation, disconnect or disable the zero compensation mechanism or record the amount of correction applied to the monitor's simulated zero condition. The response difference in percent opacity to the clear path and simulated zero conditions shall be recorded as the zero alignment error. Adjust the monitor's simulated zero device to provide the same response as the clear path condition. Restore the COMS to its operating mode.

- b. **Alternate Zero Alignment Method.** Monitors capable of allowing the installation of an external, removable zero-jig may use the equipment for an alternative zero alignment provided that the zero-jig setting is established for the monitor path length and recorded for the specific COMS by comparison of the COMS responses to the installed zero-jig and to the clear path condition. The zero-jig is shown to be capable of producing a consistent zero response when it is repeatedly (i.e., three consecutive installations and removals prior to conducting the final zero alignment check) installed on the COMS. The zero-jig setting shall be permanently set at the time of the initial COMS zeroing to the clear path zero value and protected when not in use to ensure that the setting equivalent to zero opacity does not change. The zero-jig setting shall be checked and recorded prior to initiating the zero alignment. Emissions unit owners and operators that employ a zero-jig shall perform a primary zero alignment audit once every three years.
- c. **Failure Criteria for Zero Alignment.** The zero alignment is acceptable if the error at the simulated zero check is less than or equal to 2 percent opacity prior to adjustment (i.e., if the zero alignment error is 0 percent the analyzer does not need servicing solely based on this test).

Section 7. Federal Requirements

40 C.F.R. Part 60 New Source Performance Standards (NSPS)

Subpart A – General Provisions

63. NSPS Subpart A Notification. Unless exempted by a specific subpart, for any affected facility²¹ or existing facility²² regulated under NSPS requirements in 40 C.F.R. 60, the Permittee shall furnish the Administrator²³ written notification or, if acceptable to both the EPA and the Permittee, electronic notification, as follows:

[18 AAC 50.035 & 50.040(a)(1)]
[40 C.F.R. 60.7(a) & 60.15(d), Subpart A]

63.1. A notification of the date construction (or reconstruction as defined under 40 C.F.R. 60.15) of an affected facility is commenced postmarked no later than 30 days after such date. This requirement shall not apply in the case of mass-produced facilities which are purchased in completed form.

[40 C.F.R. 60.7(a)(1), Subpart A]

63.2. A notification of any physical or operational change to an existing facility which may increase the emission rate of any air pollutant to which a standard applies, unless that change is specifically exempted under an applicable subpart or in 40 C.F.R. 60.14(e). This notice shall be postmarked 60 days or as soon as practicable before the change is commenced and shall include:

- a. information describing the precise nature of the change,
- b. present and proposed emission control systems,
- c. productive capacity of the facility before and after the change, and
- d. the expected completion date of the change.

[40 C.F.R. 60.7(a)(4), Subpart A]

63.3. A notification of the date upon which demonstration of the CMS performance commences in accordance with 40 C.F.R. 60.13(c). Notification shall be postmarked not less than 30 days prior to such date.

[40 C.F.R. 60.7(a)(5), Subpart A]

63.4. A notification that COMS data results will be used to determine compliance with the applicable opacity standard during a performance test required by 40 C.F.R. 60.8 in lieu of Method 9 observation data as allowed by 40 C.F.R. 60.11(c)(5). This

²¹ *Affected facility* means, with reference to a stationary source, any apparatus to which a standard applies, as defined in 40 C.F.R. 60.2.

²² *Existing facility* means, with reference to a stationary source, any apparatus of the type for which a standard is promulgated in this part, and the construction or modification of which was commenced before the date of proposal of that standard; or any apparatus which could be altered in such a way as to be of that type, as defined in 40 C.F.R. 60.2.

²³ The Department defines “the Administrator” to mean “the EPA and the Department.”

notification shall be postmarked not less than 30 days prior to the date of the performance test.

[40 C.F.R. 60.7(a)(7), Subpart A]

- 63.5. A notification of any proposed replacement of an existing facility, for which the fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable entirely new facility, postmarked as soon as practicable, but no less than 60 days before commencement of replacement, and including the following information:

[40 C.F.R. 60.15(d), Subpart A]

- a. the name and address of owner or operator,
- b. the location of the existing facility,
- c. a brief description of the existing facility and the components that are to be replaced,
- d. a description of the existing and proposed air pollution control equipment,
- e. an estimate of the fixed capital cost of the replacements, and of constructing a comparable entirely new facility,
- f. the estimated life of the existing facility after the replacements, and
- g. a discussion of any economic or technical limitations the facility may have in complying with the applicable standards of performance after the proposed replacements.

- 64. NSPS Subpart A Startup, Shutdown, & Malfunction Requirements.** The Permittee shall maintain records of the occurrence and duration of any start-up, shutdown, or malfunction in the operation of EU IDs 2, 4, 6, 9, and 10, any malfunction of associated air-pollution control equipment, or any periods during which a CMS or monitoring device for EU ID 2 is inoperative.

[18 AAC 50.040(a)(1)]

[40 C.F.R. 60.7(b), Subpart A]

- 65. NSPS Subpart A Excess Emissions and Monitoring Systems Performance Report.** For EU ID 2, the Permittee shall submit to the Department and to EPA excess emissions and monitoring systems performance report (EEMSP)²⁴ and/or summary report form (see Condition 66).

- 65.1. The Permittee shall submit the EEMSP report and/or summary report form to EPA quarterly, except that the Permittee may reduce the frequency to semiannually if the conditions of 40 C.F.R. 60.7(e)(1) and(e)(2) are met. The reporting frequency will automatically revert to quarterly if emissions exceed a limit as described above in this condition. The Permittee may again request the Administrator for reduced frequency after demonstrating compliance for another full year.

²⁴ The federal EEMSP report is not the same as the state excess emission report required by Condition 136.

65.2. Written reports of excess emissions shall include the following information:

[18 AAC 50.040(a)(1)]
[40 C.F.R. 60.7(c), Subpart A]

- a. The magnitude of excess emissions computed in accordance with Condition 71.5, any conversion factors used, the date and time of commencement and completion of each time period of excess emissions, and the process operating time during the reporting period.

[40 C.F.R. 60.7(c)(1), Subpart A]

- b. Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of EU ID 2; the nature and cause of any malfunction (if known), and the corrective action taken or preventative measures adopted.

[40 C.F.R. 60.7(c)(2), Subpart A]

- c. The date and time identifying each period during which a CMS was inoperative except for zero and span checks and the nature of any repairs or adjustments.

[40 C.F.R. 60.7(c)(3), Subpart A]

- d. When no excess emissions have occurred or the CMSs have not been inoperative, repaired, or adjusted, such information shall be stated in the report.

[40 C.F.R. 60.7(c)(4), Subpart A]

66. NSPS Subpart A Summary Report Form. The Permittee shall submit to the Department and to EPA one “summary report form” in the format shown in Figure 1 of 40 C.F.R. 60.7 (see Attachment A to the Statement of Basis) for each pollutant monitored for EU ID 2.

[18 AAC 50.040(a)(1)]
[40 C.F.R. 60.7(c) & (d), Subpart A]

- 66.1. If the total duration of excess emissions for the reporting period is less than one percent of the total operating time for the reporting period and CMS downtime for the reporting period is less than five percent of the total operating time for the reporting period, submit a summary report form **unless** the EEMSP report described in Condition 65 is requested, or

[40 C.F.R. 60.7(d)(1), Subpart A]

- 66.2. If the total duration of excess emissions for the reporting period is one percent or greater of the total operating time for the reporting period or the total CMS downtime for the reporting period is five percent or greater of the total time for the reporting period, then submit a summary report form **and the EEMSP** described in Condition 65.

[40 C.F.R. 60.7(d)(2), Subpart A]

67. NSPS Subpart A Performance (Source) Tests. The Permittee shall conduct source tests according to 40 C.F.R. 60.8 and Section 9 on any affected facility at such times as may be required by the Administrator, and shall provide the Department and EPA with a written report of the results of the source test.

[18 AAC 50.040(a)(1)]
[40 C.F.R. 60.8(a), Subpart A]

- 68. NSPS Subpart A Good Air Pollution Control Practice.** At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, maintain and operate EU IDs 2, 4, 6, 9, and 10 including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. The Administrator will determine whether acceptable operating and maintenance procedures are being used based on information available, which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance records, and inspections of EU IDs 2, 4, 6, 9, and 10.

[18 AAC 50.040(a)(1)]
[40 C.F.R. 60.11(d), Subpart A]

- 69. NSPS Subpart A Credible Evidence.** For the purpose of submitting compliance certifications or establishing whether or not the Permittee has violated or is in violation of the standards set forth in Conditions 72, 75, 77, and 79 nothing in 40 C.F.R. Part 60 shall preclude the use, including the exclusive use, of any credible evidence or information, relevant to whether EU IDs 2, 4, 6, 9, and 10 would have been in compliance with applicable requirements of 40 C.F.R. Part 60 if the appropriate performance or compliance test or procedure had been performed.

[18 AAC 50.040(a)(1)]
[40 C.F.R. 60.11(g), Subpart A]

- 70. NSPS Subpart A Concealment of Emissions.** The Permittee shall not build, erect, install, or use any article, machine, equipment or process, the use of which conceals an emission which would otherwise constitute a violation of a standard set forth in Conditions 72, 75, 77, and 81. Such concealment includes, but is not limited to, the use of gaseous diluents to achieve compliance with an opacity standard or with a standard that is based on the concentration of a pollutant in the gases discharged to the atmosphere.

[18 AAC 50.040(a)(1)]
[40 C.F.R. 60.12, Subpart A]

- 71. NSPS Subpart A, Monitoring.** For a CMS required under Conditions 73.1.a and 73.7, the Permittee shall comply as follows:

[18 AAC 50.040(a)(1)]
[40 C.F.R. 60.13(a) Subpart A]

- 71.1. Ensure that all CMS and monitoring devices are installed and operational prior to a performance test conducted under Condition 67. Verification of operational status shall, as a minimum, include completion of the manufacturer's written requirements or recommendations for installation, operation, and calibration of the device.

[40 C.F.R. 60.13(b), Subpart A]

- 71.2. Conduct continuous opacity monitoring system (COMS) or CEMS performance evaluations in accordance with 40 C.F.R. 60.13(c) and at such other times as may be required by the Administrator under section 114 of the Act.

[40 C.F.R. 60.13(c), Subpart A]

- 71.3. Check the zero (or low level value between zero and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily in accordance with 40 C.F.R. 60.13(d).

[40 C.F.R. 60.13(d)(1), Subpart A]

- 71.4. Except for system breakdowns, repairs, calibration checks, and zero and span adjustments required under Condition 71.3, keep all CMS's in operation continuously and as follows:

[40 C.F.R. 60.13(e), Subpart A]

- a. for a COMS, complete a minimum of one cycle of sampling and analyzing for each successive 10-second period and one cycle of data recording for each successive six-minute period; otherwise

[40 C.F.R. 60.13(e)(1), Subpart A]

- b. complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period.

[40 C.F.R. 60.13(e)(2), Subpart A]

- 71.5. Reduce data in accordance with the following:

[40 C.F.R. 60.13(h)(1) – (3), Subpart A]

- a. For CMS for measurement of opacity, reduce all data to six-minute averages. Six-minute opacity averages shall be calculated from 36 or more data points equally spaced over each six-minute period.
- b. For continuous monitoring systems other than opacity reduce all data to one-hour averages for time periods as defined in 40 C.F.R. 60.2. One-hour averages shall be computed in accordance with 40 C.F.R. 60.13(h)(2).
- c. Do not include data recorded during periods of CMS breakdowns, repairs, calibration checks, and zero and span adjustments in the data averages computed under this condition.
- d. The Permittee may use an arithmetic or integrated average of all data, and record data in reduced or non-reduced form (e.g., ppm pollutant percent O₂ or ng/J of pollutant).
- e. Convert all excess emission into units of the standard used in Conditions 72.1, 72.2, 72.3, and 72.4. After conversion, the Permittee may round data to the same number of significant digits as used in the Conditions 72.1, 72.2, 72.3, and 72.4.

NSPS Subpart Da – Electric Utility Steam Generating Units, EU ID 2

- 72. NSPS Subpart Da PM, SO₂, and NO_x Emissions Standards:** The Permittee shall not cause to be discharged into the atmosphere any gases from EU ID 2, listed in Table A, which contain

[18 AAC 50.040(a)(2)(B) & (j) and 50.326(j)]

[40 C.F.R. 71.6(a)(1)
[40 C.F.R. 60.40Da(a), 60.42Da through 60.44Da, Subpart Da]

- 72.1. PM in excess of 0.03 lb/MMBtu heat input, averaged daily based on hourly emission rates of each boiler operating day;²⁵

[40 C.F.R. 60.42Da(a) and 60.48Da(f), Subpart Da]

- 72.2. Opacity greater than 20 percent (6-minute average), except for one 6-minute period per hour of not more than 27 percent opacity; this limit does not apply if the Permittee elects to install, calibrate, maintain, and operate a CEMS for measuring PM emissions according to the requirements of NSPS Subpart Da;²⁶

[40 C.F.R. 60.42Da(b) and (b)(1), Subpart Da]

- 72.3. SO₂ in excess of 0.15 lb/MMBtu heat input, averaged emission rate based on 30 successive boiler operating days; and

[40 C.F.R. 60.43Da(a)(4) & (g), Subpart Da]

- 72.4. NO_x (expressed as NO₂) in excess of

- a. 0.50 lb/MMBtu heat input for sub-bituminous coal, based on a 30-boiler operating day rolling average; or
- b. 0.60 lb/MMBtu heat input for fuel containing more than 25%, by weight lignite²⁷, based on a 30-boiler operating day rolling average.

[40 C.F.R. 60.44Da(a)(1), Subpart Da]

- 73. NSPS Subpart Da Monitoring and Recordkeeping.** For EU ID 2, the Permittee shall comply with the PM, opacity, SO₂, and NO_x emissions standards under Condition 72 at all times, except during periods of startup, shutdown, or malfunction. The Permittee shall monitor and record compliance, as follows:

[40 C.F.R. 60.48Da(a), Subpart Da]

Particulate Matter (PM) and Opacity

- 73.1. When using a COMS to determine compliance with the PM emissions limit in Condition 72.1, the Permittee shall comply with the opacity limit in Condition 72.2.²⁸ The Permittee shall comply with the following:

[40 C.F.R. 60.48Da(q) and 60.49Da(a), Subpart Da]

²⁵ As defined in 40 C.F.R. 60.41Da, *boiler operating day* for units constructed, reconstructed, or modified before March 1, 2005, means a 24-hour period during which fossil fuel is combusted in a steam-generating unit for the entire 24 hours. Also, see footnote 26.

²⁶ Per 40 C.F.R. 60.42Da(b)(1), an owner or operator of an affected facility that elects to install, calibrate, maintain, and operate a CEMS for measuring PM emissions is exempt from the opacity standard specified in Condition 72.2. The Permittee currently uses a COMS to demonstrate compliance with the Subpart Da PM standard. The Permittee has installed a PM CEMS (as part of the CD requirements, see Condition 41) and may elect to demonstrate compliance with Subpart Da PM requirements in the future using a PM CEMS on EU ID 2.

²⁷ Testing on coal burned in EU ID 2 indicates that the coal can be sub-bituminous or lignite. Any fuel containing less than 25%, by weight, lignite is not prorated but its percentage is added to the percentage of the predominant fuel.

²⁸ See footnote 26.

- a. Install, calibrate, maintain, and operate a COMS, and record the output of the system, for measuring the opacity of emissions discharged to the atmosphere.
 - b. If opacity interference due to water droplets exists in the stack (for example, from the use of an FGD system), monitor the opacity upstream of the interference (at the inlet to the FGD system).
 - c. If opacity interference is experienced at all locations (both at the inlet and outlet of the SO₂ control system), monitor alternate parameters (subject to the approval of the Administrator) indicative of the PM control system's performance and/or good combustion.

[40 C.F.R. 60.49Da(a)(1), Subpart Da]
 - d. In conducting monitoring system performance evaluations under 40 C.F.R. 60.13(c) (Condition 71.2) and calibration checks under 40 C.F.R. 60.13(d) (Condition 71.3), the span value for a COMS is between 60 and 80 percent.

[40 C.F.R. 60.49Da(i)(3), Subpart Da]
- 73.2. When using a PM CEMS to determine compliance with the PM emissions limit in Condition 72.1, the Permittee shall comply as follows:
- a. To determine the daily average emission rate, calculate the arithmetic average of all hourly emission rates recorded in the PM CEMS each boiler operating day, except for data obtained during startup, shutdown, or malfunction periods. Calculate the 1-hour averages expressed in lb/MMBtu heat input using the data points required under 40 C.F.R. 60.13(h)(2).
 - b. Daily averages are only calculated for boiler operating days that have non-out-of-control²⁹ data for at least 18 hours of unit operation during which the standard applies.
 - c. To determine compliance for operating day(s) not meeting the minimum 18 hours non-out-of-control data, average all of the non-out-of-control hourly emission rates during those days with all of the non-out-of-control hourly emission rates of the next boiler operating day with 18 hours or more of non-out-of-control PM CEMS data.

[40 C.F.R. 60.48Da(f) and 60.49Da(g), Subpart Da]
- 73.3. In conducting the performance tests required in Condition 67 (40 C.F.R. 60.8), the Permittee shall use as reference methods and procedures the methods in Appendix A of 40 C.F.R. 60 or the methods and procedures as specified Condition 73.4, except as provided in 40 C.F.R. 60.8(b).

²⁹ *Out-of-control period* means any period beginning with the quadrant corresponding to the completion of a daily calibration error, linearity check, or quality assurance audit that indicates that the instrument is not measuring and recording within the applicable performance specifications and ending with the quadrant corresponding to the completion of an additional calibration error, linearity check, or quality assurance audit following corrective action that demonstrates that the instrument is measuring and recording within the applicable performance specifications. [40 C.F.R. 60.41Da, Subpart Da]

[40 C.F.R. 60.50Da(a), Subpart Da]

- 73.4. In conducting performance tests to determine compliance with the PM emissions limit in Condition 72.1, the Permittee shall measure filterable PM as specified in 40 C.F.R. 60.50Da(b)(1)(i) through (ii).

[40 C.F.R. 60.50Da(b)(1)(i) & (ii), Subpart Da]

SO₂ and NO_x

- 73.5. Determine compliance with the SO₂ and NO_x emissions limits in Conditions 72.3 and 72.4, as follows:

- a. To determine the 30-boiler operating day rolling average emissions rates, calculate the arithmetic average of all hourly emission rates recorded in the CEMS for each of SO₂ and NO_x for the 30 successive boiler operating days, except for data obtained during startup, shutdown, or malfunction. Calculate the 1-hour averages expressed in lb/MMBtu heat input using the data points required under 40 C.F.R. 60.13(h)(2).

[40 C.F.R. 60.48Da(d) and 60.49Da(g), Subpart Da]

- b. Use the data from CEMS required in Condition 73.7 and/or Condition 73.8 to determine the concentrations of SO₂, NO_x, and CO₂ or O₂.

[40 C.F.R. 60.50Da(c)(5) and 60.50Da(d)(2), Subpart Da]

- 73.6. In conducting the performance tests required in Condition 67 (40 C.F.R. 60.8), the Permittee shall use the appropriate procedures in Method 19 of 40 C.F.R. 60 Appendix A to determine the SO₂ and NO_x emission rates, except as provided in 40 C.F.R. 60.8(b). For SO₂ and NO_x, 40 C.F.R. 60.8(f) does not apply.

[40 C.F.R. 60.50Da(a) & (c)(4), Subpart Da]

CEMS Requirements

- 73.7. For EU ID 2, the Permittee shall install, calibrate, maintain, and operate a CEMS, and record the output of the system, for measuring:

- a. PM³⁰ emissions as discharged to the atmosphere;
b. SO₂ emissions as discharged to the atmosphere;
c. NO_x emissions as discharged to the atmosphere; and
d. the O₂ or carbon dioxide (CO₂) content of the flue gases at each location where SO₂ or NO_x emissions are monitored.

[40 C.F.R. 60.49Da(b)(2), (c)(1), & (d), Subpart Da]

- 73.8. If the Permittee has installed and certified a SO₂ CEMS according to the requirements of 40 C.F.R. 75.20(c) and Appendix A to 40 C.F.R. 75, and is continuing to meet the ongoing quality assurance requirements of 40 C.F.R. 75.21

³⁰ See footnote 26.

and Appendix B to 40 C.F.R., that CEMS may be used to meet the emissions monitoring requirements under this subpart, provided that:

- a. a CO₂ or O₂ continuous monitoring system is installed, calibrated, maintained and operated at the same location, according to the same procedures specified in Condition 73.8;
- b. when relative accuracy testing is conducted, SO₂ concentration data and CO₂ (or O₂) data are collected simultaneously;
- c. in addition to meeting the applicable SO₂ and CO₂ (or O₂) relative accuracy specifications in Figure 2 of Appendix B to 40 C.F.R. 75, the relative accuracy (RA) standard in Section 13.2 of Performance Specification 2 in Appendix B to 40 C.F.R. 60 is met when the RA is calculated on a lb/MMBtu basis; and
- d. the reporting requirements of 40 C.F.R. 60.51Da (Condition 74) are met. The SO₂ and, if required, CO₂ (or O₂) data reported to meet the requirements of 40 C.F.R. 60.51Da shall not include substitute data values derived from the missing data procedures in Subpart D of 40 C.F.R. 75, nor shall the SO₂ data have been bias adjusted according to the procedures of 40 C.F.R. 75.

[40 C.F.R. 60.49Da(b)(4) & (d), Subpart Da]

73.9. For CEMS required under Condition 73.7, the Permittee shall

- a. operate and record data of the CEMS during all periods of operation of EU ID 2 including periods of startup, shutdown, and malfunction, except for CEMS breakdowns, repairs, calibration checks, and zero and span adjustments;

[40 C.F.R. 60.49Da(e), Subpart Da]

- b. obtain emission data for at least 18 hours in at least 22 out of 30 successive boiler operating days. If this minimum data requirement cannot be met,

- (i) the Permittee shall supplement emission data with other monitoring systems approved by the Administrator or the reference methods and procedures as described in 40 C.F.R. 60.49Da(h); or

- (ii) use the acceptable alternative methods and procedures provided in 40 C.F.R. 60.49Da(j);

[40 C.F.R. 60.49Da(f)(1), (h), & (j), Subpart Da]

73.10. The Permittee shall use methods and procedures in 40 C.F.R. 60.49Da(i) to conduct monitoring system performance evaluations under 40 C.F.R. 60.13(c) (Condition 71.2) and calibration checks under 40 C.F.R. 60.13(d) (Condition 71.3). As an alternative, the Permittee may use the acceptable methods and procedures provided in 40 C.F.R. 60.49Da(j).

[40 C.F.R. 60.49Da(i) & (j), Subpart Da]

73.11. The Permittee shall install, certify, operate, and maintain each CEMS in accordance with the applicable procedures in Performance Specification 2 or 3 in Appendix B to 40 C.F.R. 60 or according to the procedures in Appendices A and B to 40 C.F.R. 75.

- a. Perform daily calibration drift assessments and quarterly accuracy determinations in accordance with Procedure 1 in Appendix F to 40 C.F.R. 60;
- b. Prepare a data assessment report (DAR), according to Section 7 of Procedure 1 in Appendix F to 40 C.F.R. 60; and
- c. Submit with each compliance report required under Condition 74.2 the DAR required in Condition 73.11.b.

[40 C.F.R. 60.49Da(w)(1), Subpart Da]

73.12. As an alternative to meeting the requirements of Condition 73.11, the Permittee may elect to implement any of the alternative data accuracy assessment procedures described in 40 C.F.R. 60.49Da(w)(2) through (4). Each data assessment report shall include a summary of the results of all of the relative accuracy test audits (RATAs), linearity checks, cylinder gas audits (CGAs), and calibration error or drift assessments required in the elected alternative procedure.

[40 C.F.R. 60.49Da(w)(2) through (5), Subpart Da]

73.13. The Permittee shall install, certify, operate, and maintain the CEMS used to measure PM emissions to meet the requirements of this subpart, as follows:

- a. Conduct a performance evaluation of the CEMS according to the applicable requirements of 40 C.F.R. 60.13, Performance Specification 11 in Appendix B 40 C.F.R. 60, and Procedure 2 in Appendix F of 40 C.F.R. 60.
- b. During each PM correlation testing run of the CEMS required by Performance Specification 11 in Appendix B of 40 C.F.R. 60, PM and O₂ (or CO₂) data shall be collected concurrently (or within a 30- to 60-minute period) by both the CEMS and performance tests conducted using the following test methods:
 - (i) For PM, Method 5 or 5B of appendix A-3 of 40 C.F.R. 60 or Method 17 of Appendix A-6 of 40 C.F.R. 60 shall be used; and
 - (ii) For O₂ (or CO₂), Method 3A or 3B of appendix A-2 of 40 C.F.R. 60, as applicable shall be used.
- c. Quarterly accuracy determinations and daily calibration drift tests shall be performed in accordance with Procedure 2 in Appendix F of 40 C.F.R. 60. Relative Response Audit's must be performed annually and Response Correlation Audits must be performed every 3 years.
- d. Within 90 days after the date of completing each performance test, as defined in 40 C.F.R. 60.8, conducted to demonstrate compliance with this subpart, submit relative accuracy test audit (i.e., reference method) data and performance test (i.e., compliance test) data, except opacity data, electronically to EPA's Central Data Exchange (CDX) by using the Electronic Reporting Tool (ERT) (see [http://www.epa.gov/ttn/chief/ert/ert tool.html/](http://www.epa.gov/ttn/chief/ert/ert%20tool.html)) or other compatible electronic spreadsheet. Only data collected using test methods compatible with ERT are subject to this requirement to be submitted electronically into EPA's WebFire database.

[40 C.F.R. 60.49Da(v), Subpart Da]

73.14. The Permittee shall prepare and submit to the EPA Administrator for approval a unit-specific monitoring plan for each monitoring system, at least 45 days before commencing certification testing of the monitoring systems. The Permittee shall comply with the requirements in the plan. The plan must address the following requirements:

- a. Installation of the CEMS sampling probe or other interface at a measurement location relative to each affected process unit such that the measurement is representative of the exhaust emissions (e.g., on or downstream of the last control device);
- b. Performance and equipment specifications for the sample interface, the pollutant concentration or parametric signal analyzer, and the data collection and reduction systems;
- c. Performance evaluation procedures and acceptance criteria (e.g., calibrations, RATA, etc.);
- d. Ongoing operation and maintenance procedures in accordance with the general requirements of 40 C.F.R. 60.13(d) or 40 C.F.R. 75 (as applicable);
- e. Ongoing data quality assurance procedures in accordance with the general requirements of 40 C.F.R. 60.13 or 40 C.F.R. 75 (as applicable); and
- f. Ongoing recordkeeping and reporting procedures in accordance with the requirements of this subpart.

[40 C.F.R. 60.49Da(s), Subpart Da]

74. NSPS Subpart Da Reporting. For EU ID 2, the Permittee shall report as follows:

74.1. For SO₂, NO_x, and PM emissions, the Permittee shall submit to the Administrator the performance test data from subsequent performance tests and from the performance evaluation of the continuous monitors (including the transmissometer).

[40 C.F.R. 60.51Da(a), Subpart Da]

74.2. The Permittee shall submit to the EPA Administrator semiannually for each six-month period, postmarked by the 30th day following the end of each six-month period, the associated Subpart A reporting requirements in Conditions 65 and 66 and the following written reports required in Conditions 74.2.a through 74.2.d:

[40 C.F.R. 60.51Da(j), Subpart Da]

- a. For SO₂ and NO_x, for each 24-hour period emissions data, report to the EPA the following information:
 - (i) Calendar date.
 - (ii) The average SO₂ and NO_x emission rates (ng/J or lb/MM Btu) for each 30 successive boiler operating days, ending with the last 30-day period in the

quarter; reasons for non-compliance with the emission standards; and, description of corrective actions taken.

- (iii) Identification of the boiler operating days for which pollutant or diluent data have not been obtained by an approved method for at least 75% of the hours of operation of the facility; justification for not obtaining sufficient data; and description of corrective actions taken.
- (iv) Identification of the times when emissions data have been excluded from the calculation of average emission rates because of startup, shutdown, or malfunction.
- (v) Identification of “F” factor used for calculations, method of determination, and type of fuel combusted.
- (vi) Identification of times when hourly averages have been obtained based on manual sampling methods.
- (vii) Identification of the times when the pollutant concentration exceeded full span of the CEMS.
- (viii) Description of any modifications to CEMS which could affect the ability of the CEMS to comply with Performance Specifications 2 or 3.

[40 C.F.R. 60.51Da(b)(1), (2), & (4-9), Subpart Da]

- b. If the minimum quantity of emission data as required by Condition 73.9.b is not obtained for any 30 successive boiler operating days, report to the EPA Administrator the following information for that 30-day period:

- (i) The number of hourly averages available for outlet emission rates (n_o) and inlet emission rates (n_i) as applicable.
- (ii) The standard deviation of hourly averages for outlet emission rates (s_o) and inlet emission rates (s_i) as applicable.
- (iii) The lower confidence limit for the mean outlet emission rate (E_o^*) and the upper confidence limit for the mean inlet emission rate (E_i^*) as applicable.
- (iv) The applicable potential combustion concentration.
- (v) The ratio of the upper confidence limit for the mean outlet emission rate (E_o^*) and the allowable emission rate (E_{std}) as applicable.

[40 C.F.R. 60.51Da(c), Subpart Da]

- c. For any periods for which SO_2 or NO_x emissions data are not available, the Permittee shall submit a signed statement indicating if any changes were made in operation of the emission control system during the period of data unavailability. Compare the operations of the control system and affected facility during periods of data unavailability with the operation of the control system and affected facility before and following the period of data unavailability.

[40 C.F.R. 60.51Da(f), Subpart Da]

- d. The Permittee shall submit a signed statement indicating whether:
- (i) The required CEMS calibration, span, and drift checks or other periodic audits have or have not been performed as specified.
 - (ii) The data used to show compliance was or was not obtained in accordance with approved methods and procedures of 40 C.F.R. 60 and is representative of plant performance.
 - (iii) The minimum data requirements have or have not been met; or, the minimum data requirements have not been met for errors that were unavoidable.
 - (iv) Compliance with the standards has or has not been achieved during the reporting period.

[40 C.F.R. 60.51Da(h), Subpart Da]

- 74.3. The Permittee may submit electronic quarterly reports for SO₂ and/or NO_x in lieu of submitting the written reports required under Condition 74.2. The format of each quarterly electronic report shall be consistent with Conditions 133 and 134.1. The electronic report(s) shall be submitted no later than 30 days after the end of the calendar quarter and shall be accompanied by a certification statement from the owner or operator, indicating whether compliance with the applicable emission standards and minimum data requirements of this subpart was achieved during the reporting period. Before submitting reports in the electronic format, the Permittee shall coordinate with the Department to obtain their agreement to submit reports in this alternative format.

[40 C.F.R. 60.51Da(k), Subpart Da]

- 74.4. Notify the Department in accordance with Condition 136 if any of the requirements in Conditions 72 through 74 were not met.

[18 AAC 50.040(j)(4) and 50.326(j)(4)]

[40 C.F.R. 71.6(a)(3)(iii) & (c)(6)]

NSPS Subpart Dc – Steam Generating Units, EU ID 4

75. **NSPS Subpart Dc SO₂ Standards.** For EU ID 4 listed in Table A, the Permittee shall at all times, including periods of startup, shutdown, and malfunction, **either**:

- 75.1. emit no more than 0.5 lb SO₂/MMBtu (215 ng/J) heat input from fuel oil combusted,
or
- 75.2. combust fuel oil that contains no more than 0.5 percent sulfur by weight.

[18 AAC 50.040(a)(2)(D) & (j) and 50.326(j)]
[40 C.F.R. 71.6((a)(1)
[40 C.F.R. 60.42c(d) & (i), Subpart Dc]

76. NSPS Subpart Dc SO₂ MR&R Requirements.. For EU ID 4, the Permittee shall monitor, record, and report, as follows:

[18 AAC 50.040(a)(2)(D) & (j) and 50.326(j)]
[40 C.F.R. 71.6(a)(3)(i) through (iii)]

76.1. Demonstrate compliance with the SO₂ emission standards in Condition 75 based on a certification from the fuel supplier.

[40 C.F.R. 60.42c(h)(1) and 60.44c(h), Subpart Dc]

76.2. Maintain records consistent with Condition 132 and keep records of the following:

- a. the information required under Condition 76.3; and
- b. the amount of each fuel combusted during each operating day, or as an alternative, during each calendar month.

[40 C.F.R. 60.48c(e) and (g)(1) & (2), Subpart Dc]

76.3. Submit reports to the Administrator, as follows:

[40 C.F.R. 60.48c(d) and (e), Subpart Dc]

- a. The reports shall cover each six-month period and shall be postmarked by the 30th day following the end of the reporting period.

[40 C.F.R. 60.48c(j), Subpart Dc]

- b. Include the calendar dates covered in the reporting period and a certified statement signed by the Permittee that the records of fuel supplier certifications submitted represent all of the fuel combusted during the reporting period.

[40 C.F.R. 60.48c(e)(l) & (11), Subpart Dc]

- c. Fuel supplier certification shall include the following information for distillate oil:

- (i) the name of the oil supplier;
- (ii) a statement from the oil supplier that the oil complies with the specifications under the definition of distillate oil in 40 C.F.R. 60.41c³¹; and
- (iii) the sulfur content or maximum sulfur content of the oil.

[40 C.F.R. 60.48c(f)(l), Subpart Dc]

³¹ As defined in 40 C.F.R. 60.41c, *distillate oil* means fuel oil that complies with the specifications for fuel oil numbers 1 or 2, as defined in American Society for Testing and Materials (ASTM) D396, diesel fuel oil numbers 1 or 2, as defined in ASTM D975, kerosine, as defined in ASTM D3699, biodiesel as defined in ASTM D6751, or biodiesel blends as defined in ASTM D7467 (all incorporated by reference, see 40 C.F.R. 60.17).

NSPS Subpart OOO – Non-Metallic Mineral Processing, EU ID 9

- 77. NSPS Subpart OOO PM Emission Standards.** For EU ID 9 (consisting of mills, sodium bicarbonate silo, and baghouse), listed in Table A, the Permittee shall comply with the following emissions standards:³²

[18 AAC 50.040(a)(2)(FF) & (j) and 50.326(j)]
[40 C.F.R. 71.6((a)(1)
[40 C.F.R. 60.672, Subpart OOO]

- 77.1. For affected facilities with capture systems used to capture and transport particulate matter (PM) to a control device, limit stack emissions into the atmosphere to no more than 0.05 g/dscm (0.022 gr/dscf) PM and no more than 7 percent opacity.

[40 C.F.R. 60.672(a) and Table 2, Subpart OOO]

- 77.2. For any baghouse that controls emissions from only an individual, enclosed storage bin, do not cause stack emissions which exhibit greater than 7 percent opacity.

[40 C.F.R. 60.672(f) and Table 2, Subpart OOO]

- 77.3. For fugitive emissions from affected facilities without capture systems and for fugitive emissions escaping capture systems, limit emissions into the atmosphere to no more than the following opacities, based on the average of the five 6-minute averages described in Condition 78.3.c:

- a. 10 percent opacity for grinding mills, screening operations, bucket elevators, transfer points on belt conveyors, bagging operations, storage bins, enclosed truck or railcar loading stations or from any other affected facility; and
- b. 15 percent opacity for crushers at which a capture system is not used.

[40 C.F.R. 60.672(b) and Table 3, Subpart OOO]

- 77.4. For emissions from the building enclosing EU ID 9, the Permittee shall not allow:

- a. fugitive emissions from the building openings to exceed 7 percent opacity, based on the average of the five 6-minute averages described in Condition 78.3.c; and
- b. emissions from the building vents to exceed 0.05 g/dscm (0.022 gr/dscf) PM and 7 percent opacity.

[40 C.F.R. 60.672(e)(1) & (2) and Table 2, Subpart OOO]

- 78. NSPS Subpart OOO Monitoring.** After the initial compliance test required under 40 C.F.R. 60.8, the Permittee shall conduct performance tests to demonstrate compliance with the emissions limits in Condition 77, at such other times as may be required by the EPA or the Department under Condition 67, using the applicable test methods and procedures described in 40 C.F.R. 60.675, as follows:

[18 AAC 50.040(a)(2)(FF), 50.040(j)(4), and 50.326(j)(4)]
[40 C.F.R. 71.6(a)(3)(i) & (c)(6)]

³² Per 40 C.F.R. 60.672(d), truck dumping of nonmetallic minerals into any screening operation, feed hopper, or crusher is exempt from the requirements of 40 C.F.R. 60.672 (Standards for PM).

[40 C.F.R. 60.675(a), Subpart OOO; 40 C.F.R. 60.8(a), Subpart A]

78.1. Determine compliance with the PM standards for stack emissions in Condition 77.1 by

- a. using 40 C.F.R. 60 Method 5 of Appendix A-3 or Method 17 of Appendix A-6 for the PM concentration; and
- b. using 40 C.F.R. 60 Method 9 of Appendix A-4 and the procedures in 40 C.F.R. 60.11 for the opacity limit.

[40 C.F.R. 60.675(b)(1) & (2), Subpart OOO]

78.2. Determine compliance with the PM standards for stack emissions in Condition 77.2 by using 40 C.F.R. 60 Method 9 of Appendix A-4.

- a. The duration of the Method 9 observations shall be 1 hour (ten 6-minute averages); or
- b. For baghouses that control storage bins or enclosed truck or railcar loading stations that operate for less than 1 hour at a time, the duration of the Method 9 observations may be reduced to the duration EU ID 9 operates but not less than 30 minutes.

[40 C.F.R. 60.675(c)(2), Subpart OOO]

78.3. Determine compliance with the PM standards for fugitive emissions in Condition 77.3 or Condition 77.4.a by using 40 C.F.R. 60 Method 9 of Appendix A-4 and the procedures in 40 C.F.R. 60.11, and as follows:

- a. The minimum distance between the observer and the emission source shall be 4.57 meters (15 feet);
- b. The observer shall, when possible, select a position that minimizes interference from other fugitive emission sources (*e.g.*, road dust). The required observer position relative to the sun (see 40 C.F.R. 60 Method 9 of Appendix A-4, Section 2.1) must be followed; and
- c. The duration of the Method 9 observations must be 30 minutes (five 6-minute averages). Compliance with the applicable fugitive emission limits in Condition 77.3 must be based on the average of the five 6-minute averages.

[40 C.F.R. 60.675(c)(1) & (3), Subpart OOO]

78.4. The Permittee may use alternative test methods and procedures, as allowed under 40 C.F.R. 60.675(e).

[40 C.F.R. 60.675(a) & (e), Subpart OOO]

78.5. For performance tests involving only Method 9 testing, the Permittee may reduce the 30-day advance notification of performance test required in 40 C.F.R. 60.7(a)(6) and 60.8(d) to a 7-day advance notification.

[40 C.F.R. 60.675(a) & (g), Subpart OOO]

- 79. NSPS Subpart OOO Recordkeeping.** For EU ID 9, record all information required for reporting under Condition 80.

[18 AAC 50.040(j)(4) and 18 AAC 50.326(j)(4)]
[40 C.F.R. 71.6(a)(3)(ii) & (c)(6)]

- 80. NSPS Subpart OOO Reporting.** For EU ID 9, the Permittee shall report, as follows:

[18 AAC 50.040(j) and 18 AAC 50.326(j)]
[40 C.F.R. 71.6(a)(3)(iii)]

- 80.1. Submit to EPA Region 10 written reports of the results of all Method 9 observations conducted under Condition 78.

[40 C.F.R. 60.676(f), Subpart OOO]

- 80.2. Report in accordance with Condition 136, whenever any of the emission limits of Condition 77 is exceeded.

[18 AAC 50.040(j)(4) and 18 AAC 50.326(j)(4)]
[40 C.F.R. 71.6(a)(3)(iii) & (c)(6)]

NSPS Subpart Y – Coal Preparation and Processing Plants, EU IDs 6 and 10

- 81. NSPS Subpart Y Opacity Standard.** The Permittee shall not cause EU IDs 6 and 10, listed in Table A, to discharge gases into the atmosphere which exhibit 20 percent opacity or greater.

[18 AAC 50.040(a)(2)(T) & (j) and 50.326(j)]
[40 C.F.R. 71.6(a)(1) & (3)(i) through (iii) & (c)(6)]
[40 C.F.R. 60.250(a) & (b) and 60.254(a)]

- 81.1. Monitor, record and report, as follows:

- a. Determine compliance with the opacity standard specified in Condition 81 using 40 C.F.R. 60 Method 9 Appendix A-4 and the procedures of 40 C.F.R. 60.11, and as specified 40 C.F.R. 60.257(a)(1) through (3).
 - (i) The duration of the Method 9 observation shall be 1 hour (ten 6-minute averages).
 - (ii) If, during the initial 30 minutes of the Method 9 observation, all of the 6-minute average opacity readings are less than or equal to 10 percent opacity, then the observation period may be reduced from 1 hour to 30 minutes.
 - (iii) To determine opacity for fugitive coal dust emissions sources, the additional requirements specified in 40 C.F.R. 60.257(a)(2)(i) through (iii) must be used.
 - (iv) A visible emissions observer may conduct visible emission observations for up to three fugitive, stack, or vent emission points within a 15-second interval as specified in 40 C.F.R. 60.257(a)(3)(i) through (iii).

- b. Conduct the Method 9 observations required under this condition to coincide with the monitoring schedule for EU IDs 6 and 10 in Condition 2.
- c. Keep records of the results of all Method 9 observations required under this condition and the information required under Condition 3.1.
- d. Include in each operating report required under Condition 137 copies of the records required in Condition 81.1.c for the Method 9 observations conducted during the reporting period.
- e. Report under Condition 136 the results of Method 9 observations that exceed the opacity standard in Condition 81.

[18 AAC 50.040(j)(4) and 18 AAC 50.326(j)(4)]
[40 C.F.R. 71.6(a)(3)(i) & (c)(6)]
[40 C.F.R. 60.255(a) and 60.257(a)(1) through (3)]

40 C.F.R. Part 63 National Emission Standards for Hazardous Air Pollutants (NESHAP)

NESHAP Subpart A – General Provisions

- 82. NESHAP Subpart A.** The Permittee shall comply with the applicable requirements of 40 C.F.R. 63 Subpart A in accordance with the provisions for applicability of Subpart A in Table 8 to Subpart ZZZZ for EU IDs 5 and 13, Table 8 to Subpart JJJJJ for EU IDs 3 and 4, and Table 9 to Subpart UUUUU for EU IDs 1 and 2.

[18 AAC 50.040(c)(1) & (j) and 50.326(j)]
[40 C.F.R. 71.6(a)(1)]
[40 C.F.R. 63.1-63.15, Subpart A]
[40 C.F.R. 63.6665 & Table 8, Subpart ZZZZ]
[40 C.F.R. 63.11235 & Table 8, Subpart JJJJJ]
[40 C.F.R. 63.10040 & Table 9, Subpart UUUUU]

NESHAP Subpart ZZZZ³³ – Compression Ignition Reciprocating Internal Combustion Engines, EU IDs 5 and 13

- 83. NESHAP Subpart ZZZZ Applicability.** For EU IDs 5 and 13, listed in Table A, the Permittee shall comply with applicable requirements for existing³⁴ emergency (EU ID 5) and nonemergency (EU ID 13)³⁵ stationary compression ignition reciprocating internal combustion engines (CI RICE), located at an area source of hazardous air pollutant (HAP) emissions.

[18 AAC 50.040(c)(23) & (j) and 50.326(j)]
[40 C.F.R. 71.6((a)(1)]

³³ The provisions of NESHAP Subpart ZZZZ listed in Conditions 83 through 88 are current as of February 27, 2014. Should EPA promulgate revisions to this subpart, the Permittee shall be subject to the revised final provisions as promulgated and not the superseded provisions summarized in these conditions.

³⁴ In accordance with 40 C.F.R. 6590(a)(1)(iii), a stationary RICE located at an area source of HAP emissions is *existing* if you commenced construction or reconstruction of the stationary RICE before June 12, 2006.

³⁵ Although EU ID 13 is a firewater pump engine, the Permittee opts to classify it as existing non-emergency CI engine for purposes of compliance with NESHAP Subpart ZZZZ requirements because the engine is less than 300 hp.

[40 C.F.R. 63.6585(c) & 63.6590(a)(1)(iii), Subpart ZZZZ]

84. NESHAP Subpart ZZZZ Good Air Pollution Control Practices. The Permittee shall comply with the applicable requirements for RICE located at an area source of HAPs as follows:

- 84.1. At all times, operate and maintain EU IDs 5 and 13, including any associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require any further efforts to reduce emissions if levels required by this standard have been achieved. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator which may include, but not limited to monitoring results, review of operation, maintenance procedures and records, and inspection of EU IDs 5 and 13.

[40 C.F.R. 63.6605, Subpart ZZZZ]

- a. The Permittee shall operate and maintain EU IDs 5 and 13 and after-treatment control device (if any) according to either
- (i) the manufacturer's emission related written operation and maintenance instructions; or
 - (ii) a maintenance plan developed by the Permittee which must provide, to the extent practicable, for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions.

[40 C.F.R. 63.6625(c)(3), 63.6640(a) & Table 6 (item 9), Subpart ZZZZ]

85. NESHAP Subpart ZZZZ Fuel Requirements. For EU ID 5, the Permittee shall use diesel fuel that meets the requirements in 40 C.F.R. 80.510(b) for nonroad diesel fuel, as follows:³⁶

85.1. Sulfur content of 15 ppm maximum per-gallon standards; and

85.2. Cetane index or aromatic content, as follows:

- a. A minimum cetane index of 40; or
- b. A maximum aromatic content of 35 volume percent.

[18 AAC 50.040(c)(23) & (j); 18 AAC 50.326(j)]

[40 C.F.R. 71.6(a)(1)]

[40 C.F.R. 60.6604(b); 80.510(b), Subpart I]

86. NESHAP Subpart ZZZZ Work and Management Practices and Monitoring. The Permittee shall comply with the following work and management practices:

[18 AAC 50.040(c)(23) & (j); 18 AAC 50.326(j)]

[40 C.F.R. 71.6(a)(3)(i)]

³⁶ The fuel requirements under Condition 85 was in effect beginning January 1, 2015. Any existing diesel fuel purchased (or otherwise obtained) prior to January 1, 2015, may be used until depleted.

- 86.1. Except during periods of startup, comply with the following:
- a. Change oil and filter every 500 hours for EU ID 5 (emergency CI RICE) and 1,000 hours for EU ID 13 (non-emergency CI RICE) of operation, or annually, whichever comes first. The Permittee may use an oil analysis program as described in 40 C.F.R. 63.6625(i) to extend the specified oil change requirement;
 - b. Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first, and replace as necessary; and
 - c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.
- 86.2. During periods of startup, minimize the engine's time spent at idle during startup and minimize the engine's start up time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes.
- [40 C.F.R. 63.6603(a) & (b), 63.6625(h) & (i), & Table 2d (items 1 & 4), Subpart ZZZZ]
[40 C.F. R. 63, Footnotes 1 & 2 to Table 2d, Subpart ZZZZ]
- 86.3. If EU ID 5 is operating during an emergency and it is not possible to shut down the engine in order to perform the management practice requirements on the schedule required under Condition 86.1.a, or if performing the management practice on the required schedule would otherwise pose an unacceptable risk under Federal, State, or local law, the management practice can be delayed until the emergency is over or the unacceptable risk under Federal, State, or local law has abated. The management practice should be performed as soon as practicable after the emergency has ended or the unacceptable risk under Federal, State, or local law has abated.
- [40 C.F.R. 63.6603(b), 63.6625(h) & (i), & Table 2d (items 1 & 4), Subpart ZZZZ]
[40 C.F. R. 63, Footnotes 1 & 2 to Table 2d, Subpart ZZZZ]
- 86.4. For existing emergency stationary CI RICE, EU ID 5, the Permittee shall comply with the following:
- a. Monitor the operating time using the non-resettable hour meter installed on the unit.
- [40 C.F.R. 63.6625(f), Subpart ZZZZ]
- b. Operate according to the requirements of Conditions 86.4.b(i) through 86.4.b(iii). In order for the engine to be considered an emergency stationary RICE under this subpart, any operation other than emergency operation, maintenance and testing, emergency demand response, and operation in non-emergency situations for 50 hours per year, as described in Conditions 86.4.b(i) through 86.4.b(iii), is prohibited. If you do not operate the engine according to the requirements in Conditions 86.4.b(i) through 86.4.b(iii), the engine will not be considered an emergency engine under Subpart ZZZZ and must meet all requirements for non-emergency engines.
- (i) There is no time limit on the use of EU ID 5 in emergency situations.

- (ii) The Permittee may operate EU ID 5 for any combination of the purposes specified in 40 C.F.R. 63.6640(f)(2)(i) through (iii) for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by Condition 86.4.b(iii) counts as part of the 100 hours per calendar year allowed by this condition.
- (iii) The Permittee may operate EU ID 5 up to 50 hours per calendar year in non-emergency situations and for emergency demand response provided in Condition 86.4.b(ii). Except as provided in 40 C.F.R. 63.6640(f)(4)(i) and (ii), the 50 hours per calendar year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

[40 C.F.R. 63.6640(f)(1), (2) & (4), Subpart ZZZZ]

87. NESHAP Subpart ZZZZ Recordkeeping Requirements. The Permittee shall keep records of EU IDs 5 and 13, as follows:

- 87.1. Keep records of the maintenance conducted on each of EU IDs 5 and 13, to demonstrate that the Permittee operated and maintained the stationary RICE and after-treatment control device (if any) according to its own maintenance plan if electing to comply with Condition 84.1.a(ii), including, but not limited to, the parameters analyzed, the results of the oil analysis, and the oil changes for the engine as part of the oil analysis program described in Condition 86.1.a.

[40 C.F.R. 63.6655(e)(2) & (3) & 63.6625(i), Subpart ZZZZ]

- 87.2. Keep records of the hours of operation of EU ID 5 recorded through the non-resettable hour meter. Document how many hours are spent for emergency operation, including what classified the operation as emergency and how many hours are spent for non-emergency operation. If the engine is used for the purposes specified in 40 C.F.R. 63.6640(f)(2)(ii) or (iii) or 40 C.F.R. 63.6640(f)(4)(ii), keep records of the notification of the emergency situation, and the date, start time, and end time of engine operation for these purposes.

[40 C.F.R. 63.6655(f)(2), Subpart ZZZZ]

- 87.3. Keep records in a form suitable and readily available for expeditious inspection and review, readily accessible in hard copy or electronic form, and for at least five years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.

[40 C.F.R. 63.6660, 63.6665, and Table 8, Subpart ZZZZ]

[40 C.F.R. 63.10(b)(1), Subpart A]

88. NESHAP Subpart ZZZZ Reporting Requirements. The Permittee shall report as follows:

- 88.1. Include in the operating report required by Condition 137,

- a. a report of Subpart ZZZZ deviations as defined in 40 C.F.R. 63.6675 and of each instance in which an applicable requirement in 40 C.F.R. 63, Subpart A (Table 8 of Subpart ZZZZ) was not met;
[40 C.F.R. 63.6640(e), 63.6650(f), Subpart ZZZZ]
 - b. records of the operational hours of EU ID 5 and the reason the engine was in operation as required in Condition 87.2 for the period covered by the report.
[18 AAC 50.040(j)(4) & 50.326(j)(4)]
[40 C.F.R. 71.6(a)(3)(iii) & (c)(6)]
- 88.2. Notify the Department in accordance with Condition 136 if any of the requirements in Conditions 83 through 88 were not met.
[18 AAC 50.040(j)(4) and 18 AAC 50.326(j)(4)]
[40 C.F.R. 71.6(a)(3)(iii) & (c)(6)]

NESHAP Subpart JJJJJJ – Boilers, EU IDs 3 and 4³⁷

- 89. NESHAP Subpart JJJJJJ Applicability³⁸.** For EU IDs 3 and 4, listed in Table A, the Permittee shall comply with applicable requirements for existing industrial boilers located at an area source of HAP emissions.

[18 AAC 50.040(c)(39) & (j); 18 AAC 50.326(j)]
[40 C.F.R. 71.6(a)(1)]
[40 C.F.R. 63.11193, 63.11194(a)(1) & (b), Subpart JJJJJJ]

- 90. NESHAP Subpart JJJJJJ Good Air Pollution Control Practices.** At all times the Permittee shall operate and maintain EU IDs 3 and 4, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require any further efforts to reduce emissions if levels required by this standard have been achieved. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.

[18 AAC 50.040(j); 18 AAC 50.326(j)]
[40 C.F.R. 71.6(a)(1)]
[40 C.F.R. 63.11205(a), Subpart JJJJJJ]

- 91. NESHAP Subpart JJJJJJ Work or Management Practices.** For each of EU IDs 3 and 4, the Permittee shall comply with the following work or management practices and demonstrate continuous compliance, as follows:

³⁷ The provisions of NESHAP Subpart JJJJJJ listed in Conditions 89 through 93 are current as of September 14, 2016. Should EPA promulgate revisions to this subpart, the Permittee shall be subject to the revised final provisions as promulgated and not the superseded provisions summarized in these conditions.

³⁸ An affected source is an existing source if construction or reconstruction of the affected source commenced on or before June 4, 2010. [40 C.F.R. 63.11194(b), Subpart JJJJJJ].

91.1. Conduct a performance tune-up of each boiler every 2 years in accordance with Condition 91.3. Each 2-year tune-up must be conducted no more than 25 months after the previous tune-up.

91.2. Conduct a one-time energy assessment as specified in Table 2 item 16 to Subpart JJJJJ no later than March 21, 2014.

[40 C.F.R. 63.11196(a)(1) & (3), 63.11201(b); 63.11210(c), 63.11214(b), 63.11223(a) & (b),
Table 2 item 16, Subpart JJJJJ]

91.3. Perform tune-ups, as follows:

- a. Conduct tune-ups while burning diesel fuel;
- b. As applicable, inspect the burner, and clean or replace any components of the burner as necessary (the Permittee may delay the burner inspection until the next scheduled shut down, not to exceed 36 months from the previous inspection).
- c. Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern. The adjustment should be consistent with the manufacturer's specifications, if available.
- d. Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure that it is correctly calibrated and functioning properly (the Permittee may delay the inspection until the next scheduled unit shutdown, not to exceed 36 months from the previous inspection).
- e. Optimize total emissions of CO. This optimization should be consistent with the manufacturer's specifications, if available, and with any nitrogen oxide requirement to which the unit is subject.
- f. Measure the concentrations in the effluent stream of CO in parts per million, by volume, and oxygen in volume percent, before and after the adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made). Measurements may be taken using a portable CO analyzer.
- g. Maintain on-site and submit, if requested by the Administrator, a report containing the information in Conditions 91.3.g(i) and 91.3.g(ii).
 - (i) The concentrations of CO in the effluent stream in parts per million, by volume, and oxygen in volume percent, measured at high fire or typical operating load, before and after the tune-up of the boiler.
 - (ii) A description of any corrective actions taken as part of the tune-up of the boiler.
- h. If the unit is not operating on the required date for a tune-up, the tune-up must be conducted within 30 days of startup.

[18 AAC 50.040(j); 18 AAC 50.326(j)]
[40 C.F.R. 71.6(a)(3)(i)]

[40 C.F.R. 63.11201(b), 63.11214(b), 63.11223(a) & (b), and Table 2 item 4, Subpart JJJJJ]

92. NESHAP Subpart JJJJJ Recordkeeping Requirements. For each of EU IDs 3 and 4, the Permittee shall keep records as follows:

- 92.1. As required in 40 C.F.R. 63.10(b)(2)(xiv), keep a copy of each notification and report submitted to comply with this subpart and all documentation supporting any Initial Notification or Notification of Compliance Status submitted.
- 92.2. Keep records to document conformance with the work practice standards and management practices as required in Condition 91, as specified below.
 - a. Records must identify each boiler, the date of tune-up, the procedures followed for tune-up, and the manufacturer's specifications to which the boiler was tuned.
 - b. Keep a copy of the energy assessment report.
- 92.3. Keep records of the occurrence and duration of each malfunction of the boiler, or of the associated air pollution control and monitoring equipment.
- 92.4. Keep records of actions taken during periods of malfunction to minimize emissions in accordance with the general duty to minimize emissions in Condition 90, including corrective actions to restore the malfunctioning boiler, air pollution control, or monitoring equipment to its normal or usual manner of operation.

[18 AAC 50.040(j); 18 AAC 50.326(j)]
[40 C.F.R. 71.6(c)(3)(iii)]
[40 C.F.R. 63.11223(a) & (b)(6) and 63.11225(c), Subpart JJJJJ]
- 92.5. According to 40 C.F.R. 63.10(b)(1), the Permittee shall keep records in a form suitable and readily available for expeditious review for 5 years following the date of each recorded action, and onsite for at least 2 years after the date of each recorded action. The Permittee may keep the records off site for the remaining 3 years.

[40 C.F.R. 63.11225(j) & Table 8, Subpart JJJJJ]
[40 C.F.R. 63.10(b)(1), Subpart A]

93. NESHAP Subpart JJJJJ Reporting Requirements. For each of EU IDs 3 and 4, the Permittee shall report, as follows:

[18 AAC 50.040(j); 18 AAC 50.326(j)]
[40 C.F.R. 71.6(c)(3)(iii)]

- 93.1. Prepare, by March 1, and submit to the EPA and the Department upon request, a biennial compliance report containing the information specified in Conditions 93.1.a and 93.1.b. If there was any instance described by Condition 93.1.c, submit the report by March 15 immediately following the date of the occurrence.
 - a. Company name and address.
 - b. Statement by the responsible official, with the official's name, title, phone number, email address, and signature, certifying the truth, accuracy and completeness of the notification and a statement of whether the source has complied with all the relevant standards and other requirements of this subpart.

The notification must include the following certifications of compliance, and signed by a responsible official: “This facility complies with the requirements in 40 C.F.R. 63.11223 to conduct a biennial tune-up for each of EU IDs 3 and 4.”

- c. If the source experiences any deviations from the applicable requirements during the reporting period, include a description of deviations, the time periods during which the deviations occurred, and the corrective actions taken.

[40 C.F.R. 63.11225(b)(1) through (3), Subpart JJJJJJ]

- d. If requested by the Administrator, submit a performance tune up report containing the information in Conditions 91.3.g(i) through 91.3.g(ii).

[40 C.F.R. 63.11223(b)(6), Subpart JJJJJJ]

NESHAP Subpart UUUUU – Electric Utility Steam Generating Units (EGUs), EU IDs 1 and 2

- 94. NESHAP Subpart UUUUU Applicability.** For EU IDs 1 and 2, the Permittee shall comply with the applicable requirements of NESHAP Subpart UUUUU for existing coal-fired Electric Utility Steam Generating Units (EGUs) designed for low rank virgin coal, as set out in Conditions 94.1 through 100.1.g.

[18 AAC 50.040(c)(38) & (j); 18 AAC 50.326(j)]

[40 C.F.R. 71.6(a)(1)]

[40 C.F.R. 63.9981, 63.9982(a)(1) & (d), and 63.9990(a)(2), Subpart UUUUU]

- 94.1. For EU IDs 1, comply with applicable requirements no later than April 16, 2015.

[40 C.F.R. 63.9984(b), Subpart UUUUU]

- 94.2. For EU ID 2, comply with applicable requirements on June 13, 2015, the date the unit met the definition of an EGU.³⁹ Complete all initial compliance demonstrations applicable to EU ID 2 within 180 days after the applicable compliance date.

[40 C.F.R. 63.9984(d) and 63.10000(h)(1), Subpart UUUUU]

- a. All air pollution control equipment and monitoring systems necessary for compliance with any of the applicable emissions limits in Condition 96.1 must be installed and operational as of the date EU ID 2 becomes subject to this subpart.
- b. All calibration and drift checks must be performed as of the date EU ID 2 becomes subject to this subpart where CEMS are used for compliance demonstration. In addition, comply with provisions of 40C.F.R. 63.10010, 63.10020, and 63.10021. Relative accuracy tests must be performed as of the performance test deadline for PM CEMS. Relative accuracy testing for other CEMS need not be repeated if that testing was previously performed consistent with CAA section 112 monitoring requirements or monitoring requirements under this subpart.

³⁹ The applicability date of NESHAP Subpart UUUUU for EU ID 2 is June 13, 2015, the first date of generation after recommencing operation.

[40 C.F.R. 63.10000(j) & (k), Subpart UUUUU]

95. NESHAP Subpart UUUUU General Compliance Requirements

[18 AAC 50.040(c)(38) & (j); 18 AAC 50.326(j)]
[40 C.F.R. 71.6(a)(1)]

- 95.1. **Good Air Pollution Control Practices.** At all times the Permittee shall operate and maintain EU IDs 1 and 2, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the EPA Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.

[40 C.F.R. 63.10000(b), Subpart UUUUU]

96. NESHAP Subpart UUUUU Emissions Limits. For EU IDs 1 and 2, the Permittee shall, at all times, except during periods of startup and shutdown, comply with the following emissions limits:

[18 AAC 50.040(c)(38) & (j); 18 AAC 50.326(j)]
[40 C.F.R. 71.6(a)(1)]
[40 C.F.R. 63.10000(a), Subpart UUUUU]

- 96.1. Limit the exhaust emissions of each of EU IDs 1 and 2 to no more than:

- a. 0.030 lb/MMBtu for filterable particulate matter (PM);
- b. 0.0020 lb/MMBtu for Hydrogen Chloride (HCl); and
- c. 4.0 lb/TBtu for Mercury (Hg).

[40 C.F.R. 63.9991(a)(1) and Table 2 item 2, Subpart UUUUU]

97. NESHAP Subpart UUUUU Work Practice Standards. For EU IDs 1 and 2, the Permittee shall meet the following work practice standards:

[18 AAC 50.040(c)(38) & (j); 18 AAC 50.326(j)]
[40 C.F.R. 71.6(a)(1) & (a)(3)]

- 97.1. On or before the date an EGU is subject to this subpart, install, certify, operate, maintain, and quality assure each monitoring system necessary for demonstrating compliance with the work practice standards for PM during startup periods and shutdown periods. Collect, record, report, and maintain data obtained from these monitoring systems during startup periods and shutdown periods.

[40 C.F.R. 63.10000(l), Subpart UUUUU]

- 97.2. During periods of startup, operate all Continuous Monitoring System (CMS) and comply as follows:

- a. For startup (as defined in 40 C.F.R. 63.10042, 1st paragraph)⁴⁰ of the EGUs, use clean fuels as defined in 40 C.F.R. 63.10042⁴¹ for ignition. The Permittee shall:
 - (i) once firing of the EGUs is converted to coal fuel, engage all of the applicable control technologies except dry scrubber and SCR;
 - (ii) start the dry scrubber and SCR systems, if present, appropriately to comply with relevant standards applicable during normal operation;
[40 C.F.R. 63.10000(a), 63.10042, and 63.9991(a)(1), Subpart UUUUU]
[Table 3 item 3(a)(1), Subpart UUUUU]

97.3. During periods of shutdown,⁴² operate all CMS and comply with the following:

- a. collect appropriate data, and calculate the pollutant emission rate for each hour of shutdown for those pollutants for which a CMS is used;
- b. while firing coal fuel during shutdown, vent emissions to the main stack(s) and operate all applicable control devices and continue to operate those control devices after the cessation of coal fuel being fed into the EGU and for as long as possible thereafter considering operational and safety concerns;
- c. in any case, operate the controls when necessary to comply with other standards made applicable to the EGU by a permit limit or a rule other than this Subpart UUUUU and that require operation of the control devices; and
- d. if, in addition to the fuel used prior to initiation of shutdown, another fuel must be used to support the shutdown process, that additional fuel must be one or a combination of the clean fuels defined in 40 C.F.R. 63.10042 and must be used to the maximum extent possible, taking into account considerations such as not compromising boiler or control device integrity; and
- e. any fraction of an hour in which shutdown occurs constitutes a full hour of shutdown.

[40 C.F.R. 63.9991(a)(1), 10000(a), and 10042, Subpart UUUUU]
[Table 3 item 4, Subpart UUUUU]

⁴⁰ *Startup* for this option means either the first-ever firing of fuel in a boiler for the purpose of producing electricity, or the firing of fuel in a boiler after a shutdown event for any purpose. Startup ends when any of the steam from the boiler is used to generate electricity for sale over the grid or for any other purpose (including on site use). [“Startup” definition in 40 C.F.R. 63.10042, 1st paragraph]

⁴¹ *Clean fuel* means natural gas, synthetic natural gas that meets the specification necessary for that gas to be transported on a Federal Energy Regulatory Commission (FERC) regulated pipeline, propane, distillate oil, synthesis gas that has been processed through a gas clean-up train such that it could be used in a system's combustion turbine, or ultra-low-sulfur diesel (ULSD) oil, including those fuels meeting the requirements of 40 C.F.R. Part 80, Subpart I (“Subpart I - Motor Vehicle Diesel Fuel; Nonroad, Locomotive, and Marine Diesel Fuel; and ECA Marine Fuel”).

⁴² *Shutdown* means the period in which cessation of operation of an EGU is initiated for any purpose. Shutdown begins when the EGU no longer generates electricity or makes useful thermal energy (such as heat or steam) for industrial, commercial, heating, or cooling purposes or when no coal, liquid oil, syngas, or solid oil-derived fuel is being fired in the EGU, whichever is earlier. Shutdown ends when the EGU no longer generates electricity or makes useful thermal energy (such as steam or heat) for industrial, commercial, heating, or cooling purposes, and no fuel is being fired in the EGU. Any fraction of an hour in which shutdown occurs constitutes a full hour of shutdown.

97.4. During periods of startup and shutdown (as defined herein), the Permittee shall:

- a. collect monitoring data and keep records, as specified in 40 C.F.R. 63.10020(a) and 40 C.F.R. 63.10000(d);
- b. keep records of the occurrence, duration, the type(s) and amount(s) of fuel used, all data collected by CMS and emission rates calculated during each startup or shutdown, as specified in 40 C.F.R. 63.10032(f)(1) and (i), and 40 C.F.R. 63.10021(h)(2); and
- c. provide reports concerning activities, startup and shutdown periods, as specified in 40 C.F.R. 63.10011(g), 63.10021(h) and (i), and 63.10031.

[40 C.F.R. 63.9991(a)(1), 10000(a), 10011(g), 10020(a), 10021(h) & (i), 10031 and 10032, Subpart UUUUU]
[Table 3 items 3(d) and 4, Subpart UUUUU]

97.5. **Emergency Bypass.** Except for hours during which only clean fuel is combusted (see Condition 97.2.a), the Permittee shall bypass each of EU IDs 1 and 2 control device (baghouse) only during emergency periods, for no more than a total of 2 percent of the unit's annual operating hours. The Permittee shall use clean fuels to the maximum extent possible during an emergency period.

[40 C.F.R. 63.10000(c)(1)(i)(C)(2), Subpart UUUUU]

97.6. **Tune-Ups.** As part of continuous compliance demonstration, perform periodic tune-ups of EU IDs 1 and 2, as follows:

[40 C.F.R. 63.10000(e), 63.10021(a) & (e), and Table 7 (item 5), Subpart UUUUU]

- a. Perform an inspection of the burner and combustion controls and conduct periodic performance tune-ups of each of EU IDs 1 and 2, as specified in 40 C.F.R. 63.10021(e)(1) through (7):
 - (i) no more than 36 calendar months after the previous performance tune-up, if not employing neural network combustion optimization software during normal operation; or
 - (ii) no more than 48 calendar months, if employing neural network combustion optimization software during normal operation.
- b. If either EU ID 1 or EU ID 2 is offline when a deadline to perform the tune-up passes, perform the tune-up work practice requirements within 30 days after the re-start of the affected unit.

[40 C.F.R. 63.10000(e), 63.10006(i), 63.10021(a) & (e), Table 3 item 1, and Table 7 item 5, Subpart UUUUU]

98. **NESHAP Subpart UUUUU Monitoring Requirements.** The Permittee shall monitor EU IDs 1 and 2 for compliance with the emissions standards set out in Condition 96.1, as follows:

[18 AAC 50.040(c)(38) & (j); 18 AAC 50.326(j)]
[40 C.F.R. 71.6(a)(3)(i)]

98.1. Demonstrate initial compliance with each emissions limit in Condition 96.1 through performance testing of each of the criteria pollutants (PM, HCl, and Hg).

Performance testing shall be conducted in accordance with the applicable procedures and requirements described in 40 C.F.R. 63.10005(b) and (d), using:

- a. stack testing, consisting of three runs at specified process operating conditions using approved methods; and/or
- b. continuous monitoring system (CMS)⁴³ that measures HAP concentrations directly (i.e., an Hg or HCl CEMS, or a sorbent trap monitoring system) or a PM CEMS; the initial performance test shall consist of 30-boiler operating days and as described in 40 C.F.R. 63.10005(a)(2).

[40 C.F.R. 63.10005(a), (b), & (d), Subpart UUUUU]

- 98.2. The Permittee shall conduct initial performance testing, to determine whether EU IDs 1 and 2 qualify as Low Emitting EGUs (LEE), in accordance with 40 C.F.R. 63.10005(h), for one or more applicable emission limits, provided that the EGUs meet the criteria for LEE option under 40 C.F.R. 63.10000(c)(1)(i)(C).

[40 C.F.R. 63.10000(c)(1)(i) and 63.10005(a) & (h), Subpart UUUUU]

- 98.3. Demonstrate continuous compliance with each emissions limit in Condition 96.1 by conducting subsequent performance tests for each of the criteria pollutants as follows:

- a. To demonstrate continued LEE status, conduct performance tests in accordance with the applicable performance testing procedures and requirements, under 40 C.F.R. 63.10007 and Table 5 of Subpart UUUUU, and as follows:
 - (i) 30-day performance test using Method 30B at least once every 12 calendar months for Hg; and
 - (ii) a performance test at least once every 36 calendar months for PM and HCl.

[40 C.F.R. 63.10000(c)(2)(ii) & (iii), 63.10007 and Table 5, Subpart UUUUU]

- b. The Permittee must include the emissions during an emergency period, as described in Condition 97.5, along with the results of performance tests required in Condition 98.3.a, in assessing whether EU IDs 1 and 2 maintains LEE status.

[40 C.F.R. 63.10000(c)(1)(i)(C)(2), Subpart UUUUU]

- c. Should subsequent emissions testing results show the unit does not meet the LEE eligibility requirements in 40 C.F.R. 60.10005(h), LEE status is lost. If this should occur, conduct emissions testing quarterly, in accordance with 40 C.F.R. 63.10007 and Table 5 of Subpart UUUUU for any affected pollutant (Hg, PM, or HCl), except as otherwise provided in Conditions 98.3.c(i) and 98.3.c(iv).

- (i) For Hg, install, certify, maintain, and operate a Hg CEMS or a sorbent trap monitoring system in accordance with Appendix A to Subpart UUUUU

⁴³ CMS, as used under this Subpart UUUUU, includes a continuous parameter monitoring system (CPMS) as well as a CEMS. [Ref. 40 C.F.R. 63.10000(d)(1)]

and Condition 98.3.d, within 6 calendar months of losing LEE eligibility. Until the Hg CEMS or sorbent trap monitoring system is installed, certified, and operating, conduct Hg emissions testing quarterly.

- (ii) To reestablish LEE status for Hg, the Permittee must have 3 calendar years of testing and CEMS or sorbent trap monitoring system data that satisfy the LEE emissions criteria in 40 C.F.R. 63.10000(c)(1)(i)(C) and 63.10005(h).

[40 C.F.R. 63.10006(b), Subpart UUUUU]

- (iii) If a performance tests on PM or HCl LEE show emissions in excess of 50 percent of the corresponding emission limit and if choosing to reapply for LEE status, conduct quarterly performance tests until all performance tests over a consecutive 3-year period show compliance with the LEE criteria in 40 C.F.R. 63.10000(c)(1)(i)(C) and 63.10005(h).

[40 C.F.R. 63.10006(h), Subpart UUUUU]

- (iv) The Permittee may skip performance testing in those quarters during which less than 168 boiler operating hours occur, except that a performance test must be conducted at least once every calendar year.

[40 C.F.R. 63.10021(d)(1), Subpart UUUUU]

- d. For EU ID 2 that does not qualify as a LEE for Hg, demonstrate initial and continuous compliance through use of a Hg CEMS or a sorbent trap monitoring system, in accordance with Appendix A to this Subpart UUUUU.

- (i) If using a sorbent trap, the Permittee may choose to:

- (A) use separate sorbent trap monitoring systems to comply with this subpart: one system to demonstrate compliance with the numeric mercury emissions limit during periods other than startup or shutdown, and the other system to report average mercury concentration during startup periods or shutdown periods; or
- (B) use one sorbent trap monitoring system to demonstrate compliance with the mercury emissions limit at all times (including startup periods and shutdown periods) and to report average mercury concentration; follow the startup or shutdown requirements in Conditions 97.2 and 97.3.

[40 C.F.R. 63.10000(c)(1)(vi) and Table 3 item 3(c), Subpart UUUUU]

- (ii) If using a CMS, develop a site-specific monitoring plan and submit this site-specific monitoring plan,⁴⁴ if requested, at least 60 days before initial performance evaluation (where applicable) of the CMS. This requirement

⁴⁴ This requirement to develop and submit a site-specific monitoring plan does not apply to affected sources with existing monitoring plans that apply to CEMS and CPMS prepared under Appendix B to 40 C.F.R. 60 or 75, and that meet the requirements of 40 C.F.R. 63.10010 (e.g., if the CMS was previously certified under another program). [Ref. 40 C.F.R. 63.10000(d)(1) & (3)]

also applies if requesting for alternative monitoring parameters under 40 C.F.R. 63.8(f). The monitoring plan must address the provisions in 40 C.F.R. 63.10000 (d)(2) through (5).

[40 C.F.R. 63.10000(c)(1)(vi) & (d)(1) through (5) and Table 3 item 3(c), Subpart UUUUU]

(iii) Comply with the compliance plan requirements in Condition 151.

[18 AAC 50.040(j)(4) and 50.326(j)(4)]

[40 C.F.R. 71.6(c)(6)]

e. The Permittee shall complete performance tests for EU IDs 1 and 2, as follows:

(i) For quarterly testing, if required under Condition 98.3.c, at least 45 calendar days, measured from the test's end date, must separate performance tests conducted every quarter.

(A) If an EGU has skipped performance tests (as allowed under Condition 98.3.c(iv)) in the first 3 quarters of a calendar year, conduct a performance test in the 4th quarter of the calendar year.

(ii) For annual Hg testing required in Condition 98.3.a(i), at least 320 calendar days, measured from the test's end date, must separate performance tests or annual sorbent trap mercury testing for 30-boiler operating day LEE tests.

(iii) For triennial PM and HCl testing required in Condition 98.3.a(ii), at least 1,050 calendar days, measured from the test's end date, must separate performance tests conducted every 3 years.

(iv) If an EGU misses a performance test deadline due to being inoperative and if 168 or more boiler operating hours occur in the next test period, complete an additional performance test in that period as follows:

(A) At least 15 calendar days must separate two performance tests conducted in the same quarter.

(B) At least 107 calendar days must separate two performance tests conducted in the same calendar year.

(C) At least 350 calendar days must separate two performance tests conducted in the same 3 year period.

[40 C.F.R. 63.10006(f), Subpart UUUUU]

f. If the Permittee uses CEMS to continuously monitor Hg, HCl, or PM emissions (or, if applicable, sorbent trap monitoring systems to continuously collect Hg emissions data), the Permittee may use the default diluent cap value of 5% for CO₂ or 14% for O₂ in 40 C.F.R. 63.10007(f)(1) for heat input-based emission rate limits, available for use in the emission rate calculations. For the purposes of this subpart, these default values are not considered to be substitute data.

[40 C.F.R. 63.10007(f)(1)(ii), Subpart UUUUU]

- g. Demonstrate continuous compliance with the work practice standards in Condition 97 by operating in accordance with Conditions 97.2 through 97.4 during startups and shutdowns and conducting periodic tune-ups in accordance with Condition 97.6.

[40 C.F.R. 63.10021(a) and Table 7 items 5 through 7, Subpart UUUUU]

99. NESHAP Subpart UUUUU Recordkeeping Requirements. The Permittee shall keep records, as follows:

[18 AAC 50.040(c)(38) & (j); 18 AAC 50.326(j)]
[40 C.F.R. 71.6(a)(3)(ii)]

- 99.1. Keep the records required under 40 C.F.R. 63.10032(a) - (d), (g) and (h) as applicable to EU IDs 1 and 2 and associated CEMS, air pollution control, and monitoring equipment;
- 99.2. Keep the records required in Conditions 97.4.a and 97.4.b during periods of startup and shutdown.
- 99.3. Maintain on-site an annual report containing the information required in 40 C.F.R. 63.10021(e)(1) through (e)(9), regarding the periodic performance tune ups required in Condition 97.6, including:
 - a. The concentrations of CO and NO_x in the effluent stream in ppm by volume, and oxygen in volume percent, measured before and after an adjustment of the EGU combustion systems;
 - b. A description of any corrective actions taken as a part of the combustion adjustment; and
 - c. The type(s) and amount(s) of fuel used over the 12 calendar months prior to an adjustment, but only if the unit was physically and legally capable of using more than one type of fuel during that period.
- 99.4. Keep records of the tune-up that occurred prior to April 16, 2015, showing that the tune-up met all rule requirements.
- 99.5. In accordance with 40 C.F.R. 63.10(b)(1), the Permittee shall keep each record
 - a. in a form suitable and readily available for expeditious review;
 - b. for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record; and
 - c. on site for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record; the Permittee can keep the records off site for the remaining 3 years.

[40 C.F.R. 63.10005(a) & (f), 63.10021(e)(8), 63.10032 and 63.10033, Subpart UUUUU]

100. NESHAP Subpart UUUUU Reporting Requirements. The Permittee shall submit the reports required under 40 C.F.R. 63.10031 and the applicable reports required under Appendix A to Subpart UUUUU report, as follows:

[18 AAC 50.040(c)(38) & (j); 18 AAC 50.326(j)]

[40 C.F.R. 71.6(a)(3)(iii)]

[40 C.F.R. 63.10031(a), (b), (c) and Table 8, Subpart UUUUU]

100.1. Submit to the EPA a compliance report via the required electronic file submission format covering the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31.

- a. The report must be postmarked or submitted electronically no later than July 31 or January 31, whichever date is the first date following the end of the semiannual reporting period, or no later than the due dates for the semi-annual operating report required in Condition 137.
- b. The report must contain the following information required in 40 C.F.R. 63.10031(c)(1)-(4), (c)(6), (c)(8) and (c)(9):
 - (i) The information required by summary report located in 40 C.F.R. 63.10(e)(3)(vi);
 - (ii) The total fuel use by each of EU IDs 1 and 2, for each calendar month within the semiannual reporting period, including, but not limited to, a description of the fuel, whether the fuel has received a non-waste determination by EPA or basis for concluding that the fuel is not a waste, and the total fuel usage amount with units of measure;
 - (iii) Indicate whether new types of fuel are burned during the reporting period; if so, include the date of the performance test of EU IDs 1 and 2 where that fuel was in use;
 - (iv) Include the date of the most recent tune-up for each EGU, as explained in detail in Condition 100.1.g. The date of the tune-up is the date the tune-up provisions specified in 40 C.F.R. 63.10021(e)(6) and (7) were completed;
 - (v) Report annually, as applicable, the following information on emergency bypass, as described in Condition 97.5, from EU IDs 1 and 2 with LEE status:
 - (A) the emergency event;
 - (B) its cause;
 - (C) corrective action taken; and
 - (D) estimates of emissions released during the emergency event.
 - (vi) A summary of the results of the annual performance tests required under Condition 98.3.a(i). If you are conducting stack tests once every 3 years to maintain LEE status, consistent with Condition 98.3.c(ii),
 - (A) the date of each stack test conducted during the previous 3 years,

- (B) a comparison of emission level you achieved in each stack test conducted during the previous 3 years to the 50 percent emission limit threshold required in 40 C.F.R. 63.10005(h)(1)(i), and
 - (C) a statement as to whether there have been any operational changes since the last stack test that could increase emissions.
- (vii) A certification; and
- (viii) If there is a deviation from any emission limit in Condition 96 or work practice standard in Condition 97, include the following:
- (A) a brief description of the deviation;
 - (B) the duration of the deviation;
 - (C) emissions point identification; and
 - (D) the cause of the deviation.

[40 C.F.R. 63.10000(c)(1)(i)(C)(2), 10021(g), 10031(c)(1)-(4), (c)(6), (c)(8) and (c)(9), Subpart UUUUU]

- c. If there are no deviations during the reporting period, include the following statements, as applicable:
- (i) that there were no deviations from the emission limitations and work practice standards in Conditions 96 and 97 during the reporting period; and
 - (ii) that there were no periods during which the CMSs were out-of-control during the reporting period.

[Table 8 item 1.b Subpart UUUUU]

- d. For each excess emissions occurring at each of EU IDs 1 and 2 where a CMS is used to comply with the emission limits, include the information required for excess emissions and monitoring system performance reports in 40 C.F.R. 63.10(e)(3)(v) in the compliance report in Condition 100.1.

[40 C.F.R. 63.10031(d), Subpart UUUUU]

- e. Include the reports required in Condition 97.4.c during periods of startup and shutdown.
- f. If there were periods during which the CMSs, including CEMS and CPMS, were out-of-control, as specified in 40 C.F.R. 63.8(c)(7), the report must contain the information in 40 C.F.R. 63.10031(e).

[40 C.F.R. 63.10031(f), Table 8, and Appendix A, Subpart UUUUU]

- (i) The electronic reports required by Appendix A to Subpart UUUUU (required due to Hg CEMS or sorbent trap monitoring system for EU ID 2) must be sent to the EPA electronically in a format prescribed by the EPA, as provided in 40 C.F.R. 63.10031.

- (ii) CEMS data (except for PM CEMS) shall be submitted using EPA's Emissions Collection and Monitoring Plan System (ECMPS) Client Tool.
- (iii) Other data, including PM CEMS data and CEMS performance test detail reports, shall be submitted in the file format generated through use of EPA's Electronic Reporting Tool, the Compliance and Emissions Data Reporting Interface, or alternate electronic file format, all as provided for under 40 C.F.R. 63.10031.

[40 C.F.R. 63.10021(f), 63.10031(a), Table 8, and Appendix A, Subpart UUUUU]]

g. Report compliance with tune-up requirements in Condition 97.6, as follows:

- (i) Report the dates of the initial and subsequent tune-ups in hard copy, as specified in 40 C.F.R. 63.10031(f)(5), through June 30, 2018. On or after July 1, 2018, report the date of all tune-ups electronically, in accordance with 40 C.F.R. 63.10031(f). The tune-up report date is the date when tune-up requirements in 40 C.F.R. 63.10021(e)(6) and (7) are completed.
- (ii) If requested by the EPA or the Department, submit an annual report containing the information required in Condition 99.3.

[40 C.F.R. 63.10021(a) & (e)(8) & (9), Subpart UUUUU]

40 C.F.R. 64 Compliance Assurance Monitoring (CAM) for Control of PM, EU IDs 1 and 2

101. When CEMS is not used to monitor PM emissions from EU IDs 1 or 2, the Permittee shall comply with Conditions 101.3 through 101.7, consistent with the Permittee's approved Compliance Assurance Monitoring (CAM) Plan required under 40 C.F.R. 64, to assure continuous compliance with the following PM emissions limits:

101.1. For EU ID 1:

- a. PM limits of 0.05 gr/dscf (hourly average), 36.7 lb/hr (full load), and 161 TPY in Table B (ORLs);
- b. PM limit of 0.10 gr/dscf (3-hour average) in Condition 57.1 (state standard); and
- c. Filterable PM₁₀ limit of 0.015 lb/MMBtu in Table C (BART limit, effective no later than March 18, 2018).

101.2. For EU ID 2:

- a. PM limits of 0.020 lb/MMBtu (hourly average), 13.2 lb/hr (full load), and 58 TPY in Table B (ORLs and BACT limits); and
- b. PM limit of 0.05 gr/dscf (3-hour average) in Condition 57.2 (state standard).

101.3. The Permittee shall, on a daily basis, compare the previous calendar day's 24-hour average opacity level, as measured by the COMS, to the baseline opacity level of 5 percent.

- a. If the previous days average opacity level is above 5 percent, the Permittee shall within 24 hours, visually inspect the baghouse for any leaks, broken bags or other malfunction. All other relevant equipment including ductwork and blowers shall also be inspected. Appropriate corrective action shall be taken as soon as practicable.
 - b. If the daily average opacity level remains greater than the baseline opacity level after 7 boiler operating days, the Permittee shall conduct source testing for filterable particulate matter on the boiler and report the results in accordance with Section 9. The source test will be conducted within 60 boiler operating days of the first day measured daily average opacity was determined to exceed the baseline opacity level, withstanding a waiver granted by the state.
- 101.4. To submit a new or revised CAM plan, the Permittee shall concurrently submit an application for a permit modification. The application shall include all required elements under 40 C.F.R. 64.4 and proposed permit terms consistent with 40 C.F.R. 64.6(c) and (d).
- 101.5. Keep records of
- a. the results of source tests conducted under Condition 101.3.b;
 - b. the daily average opacity levels, as measured by the COMS; and
 - c. the inspection and any corrective actions taken under Condition 101.3.a.
- 101.6. Submit a report in accordance with Condition 136 whenever the results of a source test conducted under Condition 101.3.b exceed the applicable particulate matter emissions limit under Condition 101.1 and 101.2.
- 101.7. Include in the operating report required under Condition 137:
- a. the results in gr/dscf, lb/hr, and lb/MMBtu, as specified in Conditions 101.1 and 101.2, of each particulate matter source test conducted during the reporting period; and
 - b. a summary of excursions,⁴⁵ inspection findings and corrective actions taken under Condition 101.3.

[40 C.F.R. 71.6(a)(3)(i) through (iii)& (c)(6)]
[40 C.F.R. 64.3, 64.4, & 64.6(b)]
[40 C.F.R. 60.48Da(o)(1), Subpart Da]
[CAM Plan for Healy Power Plant, GVEA, 11/30/2016]

General NSPS and NESHAP Requirements

102. NESHAP Applicability Determinations. The Permittee shall determine rule applicability and designation of affected sources under National Emission Standards for Hazardous Air

⁴⁵ An *excursion* is defined as any previous calendar day average opacity value which exceeds the baseline opacity level of 5 percent.

Pollutants (NESHAPs) for Source Categories (40 C.F.R. 63) in accordance with the procedures described in 40 C.F.R. 63.1(b) and 63.10(b)(3). If a source becomes affected by an applicable subpart of 40 C.F.R. 63, the Permittee shall comply with such standard by the compliance date established by the Administrator in the applicable subpart, in accordance with 40 C.F.R. 63.6(c).

- 102.1. After the effective date of any relevant standard promulgated by the Administrator under this part, an owner or operator who constructs a new affected source that is not major-emitting or reconstructs an affected source that is not major-emitting that is subject to such standard, or reconstructs a source such that the source becomes an affected source subject to the standard, must notify the Administrator and the Department of the intended construction or reconstruction. The notification must be submitted in accordance with the procedures in 40 C.F.R. 63.9(b).

[18 AAC 50.040(c)(1), 50.040(j), & 50.326(j)]

[40 C.F.R. 71.6(a)(3)(ii)]

[40 C.F.R. 63.1(b), 63.5(b)(4), 63.6(c)(1), & 63.10(b)(3)]

103. NSPS and NESHAP Reports. The Permittee shall comply with the following:

- 103.1. **Reports:** Unless previously submitted, and except for federal reports and notices submitted through EPA's CDX/CEDRI online reporting system, attach to the operating report required by Condition 137 for the period covered by the report, a copy of any NSPS and NESHAPs reports submitted to the U.S. Environmental Protection Agency (EPA) Region 10. For reports previously submitted to the Department or submitted through CDX/CEDRI, state in the operating report the date and a brief description of each of the reports submitted during the reporting period; and

- 103.2. **Waivers:** Upon request by the Department, provide a written copy of any EPA-granted alternative monitoring requirement, custom monitoring schedule or waiver of the federal emission standards, recordkeeping, monitoring, performance testing, or reporting requirements. The Permittee shall keep a copy of each U.S. EPA-issued monitoring waiver or custom monitoring schedule with the permit.

[18 AAC 50.326(j)(4) & 50.040(j)]

[40 C.F.R. 60.13, 63.10(d) & (f) & 40 C.F.R. 71.6(c)(6)]

40 C.F.R. Part 61 National Emission Standards for Hazardous Air Pollutants (NESHAP)

Subpart A – General Provisions & Subpart M – Asbestos

- 104.** The Permittee shall comply with the requirements set forth in 40 C.F.R. 61.145, 61.150, and 61.152 of Subpart M, and the applicable sections set forth in 40 C.F.R. 61, Subpart A and Appendix A.

[18 AAC 50.040(b)(1) & (2)(F), & 50.326(j)]

[40 C.F.R. 61, Subparts A & M, and Appendix A]

40 C.F.R. Part 82 Protection of Stratospheric Ozone

Subpart F – Recycling and Emissions Reduction

- 105.** The Permittee shall comply with the applicable standards for recycling and emission reduction of refrigerants set forth in 40 C.F.R. 82, Subpart F.

[18 AAC 50.040(d) & 50.326(j)]
[40 C.F.R. 82, Subpart F]

Subpart G – Significant New Alternatives Policy

- 106.** The Permittee shall comply with the applicable prohibitions set out in 40 C.F.R. 82.174 (Protection of Stratospheric Ozone Subpart G – Significant New Alternatives Policy Program).

[18 AAC 50.040(d) & 50.326(j)]
[40 C.F.R. 82.174(b) through (d), Subpart G]

Subpart H – Halon Emissions Reduction

- 107.** The Permittee shall not use halon at the Healy Power Plant. Compliance with this requirement shall consist of an annual certification according to Condition 138 that the Permittee is complying with this condition.

[18 AAC 50.040(d) & 50.326(j)]
[40 C.F.R. 82.270(b) through (f), Subpart H]

Section 8. General Conditions

Standard Terms and Conditions

- 108.** Each permit term and condition is independent of the permit as a whole and remains valid regardless of a challenge to any other part of the permit.

[18 AAC 50.326(j)(3), 50.345(a) & (c)]

- 109.** The permit may be modified, reopened, revoked and reissued, or terminated for cause. A request by the Permittee for modification, revocation and re-issuance, or termination or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

[18 AAC 50.326(j)(3), 50.345(a) & (f)]

- 110.** The permit does not convey any property rights of any sort, nor any exclusive privilege.

[18 AAC 50.326(j)(3), 50.345(a) & (g)]

- 111. Administration Fees.** The Permittee shall pay to the Department all assessed permit administration fees. Administration fee rates are set out in 18 AAC 50.400-403.]

[18 AAC 50.326(j)(1), 50.400, & 50.403]
[AS 37.10.052(b) & AS 46.14.240]

- 112. Assessable Emissions.** The Permittee shall pay to the Department annual emission fees based on the stationary source's assessable emissions as determined by the Department under 18 AAC 50.410. The assessable emission fee rate is set out in 18 AAC 50.410. The Department will assess fees per ton of each air pollutant that the stationary source emits or has the potential to emit in quantities 10 tons per year or greater. The quantity for which fees will be assessed is the lesser of

112.1. the stationary source's assessable potential to emit of 2,518 TPY; or

112.2. the stationary source's projected annual rate of emissions that will occur from July 1 to the following June 30, based upon credible evidence of actual annual emissions emitted during the most recent calendar year or another 12-month period approved in writing by the Department, when demonstrated by the most representative of one or more of the following methods:

- a. an enforceable test method described in 18 AAC 50.220;
- b. material balance calculations;
- c. emission factors from EPA's publication AP-42, Vol. I, adopted by reference in 18 AAC 50.035; or
- d. other methods and calculations approved by the Department, including appropriate vendor-provided emissions factors when sufficient documentation is provided.

[18 AAC 50.040(j)(3), 50.035, 50.326(j)(1), 50.346(b)(1), 50.410, & 50.420]
[40 C.F.R. 71.5(c)(3)(ii)]

113. Assessable Emission Estimates. Emission fees will be assessed as follows:

113.1. no later than March 31 of each year, the Permittee may submit an estimate of the stationary source's assessable emissions to ADEC, Air Permits Program, ATTN: Assessable Emissions Estimate, 410 Willoughby Ave., Ste 303, PO Box 111800, Juneau, AK 99811-1800; the submittal must include all of the assumptions and calculations used to estimate the assessable emissions in sufficient detail so the Department can verify the estimates; or

113.2. if no estimate is submitted on or before March 31 of each year, emission fees for the next fiscal year will be based on the potential to emit set out in Condition 112.1.

[18 AAC 50.040(j)(3), 50.326(j)(1), 50.346(b)(1), 50.410, & 50.420]
[40 C.F.R. 71.5(c)(3)(ii)]

114. Good Air Pollution Control Practice. The Permittee shall do the following for EU IDs 7, 8, and 11.

114.1. perform regular maintenance considering the manufacturer's or the operator's maintenance procedures;

114.2. keep records of any maintenance that would have a significant effect on emissions; the records may be kept in electronic format; and

114.3. keep a copy of either the manufacturer's or the operator's maintenance procedures.

[18 AAC 50.326(j)(3), & 50.346(b)(5)]

115. Dilution. The Permittee shall not dilute emissions with air to comply with this permit. Monitoring shall consist of an annual certification that the Permittee does not dilute emissions to comply with this permit.

[18 AAC 50.045(a)]

116. Reasonable Precautions to Prevent Fugitive Dust. A person who causes or permits bulk materials to be handled, transported, or stored, or who engages in an industrial activity or construction project shall take reasonable precautions to prevent particulate matter from being emitted into the ambient air.

[18 AAC 50.045(d), 50.040(c), 50.326(j)(3), & 50.346(c)]

116.1. The Permittee shall keep records of

a. complaints received by the Permittee and complaints received by the Department and conveyed to the Permittee; and

b. any additional precautions that are taken

(i) to address complaints described in Condition 116.1.a or to address the results of Department inspections that found potential problems; and

(ii) to prevent future dust problems.

116.2. The Permittee shall report according to Condition 118.

117. Stack Injection. The Permittee shall not release materials other than process emissions, products of combustion, or materials introduced to control pollutant emissions from a stack at a stationary source constructed or modified after November 1, 1982, except as authorized by a minor or construction permit, Title V permit, or air quality control permit issued before October 1, 2004, and as required under Condition 41.1 for PM CEMS correlations.

[18 AAC 50.055(g)]

118. Air Pollution Prohibited. No person may permit any emission which is injurious to human health or welfare, animal or plant life, or property, or which would unreasonably interfere with the enjoyment of life or property.

[18 AAC 50.110, 50.040(c), 50.326(j)(3) & 50.346(a)]

[40 C.F.R. 71.6(a)(3)]

118.1. Monitoring, Recordkeeping, and Reporting for Condition 118:

- a. If emissions present a potential threat to human health or safety, the Permittee shall report any such emissions according to Condition 136.
- b. As soon as practicable after becoming aware of a complaint that is attributable to emissions from the stationary source, the Permittee shall investigate the complaint to identify emissions that the Permittee believes have caused or are causing a violation of Condition 118.
- c. The Permittee shall initiate and complete corrective action necessary to eliminate any violation identified by a complaint or investigation as soon as practicable if
 - (i) after an investigation because of a complaint or other reason, the Permittee believes that emissions from the stationary source have caused or are causing a violation of Condition 118; or
 - (ii) the Department notifies the Permittee that it has found a violation of Condition 118.
- d. The Permittee shall keep records of
 - (i) the date, time, and nature of all emissions complaints received;
 - (ii) the name of the person or persons that complained, if known;
 - (iii) a summary of any investigation, including reasons the Permittee does or does not believe the emissions have caused a violation of Condition 118; and
 - (iv) any corrective actions taken or planned for complaints attributable to emissions from the stationary source.
- e. With each stationary source operating report under Condition 137, the Permittee shall include a brief summary report which must include
 - (i) the number of complaints received;

- (ii) the number of times the Permittee or the Department found corrective action necessary;
- (iii) the number of times action was taken on a complaint within 24 hours; and
- (iv) the status of corrective actions the Permittee or Department found necessary that were not taken within 24 hours.

- f. The Permittee shall notify the Department of a complaint that is attributable to emissions from the stationary source within 24 hours after receiving the complaint, unless the Permittee has initiated corrective action within 24 hours of receiving the complaint.

119. Technology-Based Emission Standard. If an unavoidable emergency, malfunction (as defined in 18 AAC 50.235(d)), or non-routine repair (as defined in 18 AAC 50.990(64)), causes emissions in excess of a technology-based emission standard⁴⁶ listed in Conditions 19, 72, 75, 77, 81, 96.1, and 105 (refrigerants), the Permittee shall

119.1. take all reasonable steps to minimize levels of emissions that exceed the standard, and

119.2. report in accordance with Condition 136; the report must include information on the steps taken to mitigate emissions and corrective measures taken or to be taken.

[18 AAC 50.235(a), 50.326(j)(4), & 50.040(j)(4)]
[40 C.F.R. 71.6(c)(6)]

120. Ice Fog Standards. The Permittee shall reduce water emissions if the Department, in its sole discretion, determines that ice fog conditions existing at the source warrant the reduction. In no event shall the emissions create a public nuisance.

[18 AAC 50.040(j), 50.080, and 50.326(j)]
[40 C.F.R. 71.6(a)& (c)(6)]
[Permit No. 9431-AA001, Condition 23, 5/12/1994]

120.1. Compliance shall consist of an annual certification, in accordance with Condition 138, that the stationary source did not cause ice fog conditions requiring reduction.

Open Burning Requirements

121. Open Burning. If the Permittee conducts open burning at this stationary source, the Permittee shall comply with the requirements of 18 AAC 50.065. The Permittee shall:

121.1. keep written records to demonstrate that the Permittee complies with the limitations in this condition and the requirements of 18 AAC 50.065. Upon request by the Department, submit copies of the records; and

⁴⁶ As defined in 18 AAC 50.990(106), the term “*technology-based emission standard*” means a best available control technology (BACT) standard; a lowest achievable emission rate (LAER) standard; a maximum achievable control technology (MACT) standard established under 40 C.F.R. 63, Subpart B, adopted by reference in 18 AAC 50.040(c); a standard adopted by reference in 18 AAC 50.040(a) or (c); and any other similar standard for which the stringency of the standard is based on determinations of what is technologically feasible, considering relevant factors.

121.2. include this condition in the annual certification required under Condition 138.

[18 AAC 50.065, 50.040(j), & 50.326(j)]
[40 C.F.R. 71.6(a)(3)]

Section 9. General Source Testing and Monitoring Requirements

122. Requested Source Tests. In addition to any source testing explicitly required by the permit, the Permittee shall conduct source testing as requested by the Department to determine compliance with applicable permit requirements.

[18 AAC 50.220(a) & 50.345(a) & (k)]

123. Operating Conditions. Unless otherwise specified by an applicable requirement or test method, the Permittee shall conduct source testing

[18 AAC 50.220(b)]

123.1. at a point or points that characterize the actual discharge into the ambient air; and

123.2. at the maximum rated burning or operating capacity of the emissions unit or another rate determined by the Department to characterize the actual discharge into the ambient air.

124. Reference Test Methods. The Permittee shall use the following test methods when conducting source testing for compliance with this permit:

124.1. Source testing for compliance with requirements adopted by reference in 18 AAC 50.040(a) must be conducted in accordance with the methods and procedures specified in 40 C.F.R. 60.

[18 AAC 50.220(c)(1)(A) & 50.040(a)]
[40 C.F.R. 60]

124.2. Source testing for compliance with requirements adopted by reference in 18 AAC 50.040(c) must be conducted in accordance with the source test methods and procedures specified in 40 C.F.R. 63.

[18 AAC 50.040(c) & 50.220(c)(1)(C)]
[40 C.F.R. 63]

124.3. Source testing for the reduction in visibility through the exhaust effluent must be conducted in accordance with the procedures set out in Reference Method 9. The Permittee may use the form in Section 14 to record data.

[18 AAC 50.030 & 50.220(c)(1)(D)]

124.4. Source testing for emissions of total particulate matter, sulfur compounds, nitrogen compounds, carbon monoxide, lead, volatile organic compounds, fluorides, sulfuric acid mist, municipal waste combustor organics, metals, and acid gases must be conducted in accordance with the methods and procedures specified in 40 C.F.R. 60, Appendix A.

[18 AAC 50.040(a)(3) & 50.220(c)(1)(c)]
[40 C.F.R. 60, Appendix A]

124.5. Source testing for emissions of PM_{2.5} and PM₁₀ must be conducted in accordance with the procedures specified in 40 C.F.R. 51, Appendix M, Methods 201 or 201A and 202.

[18 AAC 50.035(b)(2) & 50.220(c)(1)(F)]
[40 C.F.R. 51, Appendix M]

124.6. Source testing for emissions of any pollutant may be determined using an alternative method approved by the Department in accordance with 40 C.F.R. 63 Appendix A, Method 301.

[18 AAC 50.040(c)(32) & 50.220(c)(2)]
[40 C.F.R. 63, Appendix A, Method 301]

125. Excess Air Requirements. To determine compliance with this permit, standard exhaust gas volumes must include only the volume of gases formed from the theoretical combustion of the fuel, plus the excess air volume normal for the specific emissions unit type, corrected to standard conditions (dry gas at 68° F and an absolute pressure of 760 millimeters of mercury).

[18 AAC 50.220(c)(3) & 50.990(102)]

126. Test Exemption. The Permittee is not required to comply with Conditions 128, 129 and 130 when the exhaust is observed for visible emissions by Method 9 Plan (Condition 2.2).

[18 AAC 50.345(a)]

127. Test Deadline Extension. The Permittee may request an extension to a source test deadline established by the Department. The Permittee may delay a source test beyond the original deadline only if the extension is approved in writing by the Department's appropriate division director or designee.

[18 AAC 50.345(a) & (l)]

128. Test Plans. Except as provided in Condition 126, before conducting any source tests, the Permittee shall submit a plan to the Department. The plan must include the methods and procedures to be used for sampling, testing, and quality assurance and must specify how the emissions unit will operate during the test and how the Permittee will document that operation. The Permittee shall submit a complete plan within 60 days after receiving a request under Condition 122 and at least 30 days before the scheduled date of any test unless the Department agrees in writing to some other time period. Retesting may be done without resubmitting the plan.

[18 AAC 50.345(a) & (m)]

129. Test Notification. Except as provided in Condition 126, at least 10 days before conducting a source test, the Permittee shall give the Department written notice of the date and the time the source test will begin.

[18 AAC 50.345(a) & (n)]

130. Test Reports. Except as provided in Condition 126, within 60 days after completing a source test, the Permittee shall submit one certified copy of the results in the format set out in the *Source Test Report Outline*, adopted by reference in 18 AAC 50.030. The Permittee shall certify the results in the manner set out in Condition 133. If requested in writing by the Department, the Permittee must provide preliminary results in a shorter period of time specified by the Department.

[18 AAC 50.345(a) & (o)]

131. Particulate Matter Calculations. In source testing for compliance with the particulate matter standards in Conditions 5, 18.2, and 57, the three-hour average is determined using

the average of three one-hour test runs. The source test must account for those emissions caused by soot blowing, grate cleaning, or other routine maintenance activities by ensuring that at least one test run includes the emissions caused by the routine maintenance activity and is conducted under conditions that lead to representative emissions from that activity. The emissions must be quantified using the following equation:

$$E = E_M \left[(A+B) \times \frac{S}{R \times A} \right] + E_{NM} \left[\frac{(R-S)}{R} - \frac{BS}{R \times A} \right]$$

Where:

- E = the total particulate matter emissions of the emissions unit in grains per dry standard cubic foot (gr/dscf)
- E_M = the particulate matter emissions in gr/dscf measured during the test that included the routine maintenance activity
- E_{NM} = the arithmetic average of particulate matter emissions in gr/dscf measured by the test runs that did not include the routine maintenance activity
- A = the period of routine maintenance activity occurring during the test run that included routine maintenance activity, expressed to the nearest hundredth of an hour
- B = the total period of the test run, less A
- R = the maximum period of emissions unit operation per 24 hours, expressed to the nearest hundredth of an hour
- S = the maximum period of routine maintenance activity per 24 hours, expressed to the nearest hundredth of an hour

[18 AAC 50.220(f)]

Section 10. General Recordkeeping and Reporting Requirements

Recordkeeping Requirements

132. Recordkeeping Requirements. The Permittee shall keep all records required by this permit for at least five years after the date of collection, including:

[18 AAC 50.040(a)(1) & 50.326(j)]
[40 C.F.R 60.7(f), Subpart A, 40 C.F.R 71.6(a)(3)(ii)(B)]

- 132.1. Copies of all reports and certifications submitted pursuant to this section of the permit; and
- 132.2. Records of all monitoring required by this permit, and information about the monitoring including:
 - a. the date, place, and time of sampling or measurements;
 - b. the date(s) analyses were performed;
 - c. the company or entity that performed the analyses;
 - d. the analytical techniques or methods used;
 - e. the results of such analyses; and,
 - f. the operating conditions as existing at the time of sampling or measurement.

Reporting Requirements

133. Certification. The Permittee shall certify any permit application, report, affirmation, or compliance certification submitted to the Department and required under the permit by including the signature of a responsible official for the permitted stationary source following the statement: *“Based on information and belief formed after reasonable inquiry, I certify that the statements and information in and attached to this document are true, accurate, and complete.”* Excess emission reports must be certified either upon submittal or with an operating report required for the same reporting period. All other reports and other documents must be certified upon submittal.

- 133.1. The Department may accept an electronic signature on an electronic application or other electronic record required by the Department if
 - a. a certifying authority registered under AS 09.80.020 verifies that the electronic signature is authentic; and
 - b. the person providing the electronic signature has made an agreement, with the certifying authority described in Condition 133.1.a, that the person accepts or agrees to be bound by an electronic record executed or adopted with that signature.

[18 AAC 50.345(a) & (j), 50.205, & 50.326(j)]
[40 C.F.R. 71.6(a)(3)(iii)(A)]

134. Submittals. Unless otherwise directed by the Department or this permit, the Permittee shall submit reports, compliance certifications, and/or other submittals required by this permit, certified in accordance with Condition 133, to ADEC, Air Permits Program, 610 University Ave., Fairbanks, AK 99709-3643, ATTN: Compliance Technician. The documents may be submitted either by hard copy or electronically.

134.1. Electronic submittals may be provided, as follows:

- a. by E-mail under a cover letter using dec.aq.airreports@alaska.gov; or
- b. use of the Department's Air Online Services at <http://dec.alaska.gov/applications/air/airtoolsweb/>.

[18 AAC 50.326(j)]
[40 C.F.R. 71.6(a)(3)(iii)(A)]

135. Information Requests. The Permittee shall furnish to the Department, within a reasonable time, any information the Department requests in writing to determine whether cause exists to modify, revoke and reissue, or terminate the permit or to determine compliance with the permit. Upon request, the Permittee shall furnish to the Department copies of records required to be kept by the permit. The Department may require the Permittee to furnish copies of those records directly to the Federal Administrator.

[18 AAC 50.345(a) & (i), 50.200, & 50.326(a) & (j)]
[40 C.F.R. 71.5(a)(2) & 71.6(a)(3)]

136. Excess Emissions and Permit Deviation Reports.

136.1. Except as provided in Condition 118, the Permittee shall report all emissions or operations that exceed or deviate from the requirements of this permit as follows:

- a. in accordance with 18 AAC 50.240(c), as soon as possible after the event commences or is discovered, report
 - (i) emissions that present a potential threat to human health or safety; and
 - (ii) excess emissions that the Permittee believes to be unavoidable;
- b. in accordance with 18 AAC 50.235(a), within two working days after the event commenced or was discovered, report an unavoidable emergency, malfunction, or nonroutine repair that causes emissions in excess of a technology-based emission standard;
- c. report all other excess emissions and permit deviations
 - (i) within 30 days after the end of the month during which the excess emissions or deviation occurred, except as provided in Condition 136.1.c(iii); or
 - (ii) if a continuous or recurring excess emissions is not corrected within 48 hours of discovery, within 72 hours of discovery unless the Department provides written permission to report under Condition 136.1.c(i); and

- (iii) for failure to monitor, as required in Conditions 4.2.b and 8.1.b. of this permit.

136.2. When reporting either excess emissions or permit deviations, the Permittee shall report using either the Department's online form, which can be found at <http://dec.alaska.gov/applications/air/airtoolsweb>, or if the Permittee prefers, the form contained in Section 16 of this permit. The Permittee must provide all information called for by the form that is used.

136.3. If requested by the Department, the Permittee shall provide a more detailed written report as requested to follow up an excess emissions report.

[18 AAC 50.235(a)(2), 50.240(c), 50.326(j)(3), & 50.346(b)(2) & (3)]

137. Operating Reports. During the life of this permit⁴⁷, the Permittee shall submit to the Department an operating report by August 1 for the period January 1 to June 30 of the current year and by February 1 for the period July 1 to December 31 of the previous year.

137.1. The operating report must include all information required to be in operating reports by other conditions of this permit, for the period covered by the report.

137.2. When excess emissions or permit deviations that occurred during the reporting period are not included with the operating report under Condition 137.1, the Permittee shall identify

- a. the date of the deviation;
- b. the equipment involved;
- c. the permit condition affected;
- d. a description of the excess emissions or permit deviation; and
- e. any corrective action or preventive measures taken and the date(s) of such actions; or

137.3. when excess emissions or permit deviations have already been reported under Condition 136 the Permittee shall cite the date or dates of those reports.

137.4. The operating report must include, for the period covered by the report, a listing of emissions monitored under Condition 2.2.e, which triggers additional testing or monitoring, whether or not the emissions monitored exceed an emission standard. The Permittee shall include in the report.

- a. the date of the emissions;
- b. the equipment involved;
- c. the permit condition affected; and

⁴⁷ *Life of this permit* is defined as the permit effective dates, including any periods of reporting obligations that extend beyond the permit effective dates. For example if a permit expires prior to the end of a calendar-year, there is still a reporting obligation to provide operating reports for the periods when the permit was in effect.

- d. the monitoring result which triggered the additional monitoring.

137.5. **Transition from expired to renewed permit.** For the first period of this renewed operating permit, also provide the previous permit's operating report elements covering that partial period immediately preceding the effective date of this renewed permit.

[18 AAC 50.346(b)(6) & 50.326(j)]
[40 C.F.R. 71.6(a)(3)(iii)(A)]

138. Annual Compliance Certification. Each year by March 31, the Permittee shall compile and submit to the Department an annual compliance certification report according to Condition 134.

138.1. Certify the compliance status of the stationary source over the preceding calendar year consistent with the monitoring required by this permit, as follows:

- a. identify each term or condition set forth in Section 3 through Section 12, that is the basis of the certification;
- b. briefly describe each method used to determine the compliance status;
- c. state whether compliance is intermittent or continuous; and
- d. identify each deviation and take it into account in the compliance certification;

138.2. **Transition from expired to renewed permit.** For the first period of this renewed operating permit, also provide the previous permit's annual compliance certification report elements covering that partial period immediately preceding the effective date of this renewed permit.

138.3. In addition, submit a copy of the report directly to the Clean Air Act Compliance Manager, US EPA Region 10, Mail Stop: OCE-101, 1200 Sixth Avenue, Suite 900, Seattle, WA 98101.

[18 AAC 50.205, 50.345(a) & (j), & 50.326(j)]
[40 C.F.R. 71.6(c)(5)]

139. Emission Inventory Reporting. The Permittee shall submit to the Department reports of actual emissions, by emissions unit, of CO, NH₃, NO_x, PM₁₀, PM_{2.5}, SO₂, VOCs and lead (Pb) (and lead compounds), as follows:

139.1. Each year by April 30, if the stationary source's potential to emit for the previous calendar year equals or exceeds:

- a. 250 TPY of NH₃, PM₁₀, PM_{2.5}, or VOCs; or
- b. 2500 TPY of CO, NO_x or SO₂.

139.2. Every third year by April 30, if the stationary source's potential to emit (except actual emissions for Pb) for the previous calendar year equals or exceeds:

- a. 0.5 tons per year of actual Pb, or

- b. 1,000 TPY of CO; or
 - c. 100 TPY of SO₂, NH₃, PM₁₀, PM_{2.5}, NO_x, or VOCs.
- 139.3. For reporting under Condition 139.2, the Permittee shall report in 2018 for calendar year 2017, 2021 for calendar year 2020, etc., in accordance with the Environmental Protection Agency set schedule.
- 139.4. Include in the report required by this condition, the required data elements contained within the form in Section 17, the Department's Air Online Services (AOS) system at <http://dec.alaska.gov/applications/air/airtoolsweb>, a form compliant with the Emission Inventory Instructions available in Air Online Services (AOS), or those contained in Table 2A of Appendix A to Subpart A of 40 C.F.R. 51 for each stack associated with an emissions unit.

[18 AAC 50.346(b)(8) & (9) and 50.200]
[40 C.F.R. 51.15, 51.30(a)(1) & (b)(1) and 40 C.F.R. 51, Appendix A to Subpart A]

Section 11. Permit Changes and Renewal

140. Permit Applications and Submittals. The Permittee shall comply with the following requirements for submitting application information to the US Environmental Protection Agency (EPA):

- 140.1. The Permittee shall provide a copy of each application for modification or renewal of this permit, including any compliance plan, or application addenda, at the time the application or addendum is submitted to the Department;
- 140.2. The information shall be submitted to the Part 70 Operating Permit Program, US EPA Region 10, Mail Stop: OAW-150, 1200 Sixth Avenue, Suite 900, Seattle, WA 98101.
- 140.3. To the extent practicable, the Permittee shall provide to EPA applications in portable document format (pdf); MS Word format (.doc); or other computer-readable format compatible with EPA's national database management system; and
- 140.4. The Permittee shall maintain records as necessary to demonstrate compliance with this condition.

[18 AAC 50.040(j)(7), 50.326(a) & 50.346(b)(7)]
[40 C.F.R. 71.10(d)(1)]

141. Emissions Trading. No permit revision shall be required under any approved economic incentives, marketable permits, emissions trading and other similar programs or processes for changes that are provided for in the permit.

[18 AAC 50.040(j)(4) & 50.326(j)]
[40 C.F.R. 71.6(a)(8)]

142. Off Permit Changes. The Permittee may make changes that are not addressed or prohibited by this permit other than those subject to the requirements of 40 C.F.R. Part 72 through 78 or those that are modifications under any provision of Title I of the Act to be made without a permit revision, provided that the following requirements are met:

- 142.1. Each such change shall meet all applicable requirements and shall not violate any existing permit term or condition;
- 142.2. Provide contemporaneous written notice to EPA and the Department of each such change, except for changes that qualify as insignificant under 18 AAC 50.326(d) through (i). Such written notice shall describe each such change, including the date, any change in emissions, pollutants emitted, and any applicable requirement that would apply as a result of the change;
- 142.3. The change shall not qualify for the shield under 40 C.F.R. 71.6(f);
- 142.4. The Permittee shall keep a record describing changes made at the stationary source that result in emissions of a regulated air pollutant subject to an applicable requirement, but not otherwise regulated under the permit, and the emissions resulting from those changes.

[18 AAC 50.040(j)(4) & 50.326(j)]

[40 C.F.R. 71.6(a)(12)]

143. Operational Flexibility. The Permittee may make CAA Section 502(b)(10)⁴⁸ changes within the permitted stationary source without requiring a permit revision if the changes are not modifications under any provision of Title I of the Act and the changes do not exceed the emissions allowable under this permit (whether expressed therein as a rate of emissions or in terms of total emissions):

143.1. The Permittee shall provide EPA and the Department with a written notification no less than seven days in advance of the proposed change.

143.2. For each such change, the notification required by Condition 143.1 shall include a brief description of the change within the permitted stationary source, the date on which the change will occur, any change in emissions, and any permit term or condition that is no longer applicable as a result of the change.

143.3. The permit shield described in 40 C.F.R. 71.6(f) shall not apply to any change made pursuant to Condition 143.

[18 AAC 50.040(j)(4) & 50.326(j)]
[40 C.F.R. 71.6(a)(13)]

144. Permit Renewal. To renew this permit, the Permittee shall submit to the Department⁴⁹ an application under 18 AAC 50.326 no sooner than **June 24, 2022** and no later than **June 24, 2023**. The renewal application shall be complete before the permit expiration date listed on the cover page of this permit. Permit expiration terminates the stationary source's right to operate unless a timely and complete renewal application has been submitted consistent with 40 C.F.R. 71.7(b) and 71.5(a)(1)(iii).

[18 AAC 50.040(j)(3), 50.326(c) & (j)(2)]
[40 C.F.R. 71.5(a)(1)(iii) & 71.7(b) & (c)(1)(ii)]

⁴⁸ As defined in 40 C.F.R. 71.2, CAA Section 502(b)(10) changes are changes that contravene an express permit term. Such changes do not include changes that would violate applicable requirements or contravene federally enforceable permit terms and conditions that are monitoring (including test methods), recordkeeping, reporting, or compliance certification requirements.

⁴⁹ Submit permit applications to the Department's Anchorage office. The current address is: Air Permit Intake Clerk, ADEC, 555 Cordova Street, Anchorage, AK 99501.

Section 12. Compliance Requirements

General Compliance Requirements

145. Compliance with permit terms and conditions is considered to be compliance with those requirements that are

145.1. included and specifically identified in the permit; or

145.2. determined in writing in the permit to be inapplicable.

[18 AAC 50.326(j)(3) & 50.345(a) & (b)]

146. The Permittee must comply with each permit term and condition. Noncompliance with a permit term or condition constitutes a violation of AS 46.14, 18 AAC 50, and, except for those terms or conditions designated in the permit as not federally enforceable, the Clean Air Act, and is grounds for

146.1. an enforcement action;

146.2. permit termination, revocation and reissuance, or modification in accordance with AS 46.14.280; or

146.3. denial of an operating permit renewal application.

[18 AAC 50.040(j), 50.326(j) & 50.345(a) & (c)]

147. For applicable requirements with which the stationary source is in compliance, the Permittee shall continue to comply with such requirements.

[18 AAC 50.040(j) & 50.326(j)]

[40 C.F.R. 71.6(c)(3) & 71.5(c)(8)(iii)(A)]

148. It is not a defense in an enforcement action to claim that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with a permit term or condition.

[18 AAC 50.326(j)(3) & 50.345(a) & (d)]

149. The Permittee shall allow the Department or an inspector authorized by the Department, upon presentation of credentials and at reasonable times with the consent of the owner or operator to

149.1. enter upon the premises where a source subject to the permit is located or where records required by the permit are kept;

149.2. have access to and copy any records required by the permit;

149.3. inspect any stationary source, equipment, practices, or operations regulated by or referenced in the permit; and

149.4. sample or monitor substances or parameters to assure compliance with the permit or other applicable requirements.

[18 AAC 50.326(j)(3) & 50.345(a) & (h)]

Compliance Schedule

- 150.** For applicable requirements that will become effective during the permit term, the Permittee shall meet such requirements on a timely basis.

[18 AAC 50.040(j) & 50.326(j)]
[40 C.F.R. 71.6(c)(3) & 71.5(c)(8)(iii)(B)]

- 151.** The Permittee shall achieve compliance with the following requirements that the source is not in compliance at the time of permit issuance by adhering to the procedures and following the compliance schedule described below:

- 151.1. The Permittee shall provide the Department a copy, within 10 days of issuance, of an approved consent decree that includes a schedule of remedial measures, including an enforceable sequence of actions with milestones, leading to compliance with the requirements of Condition 151.1.a:

- a. For EU ID 2, demonstrate compliance with the applicable mercury emission limit of 40 C.F.R. 63 Subpart UUUUU and associated work practice standards and MR&R requirements, as set out in Conditions 96 through 100, and in the consent decree.

- 151.2. This compliance schedule shall be supplemental to, and shall not sanction non-compliance with the applicable requirements on which it is based.

[18 AAC 50.040(j) & 50.326(j)]
[40 C.F.R. 71.6(c)(3) & 71.5(c)(8)(iii)(C)]

- 152.** The Permittee shall include with the operating report required in Condition 137 progress reports, as follows:

- 152.1. indicate the dates for achieving the activities, milestones, or compliance required in the compliance plan and schedule, and dates when those activities, milestones, or compliance were actually achieved; and

- 152.2. as needed, an explanation of why any dates in the schedule of compliance were not or will not be met, and any preventive or corrective measure adopted.

[18 AAC 50.040(j) & 50.326(j)]
[40 C.F.R. 71.6(c)(4) & 71.5(c)(8)(iv)]

Section 13. Permit As Shield from Inapplicable Requirements

In accordance with AS 46.14.290, and based on information supplied in the permit application, this section of the permit contains the requirements determined by the Department not to be applicable to the stationary source.

153. Nothing in this permit shall alter or affect the following:

153.1. The provisions of Section 303 of the Act (emergency orders), including the authority of the Administrator under that section; or

153.2. The liability of an owner or operator of a source for any violation of applicable requirements prior to or at the time of permit issuance.

[18 AAC 50.326(j)]
[40 C.F.R. 71.6(f)(3)(i) & (ii)]

154. Table D identifies the emissions units that are not subject to the specified requirements at the time of permit issuance. If any of the requirements listed in Table D becomes applicable during the permit term, the Permittee shall comply with such requirements on a timely basis including, but not limited to, providing appropriate notification to EPA, obtaining a construction permit and/or an operating permit revision.

[18 AAC 50.326(j)]
[40 C.F.R. 71.6(f)(1)(ii)]

Table D – Permit Shields Granted

EU ID	Non-Applicable Requirements	Reason for Non-Applicability
1	PSD BACT Emission Limits	Construction was commenced in 1965 and commissioned to operate in September 1967, which is prior to PSD requirements including BACT. This shield does not apply to future changes to EU ID 1.
1, 3, 4	40 C.F.R. 60 Subpart D – Standards of Performance for Fossil-Fuel-Fired Steam Generators	Per 40 C.F.R. 60.40(c), units constructed prior to the applicability date of August 17, 1971 (EU IDs 1 & 3) are not subject to 40 C.F.R. 60 Subpart D. Per 40 C.F.R. 60.40(a), units combusting 50 MMBtu/hr or less (EU IDs 3 & 4) fossil fuels are not subject to 40 C.F.R. 60 Subpart D.
1, 3	40 C.F.R. 60 Subpart Da – Standard of Performance for Electric Utility Steam Generating Units	Per 40 C.F.R. 60.40Da(a)(2), units constructed prior to the applicability date of September 18, 1978 (EU IDs 1 & 3) are not subject to 40 C.F.R. 60 Subpart Da. Per 40 C.F.R. 60.40Da(a)(1), units combusting 250 MMBtu/hr or less (EU IDs 3 & 4) fossil fuels are not subject to 40 C.F.R. 60 Subpart Da.
1, 3, 4	40 C.F.R. 60 Subpart Db – Standards of Performance for Industrial-Commercial-Institutional (ICI) Steam Generating Units	Per, 40 C.F.R. 60.40b(a), units constructed prior to the applicability date of June 19, 1984 (EU IDs 1 & 3) and units with a heat input capacity less than or equal to 100 MMBtu/hr (EU IDs 3 & 4) are not subject to 40 C.F.R. 60 Subpart Db.

EU ID	Non-Applicable Requirements	Reason for Non-Applicability
1, 3	40 C.F.R. 60 Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units	Per, 40 C.F.R. 60.40c(a), units constructed prior to the applicability date of June 19, 1989 (EU IDs 1 & 3) and units with a maximum design heat rating greater than 100 MMBtu/hr (EU ID 1) are not subject to 40 C.F.R. 60 Subpart Dc.
2	40 C.F.R. 60 Subpart D, Db, and Dc – Standards of Performance for Fossil-Fuel-Fired Steam Generators and ICI Steam Generating Units	Per 40 C.F.R. 60.40(e), 60.40b(e), and 60.40c(a), units subject to 40 C.F.R. 60 Subpart Da are not subject to 40 C.F.R. 60 Subparts D, Db, and Dc.
4	40 C.F.R. 60.43c(c) & (d) Subpart Dc – Opacity Limit only	Per 40 C.F.R. 60.43c(c), an opacity limit is not applicable to emission units with an input rating less than 30 MMBtu/hr. EU ID 4 has an input rating of 23.0 MMBtu/hr..
1, 2	40 C.F.R. 63 Subpart JJJJJ – NESHAP for Industrial, Commercial, and Institutional Boilers Area Sources	Per 40 C.F.R. 63.11195(k), units subject to 40 C.F.R. 63 Subpart UUUUU are not subject to 40 C.F.R. 63 Subpart JJJJJ.
5, 13	40 C.F.R. 60 Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (CI ICE)	Per 40 C.F.R. 60.4200(a), the emission units are not subject to 40 C.F.R. 60 Subpart IIII because they commenced construction prior to the applicability date of July 11, 2005 and the have not been modified or reconstructed.
5, 13	40 C.F.R. 60 Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines (SI ICE)	Per 40 C.F.R. 60.4230(a), the emission units are not subject to 40 C.F.R. 60 Subpart JJJJ because the engines are CI ICE, not SI ICE.
6, 10	40 C.F.R. 60 Subpart OOO – Standards of Performance for Nonmetallic Mineral Processing Plants (NMPP)	Coal is not defined as a nonmetallic mineral per 40 C.F.R. 60.671.
7	40 C.F.R. 60 Subpart OOO – Standards of Performance for NMPP	Per 40 C.F.R. 60.670(a)(2), the limestone storage silo is not subject to 40 C.F.R. Subpart OOO because limestone is not crushed or ground at the Healy Power Plant.
8	40 C.F.R. 60 Subpart OOO – Standards of Performance for NMPP	Flyash is not defined as a nonmetallic mineral per 40 C.F.R. 60.671. Fly ash is generated by coal combustion and is not a naturally occurring mineral. In addition, fly ash is not crushed or ground at the facility; therefore, the source cannot be considered a nonmetallic mineral processing plant.
9	40 C.F.R. 60 Subpart OOO: 40 C.F.R. 60.674(a), 60.675(f), 60.676(c) through(e) 40 C.F.R. 60.676(a) – submittal of information required for replacement unit to comply with 40 C.F.R. 60.670(d)	Emission unit does not use a wet scrubber to control emissions. Permittee is not seeking to comply with 40 C.F.R. 60.670(d).

EU ID	Non-Applicable Requirements	Reason for Non-Applicability
Stationary Source-wide	40 C.F.R. 68 – Chemical Accident Prevention Provisions	The stationary source does not have more than a threshold quantity of a regulated substance in a process, as listed in 40 C.F.R. 68.130 and is therefore not required to comply with 40 C.F.R. 68.
Stationary Source-wide	40 C.F.R. 63 Subpart DDDDD – NESHAP for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters	Exempt per 40 C.F.R. 63.7485; the Healy Power Plant is not a major source of HAPs. This shield does not apply to future changes in the stationary source that will result into the source's re-classification as HAPs major.
Stationary Source-wide	40 C.F.R. 82.158 Subpart F - Standards for Recovery and/or Recycling Equipment	The facility does not manufacture or import recycling and recovery equipment intended for use during the maintenance, service or repair of appliances.

Section 14. Visible Emissions Forms

VISIBLE EMISSION OBSERVATION FORM

This form is designed to be used in conjunction with EPA Method 9, “Visual Determination of the Opacity of Emissions from Stationary Sources.” Temporal changes in emission color, plume water droplet content, background color, sky conditions, observer position, etc. should be noted in the comments section adjacent to each minute of readings. Any information not dealt with elsewhere on the form should be noted under additional information. Following are brief descriptions of the type of information that needs to be entered on the form: for a more detailed discussion of each part of the form, refer to “Instructions for Use of Visible Emission Observation Form” (a copy is available in <https://www3.epa.gov/ttnemc01/methods/webinar8.pdf>).

- Source Name: full company name, parent company or division or subsidiary information, if necessary.
 - Address: street (not mailing or home office) address of facility where visible emissions observation is being made.
 - Phone (Key Contact): number for appropriate contact.
 - Stationary Source ID Number: number from NEDS, agency file, etc.
 - Process Equipment, Operating Mode: brief description of process equipment (include type of facility) and operating rate, % capacity, and/or mode (e.g. charging, tapping, shutdown).
 - Control Equipment, Operating Mode: specify type of control device(s) and % utilization, control efficiency.
 - Describe Emission Point: for identification purposes, stack or emission point appearance, location, and geometry; and whether emissions are confined (have a specifically designed outlet) or unconfined (fugitive).
 - Height Above Ground Level: stack or emission point height relative to ground level; can use engineering drawings, Abney level, or clinometer.
 - Height Relative to Observer: indicate height of emission point relative to the observation point.
 - Distance from Observer: distance to emission point; can use rangefinder or map.
 - Direction from Observer: direction plume is traveling from observer.
 - Describe Emissions and Color: include physical characteristics, plume behavior (e.g., looping, lacy, condensing, fumigating, secondary particle formation, distance plume visible, etc.), and color of emissions (gray, brown, white, red, black, etc.). Note color changes in comments section.
 - Visible Water Vapor Present?: check “yes” if visible water vapor is present.
 - If Present, note in the Comments column whether the Plume is “attached” if water droplet plume forms prior to exiting stack, and “detached” if water droplet plume forms after exiting stack.
 - Point in Plume at Which Opacity was Determined: describe physical location in plume where readings were made (e.g., 1 ft above stack exit or 10 ft. after dissipation of water plume).
 - Describe Plume Background: object plume is read against, include texture and atmospheric conditions (e.g., hazy).
 - Background Color: sky blue, gray-white, new leaf green, etc.
 - Sky Conditions: indicate color of clouds and cloud cover by percentage or by description (clear, scattered, broken, overcast).
 - Wind Speed: record wind speed; can use Beaufort wind scale or hand-held anemometer to estimate.
 - Wind Direction From: direction from which wind is blowing; can use compass to estimate to eight points.
 - Ambient Temperature: in degrees Fahrenheit or Celsius.
Wet Bulb Temperature: can be measured using a sling psychrometer
RH Percent: relative humidity measured using a sling psychrometer; use local US Weather Bureau measurements only if nearby.
 - Source Layout Sketch: include wind direction, sun position, associated stacks, roads, and other landmarks to fully identify location of emission point and observer position.
Draw North Arrow: to determine, point line of sight in direction of emission point, place compass beside circle, and draw in arrow parallel to compass needle.
Sun’s Location: point line of sight in direction of emission point, move pen upright along sun location line, mark location of sun when pen’s shadow crosses the observer’s position.
 - Observation Date: date observations conducted.
 - Start Time, End Time: beginning and end times of observation period (e.g., 1635 or 4:35 p.m.).
 - Data Set: percent opacity to nearest 5%; enter from left to right starting in left column. Use a second (third, etc.) form, if readings continue beyond 30 minutes. Use dash (-) for readings not made; explain in adjacent comments section.
Comments: note changing observation conditions, plume characteristics, and/or reasons for missed readings.
Range of Opacity: note highest and lowest opacity number.
 - Observer’s Name: print in full.
Observer’s Signature, Date: sign and date after performing VE observation.
 - Organization: observer’s employer.
- Certified By, Date: name of “smoke school” certifying observer and date of most recent certification.

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION AIR PERMITS PROGRAM - VISIBLE EMISSIONS OBSERVATION FORM												
									Page No.			
Stationary Source Name		Type of Emission Unit		Observation Date		Start Time		End Time				
Emission Unit Location				Sec	0	15	30	45	Comments			
				Min								
City	State	Zip		1								
Phone # (Key Contact)		Stationary Source ID Number		2								
Process Equipment		Operating Mode		3								
Control Equipment		Operating Mode		4								
Describe Emission Point/Location				5								
Height above ground level	Height relative to observer	Clinometer Reading		6								
Distance From Observer		Direction From Observer		7								
Start	End	Start	End	8								
Describe Emissions & Color				9								
Start				End								
Visible Water Vapor Present? If yes, determine approximate distance from the stack exit to where the plume was read				10								
No	Yes			11								
Point in Plume at Which Opacity Was Determined				12								
Describe Plume Background		Background Color		13								
Start		Start		14								
End		End		15								
Sky Conditions:				16								
Start		End		17								
Wind Speed		Wind Direction From		18								
Start	End	Start	End	19								
Ambient Temperature		Wet Bulb Temp		20								
		RH percent		21								
SOURCE LAYOUT SKETCH: 1 Stack or Point Being Read 2 Wind Direction From				22								
3 Observer Location 4 Sun Location 5 North Arrow 6 Other Stacks				23								
				24								
				25								
				26								
				27								
				28								
				29								
				30								
				Range of Opacity				31				
				Minimum				Maximum				
				I have received a copy of these opacity observations				Print Observer's Name				
Print Name:				Observer's Signature				Date				
Signature:								Observer's Affiliation:				
Title		Date		Certifying Organization				Date				
				Certified By:								
Data Reduction:												
Duration of Observation Period (minutes):				Duration Required by Permit (minutes):								
Number of Observations:				Highest Six-Minute Average Opacity (%):								
Number of Observations exceeding 20%:				Highest 18-Consecutive -Minute Average Opacity %(engines and turbines only)								
In compliance with six-minute opacity limit? (Yes or No)												
Average Opacity Summary:												
Set Number	Time			Opacity					Comments			
	Start	End		Sum	Average							

Section 15. Material Balance Calculation

If a fuel shipment contains more than 0.75 percent sulfur by weight, calculate the three-hour exhaust concentration of SO₂ using the following equations:

$$\begin{aligned} \text{A. } &= 31,200 \times [\text{wt}\% \text{S}_{\text{fuel}}] = 31,200 \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \\ \text{B. } &= 0.148 \times [\text{wt}\% \text{S}_{\text{fuel}}] = 0.148 \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \\ \text{C. } &= 0.396 \times [\text{wt}\% \text{C}_{\text{fuel}}] = 0.396 \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \\ \text{D. } &= 0.933 \times [\text{wt}\% \text{H}_{\text{fuel}}] = 0.933 \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \\ \text{E. } &= \text{B} + \text{C} + \text{D} = \underline{\hspace{2cm}} + \underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \\ \text{F. } &= 20.9 - [\text{vol}\%_{\text{dry}} \text{O}_{2, \text{ exhaust}}] = 20.9 - \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \\ \text{G. } &= [\text{vol}\%_{\text{dry}} \text{O}_{2, \text{ exhaust}}] \div \text{F} = \underline{\hspace{2cm}} \div \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \\ \text{H. } &= 1 + \text{G} = 1 + \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \\ \text{I. } &= \text{E} \times \text{H} = \underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \\ \text{SO}_2 \text{ concentration} &= \text{A} \div \text{I} = \underline{\hspace{2cm}} \div \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \text{ ppm} \end{aligned}$$

The **wt%S_{fuel}**, **wt%C_{fuel}**, and **wt%H_{fuel}** are equal to the weight percents of sulfur, carbon, and hydrogen in the fuel. These percentages should total 100%.

The fuel weight percent of sulfur (**wt%S_{fuel}**) is obtained pursuant to Condition 16. The fuel weight percents of carbon and hydrogen are obtained from the fuel refiner.

The volume percent of oxygen in the exhaust (**vol%_{dry}O_{2, exhaust}**) is obtained from oxygen meters, manufacturer's data, or from the most recent analysis under 40 C.F.R. 60, Appendix A-2, Method 3, adopted by reference in 18 AAC 50.040(a), at the same engine load used in the calculation.

Enter all of the data in percentages without dividing the percentages by 100. For example, if **wt%S_{fuel}** = 1.0%, then enter 1.0 into the equations not 0.01 and if **vol%_{dry}O_{2, exhaust}** = 3.00%, then enter 3.00, not 0.03.

[18 AAC 50.346(c)]

Section 16. ADEC Notification Form⁵⁰

Healy Power Plant

AQ0173TVP03

Stationary Source Name

Air Quality Permit Number.

Golden Valley Electric Association (GVEA)

Company Name

When did you discover the Excess Emissions/Permit Deviation?

Date: ____ / ____ / ____

Time: ____ : / ____

When did the event/deviation occur?

Begin: Date: ____ / ____ / ____ Time: ____ : ____ (please use 24-hr clock.)

End: Date: ____ / ____ / ____ Time: ____ : ____ (please use 24-hr clock)

What was the duration of the event/deviation? ____ : ____ (hrs:min) or ____ days
(total # of hrs, min, or days, if intermittent then include only the duration of the actual emissions/deviation)

Reason for Notification: (please check only 1 box and go to the corresponding section)

- ☐ Excess Emissions – Complete Section 1 and Certify
- ☐ Deviation from Permit Condition – Complete Section 2 and Certify
- ☐ Deviations from COBC, CO, or Settlement Agreement – Complete Section 2 and Certify

Section 1. Excess Emissions

(a) Was the exceedance ☐ Intermittent or ☐ Continuous

(b) Cause of Event (Check one that applies):

- ☐ Start Up/Shut Down ☐ Natural Cause (weather/earthquake/flood)
- ☐ Control Equipment Failure ☐ Schedule Maintenance/Equipment Adjustment
- ☐ Bad Fuel/Coal/Gas ☐ Upset Condition ☐ Other _____

(c) Description

Describe briefly, what happened and the cause. Include the parameters/operating conditions exceeded, limits, monitoring data and exceedance.

(d) Emissions Units Involved:

Identify the emissions unit involved in the event, using the same identification number and name as in the permit. Identify each emission standard potentially exceeded during the event and the exceedance.

EU ID	EU Name	Permit Condition Exceeded/Limit/Potential Exceedance

⁵⁰ Revised as of September 27, 2010.

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(e) Type of Incident (please check only one):

- ☐ Opacity _____ % ☐ Venting _____ gas/scf ☐ Control Equipment Down
☐ Fugitive Emissions ☐ Emission Limit Exceeded ☐ Recordkeeping Failure
☐ Marine Vessel Opacity ☐ Flaring ☐ Other

(f) Unavoidable Emissions:

Do you intend to assert that these excess emissions were unavoidable? ☐ Yes ☐ No

Do you intend to assert the affirmative defense of 18 AAC 50.235? ☐ Yes ☐ No

Certify Report (go to end of form)

Section 2. Permit Deviations

(a) Permit Deviation Type (check only one box, corresponding with the section in the permit):

- | | |
|---|--|
| ☐ Emissions Unit-Specific | ☐ Generally Applicable Requirements |
| ☐ Failure to Monitor/Report | ☐ Reporting/Monitoring for Diesel Engines |
| ☐ General Source Test/Monitoring Requirements | ☐ Insignificant Emissions Unit |
| ☐ Recordkeeping/Reporting/Compliance Certification | ☐ Stationary Source Wide |
| ☐ Standard Conditions Not Included in the Permit | |
| ☐ Other Section: _____ (Title of section and section number of your permit). | |

(b) Emissions Unit Involved:

Identify the emissions units involved in the event, using the same identification number and name as in the permit. List the corresponding permit conditions and the deviation.

EU ID	EU Name	Permit Condition/ Potential Deviation

(c) **Description of Potential Deviation:**

Describe briefly what happened and the cause. Include the parameters/operating conditions and the potential deviation.

(d) **Corrective Actions:**

Describe actions taken to correct the deviation or potential deviation and to prevent future recurrence.

Certification:

Based on information and belief formed after reasonable inquiry, I certify that the statements and information in and attached to this document are true, accurate, and complete.

Printed Name: _____ Title: _____ Date: _____
Signature: _____ Phone Number: _____

NOTE: *This document must be certified in accordance with 18 AAC 50.345(j)*

To Submit this Report:

1. Fax to: 907-451-2187

Or

2. Email to: DEC.AQ.Airreports@alaska.gov

If faxed or emailed, the report must be certified within the Operating Report required for the same reporting period per Condition 137.

Or

3. Mail ADEC
to: Air Permits Program
 610 University Avenue
 Fairbanks, AK 99709-3643

Or

4. Phone Notifications: 907-451-5173

Phone notifications require a written follow-up report.

Or

5. Submission of information contained in this report can be made electronically at the following website: <http://dec.alaska.gov/applications/air/airtoolsweb/>

If submitted online, report must be submitted by an authorized E-Signer for the stationary source.

[18 AAC 50.346(b)(3)]

Section 17. Emission Inventory Form

A detailed instruction on development and submission of emission inventory is available at the Department's Air Online Services (AOS) at <http://dec.alaska.gov/Applications/Air/airtoolsweb/PointSourceEmissionInventory> by clicking on "Emission Inventory Instructions" button.

ADEC Reporting Form Emission Inventory Reporting State of Alaska Department of Environmental Conservation Division of Air Quality		Emission Inventory Year- []	
Mandatory information is highlighted in bright yellow . Make additional copies as needed.			
Stationary Source Detail			
Inventory Start Date			
Inventory End Date			
ADEC ID or Permit Number			
EPA ID			
Census Area/Community			
Facility Name			
Facility Physical Location		Address	
		City, State, Zip Code	
		Latitude	Longitude
		Legal Description:	
Owner Name			
Owner Address			
Owner contact number			
Mailing Contact Information		Address	
		City, State, Zip Code	
Line of Business (NAICS)			
Facility Status			

Emission Unit Data			
Specifications			
ID		Design Capacity	
Description			
Emission Unit Status			
Manufacturer		Manufactured Year	
Model Number		Serial Number	
Regulations			
Regulation/Description			

Control Equipment (List All if applicable)			
ID			
System Description			
Equipment Type(s)			
Manufacturer			
Model			
Control Efficiency (%)			
Capture Efficiency (%)			
Pollutants Controlled		Reduction Efficiency (%)	
		Reduction Efficiency (%)	

Processes			
Process			
SCC Code			
Material Processed			
Period Start			
Period End			
Throughput (units):			
Summer %			
Fall %			
Winter %			
Spring %			
Operational Schedule			
Days/Week			
Hours/Day			
Weeks/Year			
Hours/Year			
Fuel Characteristics			
Heat Content	Elem. Sulfur Content (%)	H2S Sulfur Content	Ash Content (if applicable)
Heating			
Heat Input	Heat Output	Heat Values Convention	

Emission Operating Type					
Pollutant	Emission Factor	EF Numerator	EF Denominator	Emission Calculation Method	Tons
Carbon Monoxide (CO)					
Nitrogen Oxides (NO _x)					
PM ₁₀ Primary (PM ₁₀ -PRI)					
PM _{2.5} Filterable (PM ₂₅ -FIL) ⁵¹					
PM Condensable (PM-CON) ⁵²					
Sulfur Dioxide (SO ₂)					
NH ₃ (Ammonia)					
Lead and lead compounds					
Volatile Organic Compounds (VOC)					
Emissions' Release Point					
Release Point ID					
Apportion%					

⁵¹ Report PM_{2.5} filterable and PM condensable portions of the PM_{2.5} Primary emissions, as applicable, in accordance with Federal Regulation 40 CFR 51.15(a)(1)(vi). Refer to EPA's May 2017 "Emissions Inventory Guidance for Implementation of Ozone and Particulate Matter National Ambient Air Quality Standards (NAAQS) and Regional Haze Regulations" (see Section 4.2.1) for guidance on the reporting of PM_{2.5} filterable and condensable emissions.

⁵² Please note on the inventory form if there is no available emission factor that can be used for an applicable condensable PM. For example, EPA AP-42 Table 3.3-1 does not contain a condensable PM emission factor for diesel engines smaller than 600 hp.

Process	Secondary Process (if applicable)				
SCC Code	(ex. 20100201)				
Material Processed					
Period Start					
Period End					
Throughput (units):					
Summer %					
Fall %					
Winter %					
Spring %					
Operational Schedule					
Days/Week					
Hours/Day					
Weeks/Year					
Hours/Year					
Fuel Characteristics					
Heat Content	Elem. Sulfur Content	H2S Sulfur Content	Ash Content (if applicable)		
Heating					
Heat Input	Heat Output	Heat Values Convention			
Emissions Operating Type:					
Pollutant	Emission Factor	EF Numerator	EF Denominator	Emission Calculation Method	Tons
Carbon Monoxide (CO)					
Nitrogen Oxides (NO_x)					
PM₁₀ Primary (PM₁₀-PRI)					
PM_{2.5} Primary (PM₂₅-PRI)					
Sulfur Dioxide (SO₂)					
Lead and Lead Compounds					
NH₃ (Ammonia)					
Volatile Organic Compounds (VOC)					
Emissions' Release Point					
Release Point ID					
Apportion%					

Stack Detail (Release Point)	
> Specifications	
ID	
Type	
Description	
Stack Status	
> Stack Parameters	
Stack Height (ft)	
Stack Diameter (ft)	
Exit Gas Temp (F)	
Exit Gas Velocity (fps)	
Exit Gas Flow Rate (acfm)	
> Geographic Coordinate	
Latitude	
Longitude	
Datum	
Accuracy (meters)	
Base Elevation (meters)	

Certification:

Based on information and belief formed after reasonable inquiry, I certify that the statements and information in and attached to this document are true, accurate, and complete.

Printed Name: _____ Title _____ Date _____

Signature: _____ Phone number _____

NOTE: *This document must be certified in accordance with 18 AAC 50.345(j)*

To Submit this report:

1. Direct data entry for emission inventory can be done through the Air Online System (AOS) <http://dec.alaska.gov/Applications/Air/airtoolsweb/>. A myAlaska account is needed to gain access and a profile needs to be set up in Permittee Portal OR

2. E-mail to: DEC.AQ.airreports@alaska.gov

Or

3. Mail to: ADEC
Air Permits Program
ATTN: Emissions Inventory
555 Cordova Street
Anchorage, Alaska 99501

Or

4. Fax this form to: 907-269-7508

[18 AAC 50.346(b)(9)]

Emission Unit 05					
Specifications					
ID	05		Design Capacity	2.75 MEGAWATTS	
Description	Diesel Generator Engine No. 1		Emission Unit Status	Operating Intermittently	
Manufacturer	Electro-Motive Diesel		Manufactured Year	1967	
Model Number	20-645-E4		Serial Number	67-B1-1152	
Initial Startup Date	Installed 1967		Retired Date	Not Applicable	
Regulations					
Regulation/Description					
40 CFR 63 Subpart ZZZZ					
Control Equipment					
System Description	Not Applicable				
Control Measures/	Not Applicable				
Devices	Not Applicable				
Control Efficiency (%)	Not Applicable				
Capture Efficiency (%)	Not Applicable				
Pollutants Controlled	Not Applicable		Reduction Efficiency (%)	Not Applicable	
	Not Applicable		Reduction Efficiency (%)	Not Applicable	
Processes					
Process	Primary Process				
SCC Code	20100102				
	> Internal Combustion Engines				
	> Electric Generation				
	> Distillate Oil (Diesel)				
	> Reciprocating				
Material Processed	Diesel				
Period Start	1/1/2019		Period End	12/31/2019	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
29	gallons	0	100	0	0
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
0.0	0.0	0.0	1		
Fuel Characteristics					
Heat Content (MMBtu/1,000 gal)	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
133	0.0015	Not Applicable	Not Applicable		
Heating					
Heat Input (MMBtu/hr)		Heat Output (Megawatts)		Heat Values Convention	
6		Not Applicable		HHV	
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	0.85	POUNDS	MILLION BTUS	AP-42 Table 3.4-1	3.970E-02
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOX)	3.2	POUNDS	MILLION BTUS	AP-42 Table 3.4-1	1.495E-01
PM10 Primary (Filt + Cond)(PM10-PRI)	0.0573	POUNDS	MILLION BTUS	AP-42 Table 3.4-2	2.676E-03
PM2.5 Primary (Filt + Cond)(PM25-PRI)	0.0556	POUNDS	MILLION BTUS	AP-42 Table 3.4-2	2.597E-03
PM2.5 Filterable (PM25-FIL)	0.0479	POUNDS	MILLION BTUS	AP-42 Table 3.4-2	2.237E-03
PM Condensable (PM-CON)	0.0077	POUNDS	MILLION BTUS	AP-42 Table 3.4-2	3.596E-04
Sulfur Dioxide(SO2)	2.1E-04	POUNDS	GALLON	Mass Balance	3.089E-06
Volatile Organic Compounds(VOC)	8.2E-02	POUNDS	MILLION BTUS	AP-42 Table 3.4-1	3.825E-03
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

Emission Unit 05					
Process	Secondary Process				
SCC Code	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
Material Processed	Not Applicable				
Period Start	1/1/2019		Period End	12/31/2019	
Throughput					
Total	Summer %		Fall %	Winter %	Spring %
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input		Heat Output		Heat Values Convention	
Not Applicable		Not Applicable		Not Applicable	
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOX)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Filterable (PM25-FIL)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Release Points					
ID	Description			Type	Apportion %
05	Diesel Generator Engine No. 1			Vertical	100
Release Point 05					
Specifications					
ID	05		Type	Vertical	
Description	Diesel Generator Engine No. 1				
Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
18.25	3.33	950	25	13,180	
Geographic Coordinate					
Latitude	63.855217	Longitude	-148.948886	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Location Description	Healy, AK	Retired Date	Not Applicable		
Data Source	Engineering Estimate				

Emission Unit 07					
Specifications					
ID	07		Design Capacity	314 tons	
Description	Limestone Storage Silo		Emission Unit Status	Not Operating	
Manufacturer	Not Available		Manufactured Year	Not Available	
Model Number	Not Available		Serial Number	Not Available	
Initial Startup Date	Installed 1996		Retired Date	12/31/2018	
Regulations					
Regulation/Description					
Not Applicable					
Control Equipment					
System Description	Baghouse				
Control Measures/	Dust Suppression				
Devices	Fabric Filter/Baghouse				
Control Efficiency (%)	Not Applicable				
Capture Efficiency (%)	Not Applicable				
Pollutants Controlled	PM10 Primary (Filt + Cond)		Reduction Efficiency (%)	Not Available	
	PM25 Primary (Filt + Cond)		Reduction Efficiency (%)	Not Available	
	PM2.5 Filterable (PM25-FIL)		Reduction Efficiency (%)	Not Available	
Processes					
Process	Primary Process				
SCC Code	30510205				
	> Industrial Processes				
	> Mineral Products				
	> Bulk Materials Storage Bins				
Material Processed	Limestone				
Period Start	1/1/2019		Period End	12/31/2019	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
0	tons	0	0	0	0
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
0.0	0.0	0.0	0		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input		Heat Output		Heat Values Convention	
Not Applicable		Not Applicable		Not Applicable	
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOX)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	0.14	POUNDS	HOUR	Permit AQ0173TVP03, Table B	0.000E+00
PM2.5 Primary (Filt + Cond)(PM25-PRI)	0.14	POUNDS	HOUR	Permit AQ0173TVP03, Table B	0.000E+00
PM2.5 Filterable (PM25-FIL)	0.14	POUNDS	HOUR	Permit AQ0173TVP03, Table B	0.000E+00
PM Condensable (PM-CON)	Not Available	Not Available	Not Available	Not Available	Not Available
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

Emission Unit 07					
Process	Secondary Process				
SCC Code	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
Material Processed	Not Applicable				
Period Start	1/1/2019		Period End	12/31/2019	
Throughput					
Total	Summer %		Fall %	Winter %	Spring %
Not Applicable	Not Applicable		Not Applicable	Not Applicable	Not Applicable
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input		Heat Output		Heat Values Convention	
Not Applicable		Not Applicable		Not Applicable	
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOx)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Filterable (PM25-FIL)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Release Points					
ID	Description			Type	Apportion %
07	Limestone Storage Silo			Downward-facing Vent	100
Release Point 07					
Specifications					
ID	07		Type	Downward-facing Vent	
Description	Limestone Storage Silo				
Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
139	0.91	30	21	800	
Geographic Coordinate					
Latitude	63.854947	Longitude	-148.950628	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Location Description	Healy, AK	Retired Date	Not Applicable		
Data Source	Engineering Estimate				



April 24, 2020

Email Submittal
DEC.AQ.airreports@alaska.gov

Alaska Department of Environmental Conservation
Air Permits Program
ATTN: Air Emissions Inventory
555 Cordova Street
Anchorage, AK 99501

**Subject: Golden Valley Electric Association – Healy Power Plant
2019 Point Source Emission Inventory**

Golden Valley Electric Association (GVEA) is submitting a 2019 Point Source Emission Inventory for the Healy Power Plant in accordance with Condition 139 of Air Quality Permit No. AQ0173TVP03.

The form provided in Section 17 of Air Quality Permit No. AQ0173TVP03 requires reporting of:

- PM10 Primary (Filt + Cond)(PM10-PRI); and
- PM2.5 Primary (Filt + Cond)(PM25-PRI).

Condition 139.4 and the form provided in Section 17 of Air Quality Permit No. AQ0173TVP03 mention both an excel template and guidance document available on the ADEC website at <http://dec.alaska.gov/Applications/Air/airtoolsweb/PointSourceEmissionInventory>. The guidance document posted on the ADEC website requires reporting of:

- PM10 Primary (Filt + Cond)(PM10-PRI);
- PM2.5 Filterable (PM25-FIL); and
- PM Condensable (PM-CON).

The excel template posted ADEC website requires reporting of:

- PM10 Primary (Filt + Cond)(PM10-PRI).

Due to the discrepancies between the permit, excel template, and guidance document, GVEA has chosen to report the following PM-related pollutants in the 2019 Point Source Emission Inventory.

March 30, 2022

- PM10 Primary (Filt + Cond)(PM10-PRI);
- PM2.5 Primary (Filt + Cond)(PM25-PRI);
- PM2.5 Filterable (PM25-FIL); and
- PM Condensable (PM-CON).

If you have any questions or would like any additional information please contact me by phone at 907-458-4557 or by email at nmknight@gvea.com. The certification from Frank E. Perkins, President of Power Supply, follows.

Sincerely,

A handwritten signature in blue ink, appearing to read "Naomi Morton Knight", with a long horizontal flourish extending to the right.

Naomi Morton Knight, P.E.
Environmental Officer

Enclosures

Certification

Based on information and belief formed after reasonable inquiry, I certify that the statements and information in and attached to this document are true, accurate and complete.

Sincerely,

Frank E. Perkins
Vice President of Power Supply

Stationary Source Detail		
Inventory Start Date	1/1/2019	
Inventory End Date	12/31/2019	
ADEC ID	173	
AFS ID	0229000002	
Census Area	Denali Borough (068)	
Name	Healy Power Plant	
Physical Location	Mile 2.5 Healy Spur Rd	
	Healy, AK 99743	
	Lat 63.85	Long -148.96
	Legal Description: Not available	
Owner Name, Address, and Contact Number	Naomi Morton Knight, P.E.	
	Golden Valley Electric Association	
	PO Box 71249	
	Fairbanks, AK 99707-1249	
	907-458-4557	
Line of Business (NAICS)	221112	
Line of Business (SIC)	4911	
Facility Status	Operating	
Facility Status Year	1967	

Emission Unit 01					
Specifications					
ID	01		Design Capacity	327 MILLION BTU PER HOUR	
Description	Unit No. 1		Emission Unit Status	Operating	
Manufacturer	Foster-Wheeler		Manufactured Year	Prior to 1967	
Model Number	Not Applicable		Serial Number	78-266	
Initial Startup Date	Installed November 1967		Retired Date	Not Applicable	
Regulations					
Regulation/Description					
40 CFR 63 Subpart UUUUU					
Control Equipment					
System Description	Low NOx burners with overfire air (OFA), Selective NOn-Catalytic Reduction (SNCR), Dry Sorbent Injection (DSI), and Baghouse				
Control Measures/ Devices	Low NOx burners with OFA				
	SNCR to reduce NOx emissions				
	DSI to neutralize acid gases including SO ₂ and HCl				
	Baghouse to control PM and remove the dry material generated by the DSI				
Control Efficiency (%)	99.9				
Capture Efficiency (%)	99.9				
Pollutants Controlled	Particulate Matter			Reduction Efficiency (%)	99.9
	Sulfur Dioxide			Reduction Efficiency (%)	Not Available
	Nitrogen Oxides (NOx)			Reduction Efficiency (%)	Not Available
Processes					
Process	Primary Process				
SCC Code	10100224				
	> External Combustion Boilers				
	> Electric Generation				
	> Bituminous/Subbituminous Coal				
	> Spreader Stoker (Subbituminous Coal)				
Material Processed	Coal				
Period Start	1/1/2019		Period End	12/31/2019	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
146,690	Tons	23	22	29	25
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
6	20	44	7,387		
Fuel Characteristics					
Heat Content (MMBtu/ton)	Elem. Sulfur Content (weight %)	H ₂ S Sulfur Content (ppmv)	Ash Content (weight %)		
14.3	0.156	Not Available	9.440		
Heating					
Heat Input (MMBtu/hr)		Heat Output (MMBtu/hr)		Heat Values Convention	
285		Not Applicable		HHV	
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	246.2	POUNDS	HOUR	CEMS	9.093E+02
Ammonia (NH ₃)	0.011	POUNDS	MILLION BTUS	Engineering Test	1.157E+01
Nitrogen Oxides(NO _x)	54.9	POUNDS	HOUR	CEMS	2.028E+02
PM ₁₀ Primary (Filt + Cond)(PM ₁₀ -PRI)	0.9	POUNDS	HOUR	CEMS	3.324E+00
PM _{2.5} Primary (Filt + Cond)(PM _{2.5} -PRI)	0.9	POUNDS	HOUR	CEMS	3.324E+00
PM _{2.5} Filterable (PM _{2.5} -FIL)	0.9	POUNDS	HOUR	CEMS	3.324E+00
PM Condensable (PM-CON)	Not Available	Not Available	Not Available	Not Available	Not Available
Sulfur Dioxide(SO ₂)	75.5	POUNDS	HOUR	CEMS	2.789E+02
Lead and lead compounds	0.00042	POUNDS	TON	AP-42 Table 1.1-18	3.080E-02
Volatile Organic Compounds(VOC)	0.06	POUNDS	TON	AP-42 Table 1.1-19	4.401E+00

Emission Unit 01					
Process	Secondary Process				
SCC Code	10100501				
	> External Combustion Boilers				
	> Electric Generation				
	> Distillate Oil - Grades 1 and 2				
	> Boiler				
Material Processed	Distillate Oil				
Period Start	1/1/2019		Period End	12/31/2019	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
116,247	gallons	61	7	20	12
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
0.04	0.15	0.3	54		
Fuel Characteristics					
Heat Content (MMBtu/1,000 gal)	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
133	0.0015	Not Available	Not Available		
Heating					
Heat Input (MMBtu/hr)		Heat Output (MMBtu/hr)		Heat Values Convention	
285		Not Applicable		HHV	
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	246.2	POUNDS	HOUR	CEMS	6.703E+00
Ammonia (NH3)	0.011	POUNDS	MILLION BTUS	Engineering Test	8.532E-02
Nitrogen Oxides(NOx)	54.9	POUNDS	HOUR	CEMS	1.495E+00
PM10 Primary (Filt + Cond)(PM10-PRI)	2.3	POUNDS	THOUSAND GALLONS	AP-42 Tables 1.3-2 and 1.3-7	1.337E-01
PM2.5 Primary (Filt + Cond)(PM25-PRI)	1.55	POUNDS	THOUSAND GALLONS	AP-42 Tables 1.3-2 and 1.3-7	9.009E-02
PM2.5 Filterable (PM25-FIL)	0.25	POUNDS	THOUSAND GALLONS	AP-42 Table 1.3-7	1.453E-02
PM Condensable (PM-CON)	1.3	POUNDS	THOUSAND GALLONS	AP-42 Table 1.3-2	7.556E-02
Sulfur Dioxide(SO2)	75.5	POUNDS	HOUR	CEMS	2.055E+00
Lead and lead compounds	9	POUNDS	BILLION GALLONS	AP-42 Table 1.3-10	5.231E-07
Volatile Organic Compounds(VOC)	0.2	POUNDS	THOUSAND GALLONS	AP-42 Table 1.3-3	1.162E-02
Release Points					
ID	Description			Type	Apportion %
01	Unit No. 1			Vertical	100
Release Point 01					
Specifications					
ID	01		Type	Vertical	
Description	Unit No. 1				
Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
122	7	294	58	135,460	
Geographic Coordinate					
Latitude	63.854831	Longitude	-148.950006	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Location Description	Healy, AK	Retired Date	Not Applicable		
Data Source	Source Test				

Emission Unit 02					
Specifications					
ID	02		Design Capacity	658 MILLION BTU PER HOUR	
Description	Unit No. 2		Emission Unit Status	Operating	
Manufacturer	TRW		Manufactured Year	1996	
Model Number	Not Applicable		Serial Number	1	
Initial Startup Date	Installed 1996		Retired Date	Not Applicable	
Regulations					
Regulation/Description					
40 CFR 60 Subpart Da, 40 CFR 63 Subpart UUUUU					
Control Equipment					
System Description	Spray Dry Absorber (SDA), Selective Catalytic Reduction, and Baghouse				
Control Measures/ Devices	SDA to neutralize acid gases including SO ₂ and HCl				
	SCR to reduce NOx emissions				
	Baghouse to control PM and remove the dry material generated by the SDA				
Control Efficiency (%)	100				
Capture Efficiency (%)	100				
Pollutants Controlled	Particulate Matter			Reduction Efficiency (%)	99.95
	Nitrogen Oxides (NOx)			Reduction Efficiency (%)	Not Available
	Sulfur Dioxide			Reduction Efficiency (%)	Not Available
Processes					
Process	Primary Process				
SCC Code	10100221				
	> External Combustion Boilers				
	> Electric Generation				
	> Bituminous/Subbituminous Coal				
	> Pulverized Coal: Wet Bottom				
Material Processed	Coal				
Period Start	1/1/2019		Period End	12/31/2019	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
180,524	tons	31	24	31	15
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
5	17	36	6,044		
Fuel Characteristics					
Heat Content (MMBtu/ton)	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
14.4	0.147	Not Available	9.080		
Heating					
Heat Input (MMBtu/hr)		Heat Output (MMBtu/hr)		Heat Values Convention	
430		Not Applicable		HHV	
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	2.1	POUNDS	HOUR	CEMS	6.346E+00
Ammonia (NH3)	4.12E-04	POUNDS	MILLION BTU	December 2019 Source Test	5.354E-01
Nitrogen Oxides(NOX)	23.0	POUNDS	HOUR	CEMS	6.950E+01
PM10 Primary (Filt + Cond)(PM10-PRI)	3.160	POUNDS	HOUR	CEMS	9.549E+00
PM2.5 Primary (Filt + Cond)(PM25-PRI)	3.160	POUNDS	HOUR	CEMS	9.549E+00
PM2.5 Filterable (PM25-FIL)	3.160	POUNDS	HOUR	CEMS	9.549E+00
PM Condensable (PM-CON)	Not Available	Not Available	Not Available	Not Available	Not Available
Sulfur Dioxide(SO2)	20.2	POUNDS	HOUR	CEMS	6.104E+01
Lead and lead compounds	0.00042	POUNDS	TON	AP-42 Table 1.1-18	3.791E-02
Volatile Organic Compounds(VOC)	0.04	POUNDS	TON	AP-42 Table 1.1-19	3.610E+00

Emission Unit 02					
Process	Secondary Process				
SCC Code	10100501				
	> External Combustion Boilers				
	> Electric Generation				
	> Distillate Oil - Grades 1 and 2				
	> Boiler				
Material Processed	Distillate Oil				
Period Start	1/1/2019	Period End	12/31/2019		
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
986,566	gallons	30	25	27	19
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
0.2	0.8	1.8	306		
Fuel Characteristics					
Heat Content (MMBtu/1,000 gal)	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
133	0.0015	Not Available	Not Available		
Heating					
Heat Input (MMBtu/hr)	Heat Output (MMBtu/hr)		Heat Values Convention		
430	Not Applicable		HHV		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	2.1	POUNDS	HOURLY	CEMS	3.214E-01
Ammonia (NH3)	4.12E-04	POUNDS	MILLION BTU	December 2019 Source Test	2.712E-02
Nitrogen Oxides(NOx)	23.0	POUNDS	HOURLY	CEMS	3.520E+00
PM10 Primary (Filt + Cond)(PM10-PRI)	2.3	POUNDS	THOUSAND GALLONS	AP-42 Tables 1.3-2 and 1.3-7	1.135E+00
PM2.5 Primary (Filt + Cond)(PM25-PRI)	1.55	POUNDS	THOUSAND GALLONS	AP-42 Tables 1.3-2 and 1.3-7	7.646E-01
PM2.5 Filterable (PM25-FIL)	0.25	POUNDS	THOUSAND GALLONS	AP-42 Table 1.3-7	1.233E-01
PM Condensable (PM-CON)	1.3	POUNDS	THOUSAND GALLONS	AP-42 Table 1.3-2	6.413E-01
Sulfur Dioxide(SO2)	20.2	POUNDS	HOURLY	CEMS	3.092E+00
Lead and lead compounds	9	POUNDS	BILLION GALLONS	AP-42 Table 1.3-10	4.440E-06
Volatile Organic Compounds(VOC)	0.2	POUNDS	THOUSAND GALLONS	AP-42 Table 1.3-3	9.866E-02
Release Points					
ID	Description	Type	Apportion %		
02	Unit No. 2	Vertical	100		
Release Point 02					
Specifications					
ID	02	Type	Vertical		
Description	Unit No. 2				
Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
315	8	208	84.2	253,943	
Geographic Coordinate					
Latitude	63.854183	Longitude	-148.951639	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Location Description	Healy, AK	Retired Date	Not Applicable		
Data Source	Source Test				

Emission Unit 03						
Specifications						
ID	03		Design Capacity	12.554 MILLION BTU PER HOUR		
Description	Auxiliary Heater No. 1		Emission Unit Status	Operating		
Manufacturer	Cleaver-Brooks		Manufactured Year	1967		
Model Number	CB 189-300		Serial Number	L-39759		
Initial Startup Date	Installed 1967		Retired Date	Not Applicable		
Regulations						
Regulation/Description						
40 CFR 63 Subpart JJJJJ						
Control Equipment						
System Description	Not Applicable					
Control Measures/	Not Applicable					
Devices	Not Applicable					
Control Efficiency (%)	Not Applicable					
Capture Efficiency (%)	Not Applicable					
Pollutants Controlled	Not Applicable			Reduction Efficiency (%)	Not Applicable	
	Not Applicable			Reduction Efficiency (%)	Not Applicable	
Processes						
Process	Primary Process					
SCC Code	10200502					
	> External Combustion Boilers					
	> Industrial					
	> Distillate Oil					
	> 10-100 Million Btu/hr					
Material Processed	Distillate Oil					
Period Start	1/1/2019		Period End	12/31/2019		
Throughput						
Total		Summer %	Fall %	Winter %	Spring %	
12,857	gallons	2	48	2	48	
Operational Schedule						
Days/Week	Hours/Day	Weeks/Period	Hours/Period			
0.3	1.2	2.6	437			
Fuel Characteristics						
Heat Content (MMBtu/1,000 gal)	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)			
133	0.0015	Not Available	Not Available			
Heating						
Heat Input (MMBtu/hr)		Heat Output (MMBtu/hr)		Heat Values Convention		
4		Not Applicable		HHV		
Emissions						
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons	
Carbon Monoxide(CO)	5	POUNDS	THOUSAND GALLONS	AP-42 Table 1.3-1	3.214E-02	
Ammonia (NH3)	Not Available	Not Available	Not Available	Not Available	Not Available	
Nitrogen Oxides(NOX)	20	POUNDS	THOUSAND GALLONS	AP-42 Table 1.3-1	1.286E-01	
PM10 Primary (Filt + Cond)(PM10-PR1)	2.3	POUNDS	THOUSAND GALLONS	AP-42 Tables 1.3-2 and 1.3-7	1.479E-02	
PM2.5 Primary (Filt + Cond)(PM25-PR1)	1.55	POUNDS	THOUSAND GALLONS	AP-42 Tables 1.3-2 and 1.3-7	9.964E-03	
PM2.5 Filterable (PM25-FIL)	0.25	POUNDS	THOUSAND GALLONS	AP-42 Table 1.3-7	1.607E-03	
PM Condensable (PM-CON)	1.3	POUNDS	THOUSAND GALLONS	AP-42 Table 1.3-2	8.357E-03	
Sulfur Dioxide(SO2)	2.1E-04	POUNDS	GALLON	Mass Balance	1.369E-03	
Lead and lead compounds	9	POUNDS	BILLION GALLONS	AP-42 Table 1.3-10	5.786E-11	
Volatile Organic Compounds(VOC)	0.34	POUNDS	THOUSAND GALLONS	AP-42 Table 1.3-3	2.186E-03	

Emission Unit 03					
Process	Secondary Process				
SCC Code	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
Material Processed	Not Applicable				
Period Start	1/1/2019		Period End	12/31/2019	
Throughput					
Total	Summer %		Fall %	Winter %	Spring %
Not Applicable	Not Applicable		Not Applicable	Not Applicable	Not Applicable
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input (MMBtu/hr)		Heat Output (MMBtu/hr)		Heat Values Convention	
Not Applicable		Not Applicable		Not Applicable	
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOX)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Filterable (PM25-FIL)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Release Points					
ID	Description			Type	Apportion %
03	Auxiliary Heater No. 1			Vertical	100
Release Point 03					
Specifications					
ID	03		Type	Vertical	
Description	Auxiliary Heater No. 1				
Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
85	1.9	450	21	3,600	
Geographic Coordinate					
Latitude	63.854883	Longitude	-148.950131	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Location Description	Healy, AK	Retired Date	Not Applicable		
Data Source	Engineering Estimate				

Emission Unit 04					
Specifications					
ID	04		Design Capacity	23 MILLION BTU PER HOUR	
Description	Auxiliary Heater No. 2		Emission Unit Status	Operating	
Manufacturer	Cleaver-Brooks		Manufactured Year	1996	
Model Number	CBI 100-800-15		Serial Number	OLO94777	
Initial Startup Date	Installed 1996		Retired Date	Not Applicable	
Regulations					
Regulation/Description					
40 CFR 60 Subpart Dc and 40 CFR 63 Subpart JJJJJ					
Control Equipment					
System Description	Not Applicable				
Control Measures/	Not Applicable				
Devices	Not Applicable				
Control Efficiency (%)	Not Applicable				
Capture Efficiency (%)	Not Applicable				
Pollutants Controlled	Not Applicable		Reduction Efficiency (%)	Not Applicable	
	Not Applicable		Reduction Efficiency (%)	Not Applicable	
Processes					
Process	Primary Process				
SCC Code	10200502				
	> External Combustion Boilers				
	> Industrial				
	> Distillate Oil				
	> 10-100 Million Btu/hr				
Material Processed	Distillate Oil				
Period Start	1/1/2019	Period End	12/31/2019		
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
40,339	gallons	0	51	44	5
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
0.4	1.2	2.7	449		
Fuel Characteristics					
Heat Content (MMBtu/1,000 gal)	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
133	0.0015	Not Available	Not Available		
Heating					
Heat Input (MMBtu/hr)	Heat Output (MMBtu/hr)		Heat Values Convention		
12	Not Applicable		HHV		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	5	POUNDS	THOUSAND GALLONS	AP-42 Table 1.3-1	1.008E-01
Ammonia (NH3)	Not Available	Not Available	Not Available	Not Available	Not Available
Nitrogen Oxides(NOx)	20	POUNDS	THOUSAND GALLONS	AP-42 Table 1.3-1	4.034E-01
PM10 Primary (Filt + Cond)(PM10-PR1)	2.3	POUNDS	THOUSAND GALLONS	AP-42 Tables 1.3-2 and 1.3-7	4.639E-02
PM2.5 Primary (Filt + Cond)(PM25-PR1)	1.55	POUNDS	THOUSAND GALLONS	AP-42 Tables 1.3-2 and 1.3-7	3.126E-02
PM2.5 Filterable (PM25-FIL)	0.25	POUNDS	THOUSAND GALLONS	AP-42 Table 1.3-7	5.042E-03
PM Condensable (PM-CON)	1.3	POUNDS	THOUSAND GALLONS	AP-42 Table 1.3-2	2.622E-02
Sulfur Dioxide(SO2)	2.1E-04	POUNDS	GALLON	Mass Balance	4.296E-03
Lead and lead compounds	9	POUNDS	BILLION GALLONS	AP-42 Table 1.3-10	1.815E-10
Volatile Organic Compounds(VOC)	0.34	POUNDS	THOUSAND GALLONS	AP-42 Table 1.3-3	6.858E-03

Emission Unit 04					
Process	Secondary Process				
SCC Code	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
Material Processed	Not Applicable				
Period Start	1/1/2019		Period End	12/31/2019	
Throughput					
Total	Summer %		Fall %	Winter %	Spring %
Not Applicable	Not Applicable		Not Applicable	Not Applicable	Not Applicable
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input (MMBtu/hr)		Heat Output (MMBtu/hr)		Heat Values Convention	
Not Applicable		Not Applicable		Not Applicable	
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOX)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Filterable (PM25-FIL)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Release Points					
ID	Description			Type	Apportion %
04	Auxiliary Heater No. 2			Vertical	100
Release Point 04					
Specifications					
ID	04		Type	Vertical	
Description	Auxiliary Heater No. 2				
Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
152	1.9	450	25	4,269	
Geographic Coordinate					
Latitude	63.854956	Longitude	-148.951181	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Location Description	Healy, AK	Retired Date	Not Applicable		
Data Source	Engineering Estimate				

Emission Unit 05					
Specifications					
ID	05		Design Capacity	2.75 MEGAWATTS	
Description	Diesel Generator Engine No. 1		Emission Unit Status	Not Operating	
Manufacturer	Electro-Motive Diesel		Manufactured Year	1967	
Model Number	20-645-E4		Serial Number	67-B1-1152	
Initial Startup Date	Installed 1967		Retired Date	Not Applicable	
Regulations					
Regulation/Description					
40 CFR 63 Subpart ZZZZ					
Control Equipment					
System Description	Not Applicable				
Control Measures/	Not Applicable				
Devices	Not Applicable				
Control Efficiency (%)	Not Applicable				
Capture Efficiency (%)	Not Applicable				
Pollutants Controlled	Not Applicable		Reduction Efficiency (%)	Not Applicable	
	Not Applicable		Reduction Efficiency (%)	Not Applicable	
Processes					
Process	Primary Process				
SCC Code	20100102				
	> Internal Combustion Engines				
	> Electric Generation				
	> Distillate Oil (Diesel)				
	> Reciprocating				
Material Processed	Diesel				
Period Start	1/1/2019	Period End	12/31/2019		
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
29	gallons	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Fuel Characteristics					
Heat Content (MMBtu/1,000 gal)	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input (MMBtu/hr)	Heat Output (Megawatts)		Heat Values Convention		
Not Applicable	Not Applicable		HHV		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOX)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PR1)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PR1)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Filterable (PM25-FIL)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

Emission Unit 05					
Process	Secondary Process				
SCC Code	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
Material Processed	Not Applicable				
Period Start	1/1/2019		Period End	12/31/2019	
Throughput					
Total	Summer %		Fall %	Winter %	Spring %
Not Applicable	Not Applicable		Not Applicable	Not Applicable	Not Applicable
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input		Heat Output		Heat Values Convention	
Not Applicable		Not Applicable		Not Applicable	
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOX)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Filterable (PM25-FIL)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Release Points					
ID	Description			Type	Apportion %
05	Diesel Generator Engine No. 1			Vertical	100
Release Point 05					
Specifications					
ID	05		Type	Vertical	
Description	Diesel Generator Engine No. 1				
Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
18.25	3.33	950	25	13,180	
Geographic Coordinate					
Latitude	63.855217	Longitude	-148.948886	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Location Description	Healy, AK	Retired Date	Not Applicable		
Data Source	Engineering Estimate				

Emission Unit 06					
Specifications					
ID	06		Design Capacity	400 ton/hr	
Description	Crusher System (Dust Collector No. 1)		Emission Unit Status	Operating	
Manufacturer	Not Available		Manufactured Year	Not Available	
Model Number	Not Available		Serial Number	885247 (Secondary Crusher No. 1) 844034 (Secondary Crusher No. 2)	
Initial Startup Date	Installed 1996		Retired Date	Not Applicable	
Regulations					
Regulation/Description					
40 CFR 60 Subpart Y					
Control Equipment					
System Description	Dust Collector No. 1				
Control Measures/ Devices	Fabric Filter/Baghouse				
Control Efficiency (%)	Not Available				
Capture Efficiency (%)	Not Available				
Pollutants Controlled	PM10 Primary (Filt + Cond)		Reduction Efficiency (%)	Not Available	
	PM25 Primary (Filt + Cond)		Reduction Efficiency (%)	Not Available	
	PM2.5 Filterable (PM25-FIL)		Reduction Efficiency (%)	Not Available	
Processes					
Process	Primary Process				
SCC Code	30510103				
	> Industrial Processes				
	> Mineral Products				
	> Bulk Materials Conveyors				
	> Coal				
Material Processed	Coal				
Period Start	1/1/2019		Period End	12/31/2019	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
327,213	tons	24	27	31	17
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
2.0	6.9	14.9	2,510		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input		Heat Output		Heat Values Convention	
Not Applicable		Not Applicable		Not Applicable	
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOX)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	2.05	POUNDS	HOUR	Permit AQ0173TVP03, Table B	2.572E+00
PM2.5 Primary (Filt + Cond)(PM25-PRI)	2.05	POUNDS	HOUR	Permit AQ0173TVP03, Table B	2.572E+00
PM2.5 Filterable (PM25-FIL)	2.05	POUNDS	HOUR	Permit AQ0173TVP03, Table B	2.572E+00
PM Condensable (PM-CON)	Not Available	Not Available	Not Available	Not Available	Not Available
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

Emission Unit 06					
Process	Secondary Process				
SCC Code	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
Material Processed	Not Applicable				
Period Start	1/1/2019		Period End	12/31/2019	
Throughput					
Total	Summer %		Fall %	Winter %	Spring %
Not Applicable	Not Applicable		Not Applicable	Not Applicable	Not Applicable
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input		Heat Output		Heat Values Convention	
Not Applicable		Not Applicable		Not Applicable	
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOx)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Filterable (PM25-FIL)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (< 1 Micron)(PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Release Points					
ID	Description			Type	Apportion %
06	Crusher System (Dust Collector No. 1)			Downward-facing Vent	100
Release Point 06					
Specifications					
ID	06		Type	Downward-facing Vent	
Description	Crusher System (Dust Collector No. 1)				
Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
13	3.08	30	27	12,000	
Geographic Coordinate					
Latitude	63.855014	Longitude	-148.949925	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Location Description	Healy, AK	Retired Date	Not Applicable		
Data Source	Engineering Estimate				

Emission Unit 07					
Specifications					
ID	07		Design Capacity	314 tons	
Description	Limestone Storage Silo		Emission Unit Status	Operating	
Manufacturer	Not Available		Manufactured Year	Not Available	
Model Number	Not Available		Serial Number	Not Available	
Initial Startup Date	Installed 1996		Retired Date	Not Applicable	
Regulations					
Regulation/Description					
Not Applicable					
Control Equipment					
System Description	Baghouse				
Control Measures/	Dust Suppression				
Devices	Fabric Filter/Baghouse				
Control Efficiency (%)	Not Applicable				
Capture Efficiency (%)	Not Applicable				
Pollutants Controlled	PM10 Primary (Filt + Cond)			Reduction Efficiency (%)	Not Available
	PM25 Primary (Filt + Cond)			Reduction Efficiency (%)	Not Available
	PM2.5 Filterable (PM25-FIL)			Reduction Efficiency (%)	Not Available
Processes					
Process	Primary Process				
SCC Code	30510205				
	> Industrial Processes				
	> Mineral Products				
	> Bulk Materials Storage Bins				
	> Limestone				
Material Processed	Limestone				
Period Start	1/1/2019		Period End	12/31/2019	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
0	tons	31	24	29	16
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
5.1	17.4	37.8	6357		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input		Heat Output		Heat Values Convention	
Not Applicable		Not Applicable		Not Applicable	
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOX)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	0.14	POUNDS	HOUR	Permit AQ0173TVP03, Table B	4.450E-01
PM2.5 Primary (Filt + Cond)(PM25-PRI)	0.14	POUNDS	HOUR	Permit AQ0173TVP03, Table B	4.450E-01
PM2.5 Filterable (PM25-FIL)	0.14	POUNDS	HOUR	Permit AQ0173TVP03, Table B	4.450E-01
PM Condensable (PM-CON)	Not Available	Not Available	Not Available	Not Available	Not Available
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

Emission Unit 07					
Process	Secondary Process				
SCC Code	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
Material Processed	Not Applicable				
Period Start	1/1/2019		Period End	12/31/2019	
Throughput					
Total	Summer %		Fall %	Winter %	Spring %
Not Applicable	Not Applicable		Not Applicable	Not Applicable	Not Applicable
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable		Not Applicable		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable		Not Applicable		
Heating					
Heat Input	Heat Output		Heat Values Convention		
Not Applicable	Not Applicable		Not Applicable		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOX)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Filterable (PM25-FIL)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Release Points					
ID	Description			Type	Apportion %
07	Limestone Storage Silo			Downward-facing Vent	100
Release Point 07					
Specifications					
ID	07		Type	Downward-facing Vent	
Description	Limestone Storage Silo				
Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
139	0.91	30	21	800	
Geographic Coordinate					
Latitude	63.854947	Longitude	-148.950628	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Location Description	Healy, AK	Retired Date	Not Applicable		
Data Source	Engineering Estimate				

Emission Unit 08					
Specifications					
ID	08		Design Capacity	570 tons	
Description	Flyash Storage Silo		Emission Unit Status	Operating	
Manufacturer	Not Available		Manufactured Year	Not Available	
Model Number	Not Available		Serial Number	Not Available	
Initial Startup Date	Installed 1996		Retired Date	Not Applicable	
Regulations					
Regulation/Description					
Not Applicable					
Control Equipment					
System Description	Pulse Jet Baghouse				
Control Measures/	Dust Suppression				
Devices	Fabric Filter/Baghouse				
Control Efficiency (%)	Not Available				
Capture Efficiency (%)	Not Available				
Pollutants Controlled	PM10 Primary (Filt + Cond)			Reduction Efficiency (%)	Not Available
	PM25 Primary (Filt + Cond)			Reduction Efficiency (%)	Not Available
	PM2.5 Filterable (PM25-FIL)			Reduction Efficiency (%)	Not Available
Processes					
Process	Primary Process				
SCC Code	30181003				
	> Industrial Processes				
	> Chemical Manufacturing				
	> General Processes				
	> Storage/Transfer				
Material Processed	Flyash				
Period Start	1/1/2019		Period End	12/31/2019	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
Not Applicable	Not Applicable	32	23	29	16
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
5.1	17.4	37.8	6,350		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input		Heat Output		Heat Values Convention	
Not Applicable		Not Applicable		Not Applicable	
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOX)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	0.86	POUNDS	HOUR	Permit AQ0173TVP03, Table B	2.730E+00
PM2.5 Primary (Filt + Cond)(PM25-PRI)	0.86	POUNDS	HOUR	Permit AQ0173TVP03, Table B	2.730E+00
PM2.5 Filterable (PM25-FIL)	0.86	POUNDS	HOUR	Permit AQ0173TVP03, Table B	2.730E+00
PM Condensable (PM-CON)	Not Available	Not Available	Not Available	Not Available	Not Available
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

Emission Unit 08					
Process	Secondary Process				
SCC Code	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
Material Processed	Not Applicable				
Period Start	1/1/2019		Period End	12/31/2019	
Throughput					
Total	Summer %		Fall %	Winter %	Spring %
Not Applicable	Not Applicable		Not Applicable	Not Applicable	Not Applicable
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input	Heat Output		Heat Values Convention		
Not Applicable	Not Applicable		Not Applicable		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOx)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PR1)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PR1)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Filterable (PM25-FIL)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Release Points					
ID	Description			Type	Apportion %
08	Flyash Storage Silo			Horizontal	100
Release Point 08					
Specifications					
ID	08		Type	Horizontal	
Description	Flyash Storage Silo				
Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
100	0.91	30	128	5,000	
Geographic Coordinate					
Latitude	63.855036	Longitude	-148.951444	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Location Description	Healy, AK	Retired Date	Not Applicable		
Data Source	Engineering Estimate				

Emission Unit 09					
Specifications					
ID	09		Design Capacity	50 tons	
Description	Sodium Bicarbonate Handling System		Emission Unit Status	Operating	
Manufacturer	Not Available		Manufactured Year	Not Available	
Model Number	Not Available		Serial Number	Not Available	
Initial Startup Date	Installed 1998		Retired Date	Not Applicable	
Regulations					
Regulation/Description					
40 CFR 60 Subpart OOO					
Control Equipment					
System Description	Horizon System 58-SF-16 Style II Pulse Air Baghouse				
Control Measures/ Devices	Fabric Filter/Baghouse				
Control Efficiency (%)	Not Available				
Capture Efficiency (%)	Not Available				
Pollutants Controlled	PM10 Primary (Filt + Cond)			Reduction Efficiency (%)	Not Available
	PM25 Primary (Filt + Cond)			Reduction Efficiency (%)	Not Available
	PM2.5 Filterable (PM25-FIL)			Reduction Efficiency (%)	Not Available
Processes					
Process	Primary Process				
SCC Code	30181003				
	> Industrial Processes				
	> Chemical Manufacturing				
	> General Processes				
	> Storage/Transfer				
Material Processed	Sodium Bicarbonate				
Period Start	1/1/2019		Period End	12/31/2019	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
2111	tons	19	27	29	25
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
0.1	0.3	0.7	123		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input		Heat Output		Heat Values Convention	
Not Applicable		Not Applicable		Not Applicable	
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOX)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	0.02	GRAINS	DRY STANDARD CUBIC FOOT	Design Specifications	4.620E-03
PM2.5 Primary (Filt + Cond)(PM25-PRI)	0.02	GRAINS	DRY STANDARD CUBIC FOOT	Design Specifications	4.620E-03
PM2.5 Filterable (PM25-FIL)	0.02	GRAINS	DRY STANDARD CUBIC FOOT	Design Specifications	4.620E-03
PM Condensable (PM-CON)	Not Available	Not Available	Not Available	Not Available	Not Available
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

Emission Unit 09					
Process	Secondary Process				
SCC Code	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
Material Processed	Not Applicable				
Period Start	1/1/2019		Period End	12/31/2019	
Throughput					
Total	Summer %		Fall %	Winter %	Spring %
Not Applicable	Not Applicable		Not Applicable	Not Applicable	Not Applicable
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable		Not Applicable		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable		Not Applicable		
Heating					
Heat Input	Heat Output		Heat Values Convention		
Not Applicable	Not Applicable		Not Applicable		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOX)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PR1)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PR1)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Filterable (PM25-FIL)					
PM Condensable (PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Release Points					
ID	Description			Type	Apportion %
09	Sodium Bicarbonate Handling System			Downward-facing Vent	100
Release Point 09					
Specifications					
ID	09		Type	Downward-facing Vent	
Description	Sodium Bicarbonate Handling System				
Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
58	0.45	30	46	440	
Geographic Coordinate					
Latitude	63.854619	Longitude	-148.950214	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Location Description	Healy, AK	Retired Date	Not Applicable		
Data Source	Engineering Estimate				

Emission Unit 10					
Specifications					
ID	10		Design Capacity	240 ton/hr	
Description	Coal Handling System (Dust Collector No. 2)		Emission Unit Status	Operating	
Manufacturer	Not Available		Manufactured Year	Not Available	
Model Number	Not Available		Serial Number	Not Available	
Initial Startup Date	Installed 1996		Retired Date	Not Applicable	
Regulations					
Regulation/Description					
40 CFR 60 Subpart Y					
Control Equipment					
System Description	Air-Cure Environmental, Inc 276RF8 Reverse Pulse Baghouse				
Control Measures/ Devices	Fabric Filter/Baghouse				
Control Efficiency (%)	Not Available				
Capture Efficiency (%)	Not Available				
Pollutants Controlled	PM10 Primary (Filt + Cond)			Reduction Efficiency (%)	Not Available
	PM25 Primary (Filt + Cond)			Reduction Efficiency (%)	Not Available
	PM2.5 Filterable (PM25-FIL)			Reduction Efficiency (%)	Not Available
Processes					
Process	Primary Process				
SCC Code	30510103				
	> Industrial Processes				
	> Mineral Products				
	> Bulk Materials Conveyors				
	> Coal				
Material Processed	Coal				
Period Start	1/1/2019		Period End	12/31/2019	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
327,213	tons	24	27	31	17
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
2	7	15	2,510		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input		Heat Output		Heat Values Convention	
Not Applicable		Not Applicable		Not Applicable	
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOX)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	3.43	POUNDS	HOUR	Permit AQ0173TVP03, Table B	4.304E+00
PM2.5 Primary (Filt + Cond)(PM25-PRI)	3.43	POUNDS	HOUR	Permit AQ0173TVP03, Table B	4.304E+00
PM2.5 Filterable (PM25-FIL)	3.43	POUNDS	HOUR	Permit AQ0173TVP03, Table B	4.304E+00
PM Condensable (PM-CON)	Not Available	Not Available	Not Available	Not Available	Not Available
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Process	Secondary Process				
SCC Code	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
Material Processed	Not Applicable				

Emission Unit 10					
Period Start	1/1/2019		Period End	12/31/2019	
Throughput					
Total	Summer %		Fall %	Winter %	Spring %
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input	Heat Output		Heat Values Convention		
Not Applicable	Not Applicable		Not Applicable		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOx)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PR1)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PR1)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Filterable (PM25-FIL)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Release Points					
ID	Description		Type	Apportion %	
10A	Coal Handling System (Dust Collector No. 2)		Horizontal	0	
10B	Temporary Dust Collector		Horizontal	100	
Release Point 10A					
Specifications					
ID	10A		Type	Horizontal	
Description	Coal Handling System (Dust Collector No. 2)				
Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
127	3.32	30	39	20,000	
Geographic Coordinate					
Latitude	63.854989	Longitude	-148.950558	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Location Description	Healy, AK	Retired Date	Not Applicable		
Data Source	Engineering Estimate				
Release Point 10B					
Specifications					
ID	10B		Type	Horizontal	
Description	Temporary Dust Collector				
Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
57	1.07	30	111	6,000	
Geographic Coordinate					
Latitude	63.85520	Longitude	-148.95132	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Location Description	Healy, AK	Retired Date	Not Applicable		
Data Source	Engineering Estimate				

Emission Unit 11					
Specifications					
ID	11		Design Capacity	Not Applicable	
Description	Haul Road (located on GVEA property)		Emission Unit Status	Operating	
Manufacturer	Not Applicable		Manufactured Year	Not Applicable	
Model Number	Not Applicable		Serial Number	Not Applicable	
Initial Startup Date	1967 (estimate)		Retired Date	Not Applicable	
Regulations					
Regulation/Description					
Not Applicable					
Control Equipment					
System Description	Water application				
Control Measures/ Devices	Dust Suppression				
Control Efficiency (%)	50				
Capture Efficiency (%)	Not Applicable				
Pollutants Controlled	PM10 Primary (Filt + Cond)			Reduction Efficiency (%)	50
	PM25 Primary (Filt + Cond)			Reduction Efficiency (%)	50
	PM2.5 Filterable (PM25-FIL)			Reduction Efficiency (%)	50
Processes					
Process	Primary Process				
SCC Code	30501090				
	> Industrial Processes				
	> Mineral Products				
	> Coal Mining, Cleaning, and Material Handling				
	> Haul Roads				
Material Processed	Fugitive Dust				
Period Start	1/1/2019		Period End	12/31/2019	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
1,190	Vehicle Miles Travelled (VMT)	27	23	30	20
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
7	24	52	8,760		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input		Heat Output		Heat Values Convention	
Not Applicable		Not Applicable		Not Applicable	
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOX)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	1.32	POUNDS	VMT	AP-42 Section 13.2.2	7.828E-01
PM2.5 Primary (Filt + Cond)(PM25-PRI)	0.13	POUNDS	VMT	AP-42 Section 13.2.2	7.828E-02
PM2.5 Filterable (PM25-FIL)	0.13	POUNDS	VMT	AP-42 Section 13.2.2	7.828E-02
PM Condensable (PM-CON)	Not Available	Not Available	Not Available	Not Available	Not Available
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

Emission Unit 11					
Process	Secondary Process				
SCC Code	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
Material Processed	Not Applicable				
Period Start	1/1/2019		Period End	12/31/2019	
Throughput					
Total	Summer %		Fall %	Winter %	Spring %
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input	Heat Output		Heat Values Convention		
Not Applicable	Not Applicable		Not Applicable		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOx)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Filterable (PM25-FIL)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Release Points					
ID	Description			Type	Apportion %
11	Haul Road (located on GVEA property)			Fugitive	100
Release Point 11					
Specifications					
ID	11		Type	Fugitive	
Description	Haul Road (located on GVEA property)				
Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	
Geographic Coordinate					
Latitude	63.855392	Longitude	-148.945955	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Location Description	Location determined near split in haul road by substation: Healy, AK	Retired Date	Not Applicable		
Data Source	Engineering Estimate				

Emission Unit 12					
Specifications					
ID	12	Design Capacity	372,000 cubic feet		
Description	Coal Storage Pile	Emission Unit Status	Operating		
Manufacturer	Not Applicable	Manufactured Year	Not Applicable		
Model Number	Not Applicable	Serial Number	Not Applicable		
Initial Startup Date	1967 (estimate)	Retired Date	Not Applicable		
Regulations					
Regulation/Description					
Not Applicable					
Control Equipment					
System Description	Water application				
Control Measures/Devices	Dust Suppression				
Control Efficiency (%)	50				
Capture Efficiency (%)	Not Applicable				
Pollutants Controlled	PM10 Primary (Filt + Cond)	Reduction Efficiency (%)		50	
	PM25 Primary (Filt + Cond)	Reduction Efficiency (%)		50	
	PM2.5 Filterable (PM25-FIL)	Reduction Efficiency (%)		50	
Processes					
Process	Primary Process				
SCC Code	30510303				
	> Industrial Processes				
	> Mineral Products				
	> Bulk Materials Open Stockpiles				
Material Processed	Coal				
Period Start	1/1/2019	Period End	12/31/2019		
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
327,213	tons	27	23	30	17
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
7	24	52	8,760		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input	Heat Output		Heat Values Convention		
Not Applicable	Not Applicable		Not Applicable		
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOX)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	5.918E-01	TONS	YEAR	AP-42 Sections 13.2.2, 13.2.4, and 13.2.5	5.918E-01
PM2.5 Primary (Filt + Cond)(PM25-PRI)	6.111E-02	TONS	YEAR	AP-42 Sections 13.2.2, 13.2.4, and 13.2.5	6.111E-02
PM2.5 Filterable (PM25-FIL)	6.111E-02	TONS	YEAR	AP-42 Sections 13.2.2, 13.2.4, and 13.2.5	6.111E-02
PM Condensable (PM-CON)	Not Available	Not Available	Not Available	Not Available	Not Available
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

Emission Unit 12					
Process	Secondary Process				
SCC Code	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
Material Processed	Not Applicable				
Period Start	1/1/2019		Period End	12/31/2019	
Throughput					
Total	Summer %		Fall %	Winter %	Spring %
Not Applicable	Not Applicable		Not Applicable	Not Applicable	Not Applicable
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input		Heat Output		Heat Values Convention	
Not Applicable		Not Applicable		Not Applicable	
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOX)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Filterable (PM25-FIL)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Release Points					
ID	Description			Type	Apportion %
12	Coal Storage Pile			Fugitive	100
Release Point 12					
Specifications					
ID	12		Type	Fugitive	
Description	Coal Storage Pile				
Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	
Geographic Coordinate					
Latitude	63.854556	Longitude	-148.946703	Datum	World 1984
Base Elevation	1,260	Accuracy	1		
Location Description	Healy, AK	Retired Date	Not Applicable		
Data Source	Engineering Estimate				

Emission Unit 13					
Specifications					
ID	13		Design Capacity	264 HORSEPOWER	
Description	Firewater Pump Engine		Emission Unit Status	Operating	
Manufacturer	Caterpillar		Manufactured Year	1997	
Model Number	3406B		Serial Number	6TB14931	
Initial Startup Date	Installed 1997		Retired Date	Not Applicable	
Regulations					
Regulation/Description					
40 CFR 63 Subpart ZZZZ					
Control Equipment					
System Description	Not Applicable				
Control Measures/	Not Applicable				
Devices	Not Applicable				
Control Efficiency (%)	Not Applicable				
Capture Efficiency (%)	Not Applicable				
Pollutants Controlled	Not Applicable		Reduction Efficiency (%)	Not Applicable	
	Not Applicable		Reduction Efficiency (%)	Not Applicable	
> Pollutants Controlled					
Pollutant Description			Reduction Efficiency (%)		
Not Applicable			Not Applicable		
Processes					
Process	Primary Process				
SCC Code	20200102				
	> Internal Combustion Engines				
	> Industrial				
	> Distillate Oil (Diesel)				
	> Reciprocating				
Material Processed	Distillate Oil				
Period Start	1/1/2019		Period End	12/31/2019	
Throughput					
Total		Summer %	Fall %	Winter %	Spring %
83.09272457	gallons	25	25	25	25
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
0.005	0.02	0.04	6		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content	H2S Sulfur Content	Ash Content		
(MMBtu/1,000 gal)	(weight %)	(ppmv)	(weight %)		
133	0.0015	Not Available	Not Available		
Heating					
Heat Input (MMBtu/hr)		Heat Output (horsepower)		Heat Values Convention	
2		264		HHV	
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	6.68E-03	POUNDS	HORSEPOWER-HOUR	AP-42 Table 3.3-1	5.291E-03
Ammonia (NH3)	Not Available	Not Available	Not Available	Not Available	Not Available
Nitrogen Oxides(NOX)	0.031	POUNDS	HORSEPOWER-HOUR	AP-42 Table 3.3-1	2.455E-02
PM10 Primary (Filt + Cond)(PM10-PRI)	2.2E-03	POUNDS	HORSEPOWER-HOUR	AP-42 Table 3.3-1	1.742E-03
PM2.5 Primary (Filt + Cond)(PM25-PRI)	2.2E-03	POUNDS	HORSEPOWER-HOUR	AP-42 Table 3.3-1	1.742E-03
PM2.5 Filterable (PM25-FIL)	2.2E-03	POUNDS	HORSEPOWER-HOUR	AP-42 Table 3.3-1	1.742E-03
PM Condensable (PM-CON)	Not Available	Not Available	Not Available	Not Available	Not Available
Sulfur Dioxide(SO2)	2.13E-04	POUNDS	GALLON	Mass Balance	2.663E-06
Volatile Organic Compounds(VOC)	2.51E-03	POUNDS	HORSEPOWER-HOUR	AP-42 Table 3.3-1	1.988E-03
Lead and lead compounds	Not Available	Not Available	Not Available	Not Available	Not Available

Emission Unit 13					
Process	Secondary Process				
SCC Code	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
	Not Applicable				
Material Processed	Not Applicable				
Period Start	1/1/2019		Period End	12/31/2019	
Throughput					
Total	Summer %		Fall %	Winter %	Spring %
Not Applicable	Not Applicable		Not Applicable	Not Applicable	Not Applicable
Operational Schedule					
Days/Week	Hours/Day	Weeks/Period	Hours/Period		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Fuel Characteristics					
Heat Content	Elem. Sulfur Content (weight %)	H2S Sulfur Content (ppmv)	Ash Content (weight %)		
Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Heating					
Heat Input		Heat Output		Heat Values Convention	
Not Applicable		Not Applicable		Not Applicable	
Emissions					
Pollutant	Emission Factor	EF Numerator	EF Denominator	EF Source	Tons
Carbon Monoxide(CO)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ammonia (NH3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nitrogen Oxides(NOX)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM10 Primary (Filt + Cond)(PM10-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Primary (Filt + Cond)(PM25-PRI)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM2.5 Filterable (PM25-FIL)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
PM Condensable (PM-CON)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sulfur Dioxide(SO2)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Volatile Organic Compounds(VOC)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lead and lead compounds	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Release Points					
ID	Description			Type	Apportion %
13	Firewater Pump Engine			Horizontal	100
Release Point 13					
Specifications					
ID	13		Type	Horizontal	
Description	Firewater Pump Engine				
Stack Parameters					
Stack Height (ft)	Stack Diameter (ft)	Exit Gas Temp (F)	Exit Gas Velocity (fps)	Exit Gas Flow Rate (acfm)	
10	1	300	6	283	
Geographic Coordinate					
Latitude	63.854956	Longitude	-148.951181	Datum	NAD 1983
Base Elevation	1,260	Accuracy	1		
Location Description	Healy, AK	Retired Date	Not Applicable		
Data Source	Engineering Estimate				

2019 Actual Emissions Calculations - Fuel and Operating Hour Summary
Golden Valley Electric Association - Healy Power Plant

EU ID	Description	Fuel Type	Fuel Consumption (gallons)												Total
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1	Unit 1	ULSD	-	962	464	4,743	9,107	30,677	11,066	28,853	605	7,171	-	22,598	116,247
2	Unit 2	ULSD	73,560	40,749	64,594	10,658	107,547	82,606	111,747	96,864	50,021	130,776	69,160	148,284	986,566
3	Auxiliary Boiler 1	ULSD	4	1	3	3,380	2,816	-	1	273	-	6,142	-	237	12,857
4	Auxiliary Boiler 2	ULSD	-	1,306	-	1,940	-	-	1	-	-	18,146	2,473	16,474	40,339
5	Diesel Electric Generator	ULSD	-	-	-	-	-	-	-	-	29	-	-	-	29
13	Firewater Pump	ULSD	7	7	7	7	7	7	7	7	7	7	7	7	83

EU ID	Description	Coal Consumption (tons)												Total
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1	Unit 1	15,751	14,246	15,821	11,721	9,706	8,646	13,869	10,961	15,322	3,241	14,359	13,047	146,690
2	Unit 2	23,001	13,205	20,398	1,051	5,448	18,679	17,654	18,979	8,790	13,880	19,803	19,637	180,524
	Total	38,753	27,451	36,218	12,772	15,154	27,324	31,523	29,940	24,112	17,120	34,162	32,684	327,213

EU ID	Coal Properties
	Fuel HHV (Btu/lb)
1	7,173
2	7,199
	Ash (wt. %)
1	9.44
2	9.08
	Sulfur (wt. %)
1	0.156
2	0.147

EU ID	Fuel Type	Fuel Usage by Season (%)			
		Summer	Fall	Winter	Spring
1	ULSD	60.7	6.7	20.3	12.3
	Coal	22.8	22.4	29.3	25.4
2	ULSD	29.5	25.3	26.6	18.5
	Coal	30.6	23.5	30.9	14.9
3	ULSD	2.1	47.8	1.9	48.2
4	ULSD	0.0	51.1	44.1	4.8
5	ULSD	25.0	25.0	25.0	25.0

EU ID	Fuel Type	MMBtu
1	ULSD	15,512.2
	Coal	2,104,407.6
2	ULSD	131,648.7
	Coal	2,599,181.7

Fuel Type	Moisture (wt. %)
Coal	30.90

EU ID	Hours by Season (%)			
	Summer	Fall	Winter	Spring
6	24	27	31	17
7	31	24	29	16
8	32	23	29	16
9	19	27	29	25
10	24	27	31	17
13	25	25	25	25

EU ID	Coal Consumption by Season (%)			
	Summer	Fall	Winter	Spring
11 and 12	27	23	30	20

Fuel Type	Avg. Density (lb/gal)
ULSD	7.10

Source: AP 42, Table 3.4-1, footnote a

EU ID	Material	Throughput (tons)
7	Limestone	-
9	Bicarbonate	2,111

Fuel Type	Fuel HHV (Btu/gal)												Average
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
ULSD	133,475	-	-	133,629	-	-	133,076	132,971	133,764	-	133,852	133,322	133,441

EU ID	Description	Operating Hours												Total
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1	Unit 1 Coal													7,387
	Unit 1 Oil													54
	Unit 1 Total	744	672	744	554	467	587	738	623	720	177	720	695	7,441
2	Unit 2 Coal													6,044
	Unit 2 Oil													306
	Unit 2	733	432	713	66	265	690	672	656	313	520	635	656	6,350
3	Auxiliary Boiler 1	0	1	1	112	74	-	0	4	-	237	-	8	437
4	Auxiliary Boiler 2	-	24	-	104	-	-	0	-	-	186	36	100	449
5	Diesel Electric Generator	-	-	-	-	-	-	-	0.7	-	-	-	-	1
6	Crusher	156	235	273	75	87	179	189	243	191	194	291	397	2,510
7	Lime Storage Silo	724	420	705	72	230	678	622	655	364	502	666	718	6,357
8	Flyash Storage Silo	733	432	713	66	265	690	672	656	313	520	635	656	6,350
9	Sodium Bicarbonate System	12	11	2	13	16	7	10	6	10	2	21	13	123
10	Coal Handling System	156	235	273	75	87	179	189	243	191	194	291	397	2,510
13	Firewater Pump	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	6

**2019 Actual Emissions Calculations - Haul Road Particulate Matter Emissions
Golden Valley Electric Association - Healy Power Plant**

Emissions Unit		Factor Reference	Emission	Emission Factor	2019 Actual Operation	2019 Actual PM Emissions
ID	Description					
11	Coal Haul - Unpaved Portion	AP-42, Section 13.2.2	PM	5.10 lb/VMT	1,190 VMT	3.03 tpy ¹
			PM ₁₀	1.32 lb/VMT		0.78 tpy ¹
			PM _{2.5}	0.13 lb/VMT		0.08 tpy ¹
Total PM Emissions						3.03 tpy
Total PM ₁₀ Emissions						0.78 tpy
Total PM _{2.5} Emissions						0.08 tpy

Notes:

¹ Coal Haul Road**Unpaved Road Emission Factor**

AP-42, Section 13.2.2, Equation 1a:

$$E \left(\frac{\text{lb}}{\text{VMT}} \right) = k \left(\frac{s}{12} \right)^a \left(\frac{W}{3} \right)^b$$

	PM	PM ₁₀	PM _{2.5}	
k	4.9	1.5	0.15	from AP-42, Table 13.2.2-2
s = surface material silt content (haul road)	5.1	5.1	5.1	percent, from AP-42, Table 13.2.2-1
W = mean vehicle weight	193.75	193.75	193.75	tons, estimate - average of full (262.5 ton) and empty (125 ton) truck
a (empirical constant)	0.7	0.9	0.9	from AP-42, Table 13.2.2-2
b (empirical constant)	0.45	0.45	0.45	from AP-42, Table 13.2.2-2
E (uncontrolled) =	17.56	4.53	0.45	lb/VMT
Efficiency =	60%	60%	60%	assumed control efficiency for water
E (controlled) =	7.03	1.81	0.18	lb/VMT

Healy Alaska annually has 100 days with rainfall greater than or equal to 0.01 inches per the Western Regional Climate Center.

AP-42, Section 13.2.2, Equation 2:

$$E_{\text{ext}} = E \left(\frac{365 - P}{365} \right)$$

E_{ext} = annual size-specific emission factor extrapolated for water mitigation, lb/VMT

E = emission factor from Equation 1a

P = number of days in a year with at least 0.01 inches of precipitation

	PM	PM ₁₀	PM _{2.5}	
E (controlled) =	5.10	1.32	0.13	lb/VMT

**2019 Actual Emissions Calculations - Haul Road Particulate Matter Emissions
Golden Valley Electric Association - Healy Power Plant**

Coal Throughput

Unit 1 actual coal throughput	146,690 tons
Unit 2 actual coal throughput	180,524 tons
Total actual coal throughput	327,213 tons

Vehicle Miles Traveled (VMT)

$$VMT = \frac{\text{Throughput (tons)} \times \text{Roundtrip Distance} \left(\frac{\text{miles}}{\text{trip}} \right)}{\text{Haul Truck Capacity} \left(\frac{\text{tons}}{\text{trip}} \right)}$$

Haul truck capacity	137.5 tons, estimate
Unpaved distance from coal pile to paved road (round trip)	0.50 miles/trip
Unpaved road VMT =	1,189.87 miles

2019 Actual Emissions Calculations - Coal Storage Pile Particulate Matter Emissions
Golden Valley Electric Association - Healy Power Plant

Emissions Unit		Factor Reference	Emission	Emission Factor	2019 Actual Operation	2019 Actual PM Emissions
ID	Description					
12	Truck Drop Onto Stockpile	AP-42, Section 13.2.4	PM	2.42E-04 lb/ton	327,213 tpy	4.0E-02 tpy ¹
			PM ₁₀	1.14E-04 lb/ton		1.9E-02 tpy ¹
			PM _{2.5}	1.73E-05 lb/ton		2.8E-03 tpy ¹
	Front End Loader Drop Into Grizzly	AP-42, Section 13.2.4	PM	2.42E-04 lb/ton	327,213 tpy	4.0E-02 tpy ¹
			PM ₁₀	1.14E-04 lb/ton		1.9E-02 tpy ¹
			PM _{2.5}	1.73E-05 lb/ton		2.8E-03 tpy ¹
	Front End Loader Movement - Coal Pile to Grizzly	AP-42, Section 13.2.2	PM	3.27 lb/VMT	1,189 VMT	1.94 tpy ²
			PM ₁₀	0.93 lb/VMT		5.5E-01 tpy ²
			PM _{2.5}	0.09 lb/VMT		5.5E-02 tpy ²
	Stockpile Wind Erosion	AP-42, Section 13.2.5	PM	0 g/m ² -yr	10,150 m ²	0 tpy ³
			PM ₁₀	0 g/m ² -yr		0 tpy ³
			PM _{2.5}	0 g/m ² -yr		0 tpy ³
Total PM Emissions					2.02 tpy	
Total PM ₁₀ Emissions					0.59 tpy	
Total PM _{2.5} Emissions					0.06 tpy	

Notes:
¹ Truck Drop onto Stockpile and Front End Loader Drop to Grizzly
 Drop Operation Emission Factor:
 AP-42, Section 13.2.4

$$E \left(\frac{lb}{ton} \right) = \frac{k \times 0.0032 \times \left(\frac{U}{5} \right)^{2.5}}{\left(\frac{M}{2} \right)^{1.4}}$$

	PM	PM ₁₀	PM _{2.5}
k	0.74	0.35	0.053
U = mean wind speed	16.50	16.50	16.50
M = coal moisture content	30.90	30.90	30.90
E =	2.42E-04	1.14E-04	1.73E-05
	lb/ton	lb/ton	lb/ton

AP-42, Section 13.2.4
 Per MET data recorded at GVEA's Eva Creek Wind Farm CY2019, conservative estimation with higher winds than seen at the Healy Power Plant
 From CY2019 coal proximate analyses

Annual Stockpile Throughput:

Unit 1 actual coal throughput	146,690 tons
Unit 2 actual coal throughput	180,524 tons
Total actual coal throughput	327,213 tons

² Front End Loader Movement
 Coal moved per trip:

$$Coal \text{ (tons)} = \frac{Coal \text{ Density} \left(\frac{lb}{ft^3} \right) \times 27 \left(\frac{ft^3}{yd^3} \right) \times Bucket \text{ Size} (yd^3)}{2000 \left(\frac{lb}{ton} \right)}$$

Size of load bucket	11 yd ³
Density of coal	52.63 lb/ft ³
Coal moved per trip	7.82 tons

Emission Factor

AP-42, Section 13.2.2, Equation 1a:

$$E \left(\frac{lb}{VMT} \right) = k \left(\frac{s}{12} \right)^a \left(\frac{W}{3} \right)^b$$

	PM	PM ₁₀	PM _{2.5}	
k	4.9	1.5	0.15	from AP-42, Table 13.2.2-2
s = surface material silt content (haul road)	8.4	8.4	8.4	percent, from AP-42, Table 13.2.2-1
W = mean vehicle weight	33.2	33.2	33.2	tons, estimate
a (empirical constant)	0.7	0.9	0.9	from AP-42, Table 13.2.2-2
b (empirical constant)	0.45	0.45	0.45	from AP-42, Table 13.2.2-2
E (uncontrolled) =	11.26	3.21	0.32	lb/VMT
Efficiency =	60%	60%	60%	assumed control efficiency for water
E (controlled) =	4.50	1.28	0.13	lb/VMT

2019 Actual Emissions Calculations - Coal Storage Pile Particulate Matter Emissions
Golden Valley Electric Association - Healy Power Plant

Healy Alaska annually has 100 days with rainfall greater than or equal to 0.01 inches per the Western Regional Climate Center.
 AP-42, Section 13.2.2, Equation 2:

$$E_{\text{wet}} = E \left(\frac{365 - P}{365} \right)$$

E_{wet} = annual size-specific emission factor extrapolated for water mitigation, lb/VMT

E = emission factor from Equation 1a

P = number of days in a year with at least 0.01 inches of precipitation

	PM	PM ₁₀	PM _{2.5}	
E (controlled) =	3.27	0.93	0.09	lb/VMT

Vehicle Miles Traveled (VMT)

$$VMT = \frac{\text{Throughput (tons)} \times \text{Roundtrip Distance} \left(\frac{\text{miles}}{\text{trip}} \right)}{\text{Haul Truck Capacity} \left(\frac{\text{tons}}{\text{trip}} \right)}$$

Total Potential Coal Throughput	327,213 tons
Coal moved per trip	7.82 tons
Approximate distance from coal pile to grizzly (round trip)	150 feet
VMT = vehicles miles traveled per year	1,189

³ Stockpile Wind Erosion

Coal Pile Surface Area

Surface area of active face = 10,150 m²

Engineering estimate of projected use

AP-42 Section 13.2.5, Equation (2)

Emission factor for wind-generated particulate emissions from mixtures of erodible and nonerodible surface material subject to disturbance, EF

$$EF \left(\frac{g}{m^2 \cdot yr} \right) = k \sum_{i=1}^N P_i$$

where

k = particle size multiplier (AP-42 Section 13.2.5.3)

N = number of disturbances per year

P_i = erosion potential corresponding to the fastest mile of wind for the ith period between disturbances, g/m²

2019 Actual Emissions Calculations - Coal Storage Pile Particulate Matter Emissions
Golden Valley Electric Association - Healy Power Plant

AP-42 Section 13.2.5, Equation (3)

Erosion potential function for a dry exposed surface, P

$$P = 58 (u^* - u_z^*)^2 + 25 (u^* - u_z^*)$$

$$P = 0 \text{ for } u^* \leq u_z^*$$

where

u^* = friction velocity (m/s)

u_z^* = threshold friction velocity (m/s)

AP-42 Section 13.2.5, Equation (1)

Friction velocity, u^*

$$u^* = \frac{0.4 \times u(z)}{\ln\left(\frac{z}{z_o}\right)} \text{ when } z > z_o$$

where

u^* = friction velocity (cm/s)

$u(z)$ = wind speed at height z above test surface (cm/s)

z = height above test surface (cm)

z_o = roughness height, cm

Data:

$u(z)$

z

N

10

365

30

Using average wind speed recorded at GVEA's Eva Creek Wind farm for each month in CY2019 (see table below)

meters

disturbances/year for active face, estimated

average disturbances/month

				Uncrusted Coal Pile ^b (Table 13.2.5-2)				Ground Coal ^c (Table 13.2.5-2)							
Month-Year	Average Wind Speed (u(10)) ^a		Wind Direction	Roughness Height (z _o)	Threshold Friction Velocity (u _t)	Calculated Friction Velocity (u*)	Erosion potential function, P	Roughness Height (z _o)	Threshold Friction Velocity (u _t)	Calculated Friction Velocity (u*)	Erosion potential function, P	P x N	k	Emission Factor EF g/m²·y	
	mph	m/s													deg
Jan-19	18.6	8.3	150	0.3	1.12	0.41	0	0.01	0.55	0.29	0	0			
Feb-19	17.4	7.8	180	0.3	1.12	0.38	0	0.01	0.55	0.27	0	0			
Mar-19	19.9	8.9	179	0.3	1.12	0.44	0	0.01	0.55	0.31	0	0			
Apr-19	14.8	6.6	173	0.3	1.12	0.33	0	0.01	0.55	0.23	0	0			
May-19	15.5	6.9	181	0.3	1.12	0.34	0	0.01	0.55	0.24	0	0			
Jun-19	9.7	4.3	204	0.3	1.12	0.21	0	0.01	0.55	0.15	0	0			
Jul-19	11.2	5.0	202	0.3	1.12	0.25	0	0.01	0.55	0.17	0	0			
Aug-19	13.1	5.9	224	0.3	1.12	0.29	0	0.01	0.55	0.20	0	0			
Sep-19	16.9	7.6	197	0.3	1.12	0.37	0	0.01	0.55	0.26	0	0			
Oct-19	20	8.9	182	0.3	1.12	0.44	0	0.01	0.55	0.31	0	0			
Nov-19	23.1	10.3	153	0.3	1.12	0.51	0	0.01	0.55	0.36	0	0			
Dec-19	17.4	7.8	152	0.3	1.12	0.38	0	0.01	0.55	0.27	0	0			
PM Annual Total							0				0	0	1	0.00	
PM ₁₀ Annual Total														0.5	0.00
PM _{2.5} Annual Total														0.075	0.00

^a Per MET data recorded at GVEA's Eva Creek Wind Farm 2019

^b The erosion potential factor for the uncrusted coal pile is zero for all months. Therefore, wind erosion of the uncrusted coal pile is not a significant source of PM emissions.

^c The erosion potential factor for ground coal is zero for all months. Therefore, wind erosion of the ground coal is not a significant source of PM emissions.

Healy Power Plant
Permit No. AQ0173TPV03

Emissions Inventory

ID	Emissions (tpy)
2019	
1	248.9000
1	2.0550
2	64.0400
2	3.0920
3	0.0014
4	0.0043
5	0.000003
3	0.00061
5	0.000000
13	0.000000
EUS 1 & 2 Emissions	318.09
Total SO2 Emissions: 318.09	
2018	
1	346.0000
1	0.733
2	27.530
2	1.756
3	0.00061
4	0.00003
5	0.000000
13	0.000000
EUS 1 & 2 Emissions	376.02
Total SO2 Emissions: 376.02	
2017	
1	296.4000
1	0.004
2	0.000
2	0.000
3	0.00092
4	0.00053
5	0.000000
13	0.000000
EUS 1 & 2 Emissions	296.40
Total SO2 Emissions: 296.40	
2016	
1	421.9000
1	0.010
2	5.260
2	0.030
3	0.00000
4	0.00000
5	0.00000
13	0.00000
EUS 1 & 2 Emissions	427.20
Total SO2 Emissions: 427.20	
2015 Emission Fee Estimate	
1	156.0000
1	112.0000
1	173.0000
2	84.0000
2	164.0000
3	0.00140
4	0.00026
5	0.00002
13	0.00002
EUS 1 & 2 Emissions	689.00
Total SO2 Emissions: 689.00	
2014	
1	444.4000
1	0.000
2	0.000
2	0.000
3	0.54000
4	0.00000
5	0.00000
13	0.00487
EUS 1 & 2 Emissions	444.40
Total SO2 Emissions: 444.94	

ID	Coal Usage (tpy)	Coal Usage Percent of Total	Avg Capacity EU was Operated (MMBtu/hr)	Avg Capacity EU was Operated (% of Max)	SO2 E.F. (lb/hr)	Hr/yr	SO2 E.F. (lb/MMBtu)	SO2 E.F. % reduction From EU 1	SO2 Emissions (tons)
2019 Actual									
1	146,690	45%	284	87%	75.5	7,387	0.266	N/A	278.86
2	180,524	55%	430	65%	20.20	6,044	0.047	82%	61.04
Total									339.90
2018 Actual									
1	178,076	69%	312	96%	84.9	8,150	0.272	N/A	345.97
2	81,668	31%	452	69%	21.30	2,585	0.047	83%	27.53
Total									373.50
2017 Actual									
1	173,463	100%	323	99%	77.1	7,690	0.242	N/A	296.45
2	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.00
Total									296.45
Possible Reductions in Emissions									
2019 Scenario 1									
1	114,525	35%	222	68%	75.5	7,387	0.266	N/A	217.71
2	212,689	65%	507	77%	20.20	6,044	0.047	82%	71.92
Total									289.63
Reduction									50.27
2019 Scenario 2									
1	81,804	25%	158	48%	75.5	7,387	0.266	N/A	155.51
2	245,411	75%	585	89%	20.20	6,044	0.047	82%	82.99
Total									238.50
Reduction									101.41
2019 Scenario 3									
1	-	0%	N/A	N/A	N/A	N/A	N/A	N/A	0.00
2	327,214	100%	554	84%	20.20	8,500	0.047	N/A	110.73
Total									110.73
Reduction									229.17

Information from 2019 NEI
Assumptions 14.3 MMBtu/ton of coal
Assumptions 14.4 MMBtu/ton of coal

Information from AQ0173TPV03
Rating of EU 1 = 327 MMBtu/hr
Rating of EU 2 = 658 MMBtu/hr

Information from 2018 NEI
Assumptions 14.3 MMBtu/ton of coal
Assumptions 14.3 MMBtu/ton of coal

Information from AQ0173TPV03
Rating of EU 1 = 327 MMBtu/hr
Rating of EU 2 = 658 MMBtu/hr

Information from 2017 NEI
Assumptions 14.1 MMBtu/ton of coal

Information from AQ0173TPV03
Rating of EU 1 = 327 MMBtu/hr

Information from 2019 NEI
Assumptions 14.3 MMBtu/ton of coal
Assumptions 14.4 MMBtu/ton of coal

Information from AQ0173TPV03
Rating of EU 1 = 327 MMBtu/hr
Rating of EU 2 = 658 MMBtu/hr

Information from 2019 NEI
Assumptions 14.3 MMBtu/ton of coal
Assumptions 14.4 MMBtu/ton of coal

Information from AQ0173TPV03
Rating of EU 1 = 327 MMBtu/hr
Rating of EU 2 = 658 MMBtu/hr

JBER Drinking Water...
 Permit No. AQ0237TVP02
 Emissions Inventory

ID	Emissions (tpy)
2014	
13	0.0008
14	0.0012
24	0.0366
25	0.0103
26	0.0129
27	0.0003
28	0.0008
29	0.0010
90	0.0004
91	0.0003
92	0.0004
93	0.0000
94	0.7374
95	0.7989
96	0.7884
98	0.7904
99	0.7637
101	0.0000
Total SO2 Emissions: 3.9	

EU no longer permitted

EU no longer permitted

0.001435243

0.001555113

0.001534666

0.001538417

0.001486455

2017 Actual		Reported
13	0.0000	0.0000
14	0.0000	0.0000
25	0.0107	21.3876
26	0.0134	26.73
28	0.0000	0.0000
29	0.0000	0.0000
90	0.0000	0.0000
91	0.0000	0.0000
92	0.0000	0.0000
93	0.0000	0.0000
94	0.7530	0.7530
95	0.7585	0.7585
96	0.5501	0.5501
98	0.6485	0.6485
99	0.8128	0.8128
101	0.0000	0.0000
Total SO2 Emissions: 3.5		51.6

Did not divide by 2,000 lb/ton

Did not divide by 2,000 lb/ton

Permit	Issue Date	SO2 PTE (tpy)
Draft AQ0237TVP03	6/16/2020	4.6
AQ0237TVP02 Rev. 1	1/23/2017	4.8
AQ0237TVP02	7/30/2014	4.7

ADEC Reporting Form Emission Inventory Reporting State of Alaska Department of Environmental Conservation Division of Air Quality		Emission Inventory Year - 2017	
Emission Unit:			
ID:	25		
Description:	Boiler		
Manufacturer:	Cleaver Brooks		
Model Number:	M48-700-4000		
Serial Number:			
Year of Manufacture:			
Maximum Nameplate Capacity:	4.0 MMBtu/hr		
Design Capacity:	4.0 MMBtu/hr		
Manufactured Year:			
Installed Date:	2003		
Initial Startup Date:	2003		
Retired Date:	N/A		
Purpose:			
Operational Use:			
Portability:			
Control Equipment (List All): NONE			
Processes (List All):			
	PROCESS: Primary		
	10300603		
	SCC Code: External Combustion Boilers >> Commercial/Institutional >> Natural Gas >> <10 Million Btu/hr		
	Material Processed: Natural Gas		
	Operational Periods: 1/1/2017 - 12/31/2017		
	FUEL INFORMATION		
	Ash Content (weight %): N/A		
	Elem. Sulfur Content (lb S/MMscf): 0.3		
	H2S Sulfur Content (ppmv): N/A		
	Heat Content(MMBtu/MMscf): 983		
	Heat Input (MMBtu/hr):		
	Heat Output (MMBtu/hr):		
	THROUGHPUT		
	Total Amount: 35.6 MMscf		
	Summer %: 25%		
	Fall %: 25%		
	Winter %: 25%		
	Spring %: 25%		
Days/Week of Operation: 7			
Weeks/Year of Operation: 52			
Hours/Day of Operation: 24			
Hours/Year of Operation: 8,760.0			

EMISSIONS					
Pollutant	Emission Factor	Emission Factor Numerator	Emission Factor Denominator	Emission Factor Source	Tons Emitted (Total)
Carbon Monoxide (CO)	84	Pounds	Million standard cubic feet	EPA AP-42 (Table 1.4-1)	1.497E+00
Ammonia (NH3)	N/A	N/A	N/A	N/A	N/A
Nitrogen Oxides (NOX)	100	Pounds	Million standard cubic feet	EPA AP-42 (Table 1.4-1)	1.782E+00
PM ₁₀ -Primary (Filt + Cond) (PM10-PRI)	7.6	Pounds	Million standard cubic feet	EPA AP-42 (Table 1.4-2)	1.355E-01
PM _{2.5} -Filterable (PM25-FIL)	1.9	Pounds	Million standard cubic feet	EPA AP-42 (Table 1.4-2)	3.386E-02
PM Condensable (PM-CON)	5.7	Pounds	Million standard cubic feet	EPA AP-42 (Table 1.4-2)	1.016E-01
Sulfur Dioxide (SO2)	0.3	Pounds	Million standard cubic feet	AQ0237CPT04 Technical Analysis Report	0.01
Volatile Organic Compounds (VOC)	5.5	Pounds	Million standard cubic feet	EPA AP-42 (Table 1.4-2)	9.803E-02
Lead and lead compounds	0.0005	Pounds	Million standard cubic feet	EPA AP-42 (Table 1.4-2)	8.911E-06

Stack Description:	
Stack Detail:	
ID:	25
Type:	Vertical
Apportion%:	100
Measurement Units:	Feet, degrees Fahrenheit, feet per second, actual cubic feet per minute
Base Elevation:	459
Stack Height:	14
Stack Diameter:	1
Exit Gas Temp:	347
Exit Gas Velocity:	26
Actual Exit Gas Flow Rate:	1225.22
Data Source:	
Description:	Boiler
Latitude:	61.227544
Longitude:	-149.650633
Location Description:	
Horizontal Accuracy (m):	Unknown
Datum:	NAD-1983

ADEC Reporting Form Emission Inventory Reporting State of Alaska Department of Environmental Conservation Division of Air Quality		Emission Inventory Year - 2017	
Mandatory information is highlighted. Make additional copies as needed.			
Inventory Start Date:	1/1/2017		
Inventory End Date:	12/31/2017		
Inventory Type:	Emission Inventory Reporting as required by Condition 60 of AQ0237TVP02, Rev. 1		
Stationary Source Information:			
ADEC Stationary Source ID:	237		
Stationary Source:	Joint Base Elmendorf Richardson - Electric, Gas, Drinking Water and Sanitary Services		
AFS ID:	0202000002		
Census Area/Community:	20 - Anchorage Borough		
Line of Business (NAICS):	221112 - Fossil Fuel Electric Power Generation		
Line of Business (SIC):	49 - Electric, Gas, and Sanitary Services		
Contact/Owner Name:	Doyon Utilities, LLC		
Contact/Owner Address:	PO Box 74040 Fairbanks, AK 99707-4040		
Contact/Owner Phone Number:	(907) 428-5370		
Stationary Source Physical Address:	36010 Arctic Valley Road, Fort Richardson AK, 99505 Lat: 61° 14' 45" North - Long: 149° 42' 41" West		
Mailing Address:	PO Box 74040 Fairbanks, AK 99707		
Facility Status:	Operating		
Facility Status Year:	1957		
Certification of Accuracy and Completeness <i>Based on information and belief formed after reasonable inquiry I certify that the statements and information in and attached to this document are true, accurate, and complete.</i>			
Responsible Official:	Double Click box to right open signed Cover Letter and Facility Sheet		JBER Signed Cover Letter and Facility Page
Printed Name, Title:	Shayne Coiley, Senior Vice President		
Date:	27-Apr-18		

ADEC Reporting Form Emission Inventory Reporting State of Alaska Department of Environmental Conservation Division of Air Quality		Emission Inventory Year - 2017	
Emission Unit:			
ID:	13		
Description:	Emergency Generator Engine		
Manufacturer:	Waukesha		
Model Number:	475DSU		
Serial Number:			
Year of Manufacture:			
Maximum Nameplate Capacity:	75 kW or 106 hp (95% efficiency)		
Design Capacity:	75 kW or 106 hp (95% efficiency)		
Manufactured Year:			
Installed Date:	1990		
Initial Startup Date:	1990		
Retired Date:	N/A		
Purpose:			
Operational Use:			
Portability:			
Control Equipment (List All): NONE			
Processes (List All):			
	PROCESS:	Primary	
	SCC Code:	20100102 Internal Combustion Engines >> Electric Generation >> Distillate Oil (Diesel) >> Reciprocating	
	Material Processed:	Distillate Oil (Diesel)	
	Operational Periods:	1/1/2017 - 12/31/2017	
	FUEL INFORMATION		
	Ash Content (weight %):	Negligible	
	Elem. Sulfur Content (weight %):	0.000057	
	H2S Sulfur Content (ppmv):	N/A	
	Heat Content(MMBtu/1000 gal):	137	
	Heat Input (MMBtu/hr):		
	Heat Output (MMBtu/hr):		
	THROUGHPUT		
	Total Amount:	30.8 Gallons	
	Summer %:	21%	
	Fall %:	19%	
	Winter %:	29%	
	Spring %:	31%	
	Days/Week of Operation:	0.00	
	Weeks/Year of Operation:	0.03	
	Hours/Day of Operation:	0.02	
Hours/Year of Operation:	5.7		

EMISSIONS					
Pollutant	Emission Factor	Emission Factor Numerator	Emission Factor Denominator	Emission Factor Source	Tons Emitted (Total)
Carbon Monoxide (CO)	6.68E-03	Pounds	Horsepower - Hour	EPA AP-42 (Table 3.3-1)	2.016E-03
Ammonia (NH3)	N/A	N/A	N/A	N/A	N/A
Nitrogen Oxides (NOX)	0.031	Pounds	Horsepower - Hour	EPA AP-42 (Table 3.3-1)	9.353E-03
PM ₁₀ -Primary (Filt + Cond) (PM10-PRI)	2.20E-03	Pounds	Horsepower - Hour	EPA AP-42 (Table 3.3-1)	6.638E-04
PM _{2.5} -Filterable (PM25-FIL)	2.20E-03	Pounds	Horsepower - Hour	EPA AP-42 (Table 3.3-1)	6.638E-04
PM Condensable (PM-CON)	N/A	N/A	N/A	N/A	N/A
Sulfur Dioxide (SO2)	8.04E-06	Pounds	Gallons	Mass Balance	1.239E-07
Volatile Organic Compounds (VOC)	0.0025141	Pounds	Horsepower - Hour	EPA AP-42 (Table 3.3-1)	7.586E-04
Lead and lead compounds	N/A	N/A	N/A	N/A	N/A

Stack Description:	
Stack Detail:	
ID:	13
Type:	Vertical
Apportion%:	100
Measurement Units:	Feet, degrees Fahrenheit, feet per second, actual cubic feet per minute
Base Elevation:	459
Stack Height:	16.01
Stack Diameter:	0.25
Exit Gas Temp:	899
Exit Gas Velocity:	150.59
Actual Exit Gas Flow Rate:	443.52
Data Source:	
Description:	Emergency Backup Generator
Latitude:	61.227544
Longitude:	-149.650633
Location Description:	
Horizontal Accuracy (m):	Unknown
Datum:	NAD-1983

ADEC Reporting Form Emission Inventory Reporting State of Alaska Department of Environmental Conservation Division of Air Quality		Emission Inventory Year - 2017	
Emission Unit:			
ID:	14		
Description:	Emergency Generator Engine		
Manufacturer:	John Deere		
Model Number:	4039TF001		
Serial Number:			
Year of Manufacture:			
Maximum Nameplate Capacity:	60 kW or 85 hp (95% efficiency)		
Design Capacity:	60 kW or 85 hp (95% efficiency)		
Manufactured Year:			
Installed Date:	1980		
Initial Startup Date:	1980		
Retired Date:	N/A		
Purpose:			
Operational Use:			
Portability:			
Control Equipment (List All): NONE			
Processes (List All):			
	PROCESS:	Primary	
	SCC Code:	20100102 Internal Combustion Engines >> Electric Generation >> Distillate Oil (Diesel) >> Reciprocating	
	Material Processed:	Distillate Oil (Diesel)	
	Operational Periods:	1/1/2017 - 12/31/2017	
	FUEL INFORMATION		
	Ash Content (weight %):	Negligible	
	Elem. Sulfur Content (weight %):	0.000057	
	H2S Sulfur Content (ppmv):	N/A	
	Heat Content(MMBtu/1000 gal):	137	
	Heat Input (MMBtu/hr):		
	Heat Output (MMBtu/hr):		
	THROUGHPUT		
	Total Amount:	35.9 Gallons	
	Summer %:	29%	
	Fall %:	36%	
	Winter %:	17%	
	Spring %:	18%	
	Days/Week of Operation:	0.01	
	Weeks/Year of Operation:	0.05	
	Hours/Day of Operation:	0.02	
Hours/Year of Operation:	8.3		

EMISSIONS					
Pollutant	Emission Factor	Emission Factor Numerator	Emission Factor Denominator	Emission Factor Source	Tons Emitted (Total)
Carbon Monoxide (CO)	6.68E-03	Pounds	Horsepower - Hour	EPA AP-42 (Table 3.3-1)	2.348E-03
Ammonia (NH3)	N/A	N/A	N/A	N/A	N/A
Nitrogen Oxides (NOX)	0.031	Pounds	Horsepower - Hour	EPA AP-42 (Table 3.3-1)	1.090E-02
PM ₁₀ -Primary (Filt + Cond) (PM10-PRI)	2.20E-03	Pounds	Horsepower - Hour	EPA AP-42 (Table 3.3-1)	7.733E-04
PM _{2.5} -Filterable (PM25-FIL)	2.20E-03	Pounds	Horsepower - Hour	EPA AP-42 (Table 3.3-1)	7.733E-04
PM Condensable (PM-CON)	N/A	N/A	N/A	N/A	N/A
Sulfur Dioxide (SO2)	8.04E-06	Pounds	Gallons	Mass Balance	1.443E-07
Volatile Organic Compounds (VOC)	0.0025141	Pounds	Horsepower - Hour	EPA AP-42 (Table 3.3-1)	8.837E-04
Lead and lead compounds	N/A	N/A	N/A	N/A	N/A

Stack Description:	
Stack Detail:	
ID:	14
Type:	Vertical
Apportion%:	100
Measurement Units:	Feet, degrees Fahrenheit, feet per second, actual cubic feet per minute
Base Elevation:	421
Stack Height:	8.01
Stack Diameter:	0.33
Exit Gas Temp:	899
Exit Gas Velocity:	124.02
Actual Exit Gas Flow Rate:	636.44
Data Source:	
Description:	Emergency Backup Generator
Latitude:	61.227099
Longitude:	-149.656376
Location Description:	
Horizontal Accuracy (m):	Unknown
Datum:	NAD-1983

ADEC Reporting Form Emission Inventory Reporting State of Alaska Department of Environmental Conservation Division of Air Quality		Emission Inventory Year - 2017	
Emission Unit:			
ID:	26		
Description:	Boiler		
Manufacturer:	Cleaver Brooks		
Model Number:	M4S-5000		
Serial Number:			
Year of Manufacture:			
Maximum Nameplate Capacity:	5.0 MMBtu/hr		
Design Capacity:	5.0 MMBtu/hr		
Manufactured Year:			
Installed Date:	2003 (estimated)		
Initial Startup Date:	2003		
Retired Date:	N/A		
Purpose:			
Operational Use:			
Portability:			
Control Equipment (List All): NONE			
Processes (List All):			
	PROCESS: Primary		
	10300603		
	SCC Code: External Combustion Boilers >> Commercial/Institutional >> Natural Gas >> <10 Million Btu/hr		
	Material Processed: Natural Gas		
	Operational Periods: 1/1/2017 - 12/31/2017		
	FUEL INFORMATION		
	Ash Content (weight %): N/A		
	Elem. Sulfur Content (lb S/MMscf): 0.3		
	H2S Sulfur Content (ppmv): N/A		
	Heat Content(MMBtu/MMscf): 983		
	Heat Input (MMBtu/hr):		
	Heat Output (MMBtu/hr):		
	THROUGHPUT		
	Total Amount: 44.6 MMscf		
	Summer %: 25%		
	Fall %: 25%		
	Winter %: 25%		
	Spring %: 25%		
Days/Week of Operation: 7			
Weeks/Year of Operation: 52			
Hours/Day of Operation: 24			
Hours/Year of Operation: 8,760.0			

EMISSIONS					
Pollutant	Emission Factor	Emission Factor Numerator	Emission Factor Denominator	Emission Factor Source	Tons Emitted (Total)
Carbon Monoxide (CO)	84	Pounds	Million standard cubic feet	EPA AP-42 (Table 1.4-1)	1.871E+00
Ammonia (NH3)	N/A	N/A	N/A	N/A	N/A
Nitrogen Oxides (NOX)	100	Pounds	Million standard cubic feet	EPA AP-42 (Table 1.4-1)	2.228E+00
PM ₁₀ -Primary (Filt + Cond) (PM10-PRI)	7.6	Pounds	Million standard cubic feet	EPA AP-42 (Table 1.4-2)	1.693E-01
PM _{2.5} -Filterable (PM25-FIL)	1.9	Pounds	Million standard cubic feet	EPA AP-42 (Table 1.4-2)	4.233E-02
PM Condensable (PM-CON)	5.7	Pounds	Million standard cubic feet	EPA AP-42 (Table 1.4-2)	1.270E-01
Sulfur Dioxide (SO2)	0.3	Pounds	Million standard cubic feet	AQ0237CPT04 Technical Analysis Report	2.673E+01
Volatile Organic Compounds (VOC)	5.5	Pounds	Million standard cubic feet	EPA AP-42 (Table 1.4-2)	1.225E-01
Lead and lead compounds	0.0005	Pounds	Million standard cubic feet	EPA AP-42 (Table 1.4-2)	1.114E-05

Stack Description:	
Stack Detail:	
ID:	26
Type:	Vertical
Apportion%:	100
Measurement Units:	Feet, degrees Fahrenheit, feet per second, actual cubic feet per minute
Base Elevation:	459
Stack Height:	14.01
Stack Diameter:	1
Exit Gas Temp:	347
Exit Gas Velocity:	26.25
Actual Exit Gas Flow Rate:	1237
Data Source:	
Description:	Boiler
Latitude:	61.227544
Longitude:	-149.650633
Location Description:	
Horizontal Accuracy (m):	Unknown
Datum:	NAD-1983

ADEC Reporting Form Emission Inventory Reporting State of Alaska Department of Environmental Conservation Division of Air Quality		Emission Inventory Year - 2017	
Emission Unit:			
ID:	27		
Description:	Emergency Engine		
Manufacturer:	Cummins		
Model Number:	NHC-4-P		
Serial Number:			
Year of Manufacture:			
Maximum Nameplate Capacity:	60 kW or 85 hp (95% efficiency)		
Design Capacity:	60 kW or 85 hp (95% efficiency)		
Manufactured Year:			
Installed Date:	1957		
Initial Startup Date:	1957		
Retired Date:	12/2014		
Purpose:			
Operational Use:			
Portability:			
Control Equipment (List All): NONE			
Processes (List All):			
	PROCESS:	Primary	
	SCC Code:	N/A	
	Material Processed:	N/A	
	Operational Periods:	N/A	
	FUEL INFORMATION		
	Ash Content (weight %):	N/A	
	Elem. Sulfur Content (weight %):	N/A	
	H2S Sulfur Content (ppmv):	N/A	
	Heat Content(MMBtu/1000 gal):	N/A	
	Heat Input (MMBtu/hr):		
	Heat Output (MMBtu/hr):		
	THROUGHPUT		
	Total Amount:	N/A	Gallons
	Summer %:	N/A	
	Fall %:	N/A	
	Winter %:	N/A	
	Spring %:	N/A	
	Days/Week of Operation:	N/A	
	Weeks/Year of Operation:	N/A	
	Hours/Day of Operation:	N/A	
Hours/Year of Operation:	N/A		

EMISSIONS					
Pollutant	Emission Factor	Emission Factor Numerator	Emission Factor Denominator	Emission Factor Source	Tons Emitted (Total)
Carbon Monoxide (CO)	N/A	N/A	N/A	N/A	N/A
Ammonia (NH3)	N/A	N/A	N/A	N/A	N/A
Nitrogen Oxides (NOX)	N/A	N/A	N/A	N/A	N/A
PM ₁₀ -Primary (Filt + Cond) (PM10-PRI)	N/A	N/A	N/A	N/A	N/A
PM _{2.5} -Filterable (PM25-FIL)	N/A	N/A	N/A	N/A	N/A
PM Condensable (PM-CON)	N/A	N/A	N/A	N/A	N/A
Sulfur Dioxide (SO2)	N/A	N/A	N/A	N/A	N/A
Volatile Organic Compounds (VOC)	N/A	N/A	N/A	N/A	N/A
Lead and lead compounds	N/A	N/A	N/A	N/A	N/A

¹ PM10-FIL emission factor was used to estimate PM2.5-FIL emissions since all particulate is assumed to be $\leq 1 \mu\text{m}$ in size (see AP-42 Table 3.3-1, footnote b).

Stack Description:	
Stack Detail:	
ID:	N/A
Type:	N/A
Apportion%:	N/A
Measurement Units:	
Base Elevation:	
Stack Height:	N/A
Stack Diameter:	N/A
Exit Gas Temp:	N/A
Exit Gas Velocity:	N/A
Actual Exit Gas Flow Rate:	N/A
Data Source:	
Description:	N/A
Latitude:	N/A
Longitude:	N/A
Location Description:	
Horizontal Accuracy (m):	
Datum:	N/A

ADEC Reporting Form Emission Inventory Reporting State of Alaska Department of Environmental Conservation Division of Air Quality		Emission Inventory Year - 2017	
Emission Unit:			
ID:	28		
Description:	Emergency Engine		
Manufacturer:	Cummins		
Model Number:	HRS-6-P		
Serial Number:			
Year of Manufacture:			
Maximum Nameplate Capacity:	150 kW or 212 hp (95% efficiency)		
Design Capacity:	150 kW or 212 hp (95% efficiency)		
Manufactured Year:			
Installed Date:	1957		
Initial Startup Date:	1957		
Retired Date:	N/A		
Purpose:			
Operational Use:			
Portability:			
Control Equipment (List All): NONE			
Processes (List All):			
	PROCESS:		Primary
	SCC Code:		20100102 Internal Combustion Engines >> Electric Generation >> Distillate Oil (Diesel) >> Reciprocating
	Material Processed:		Distillate Oil (Diesel)
	Operational Periods:		6/1/2017 - 12/31/2017
	FUEL INFORMATION		
	Ash Content (weight %):		Negligible
	Elem. Sulfur Content (weight %):		0.000057
	H2S Sulfur Content (ppmv):		N/A
	Heat Content(MMBtu/1000 gal):		137
	Heat Input (MMBtu/hr):		
	Heat Output (MMBtu/hr):		
	THROUGHPUT		
	Total Amount:		58.4 Gallons
	Summer %:		54%
	Fall %:		35%
	Winter %:		11%
	Spring %:		0%
	Days/Week of Operation:		0.00
	Weeks/Year of Operation:		0.03
	Hours/Day of Operation:		0.01
Hours/Year of Operation:		5.4	

EMISSIONS					
Pollutant	Emission Factor	Emission Factor Numerator	Emission Factor Denominator	Emission Factor Source	Tons Emitted (Total)
Carbon Monoxide (CO)	6.68E-03	Pounds	Horsepower - Hour	EPA AP-42 (Table 3.3-1)	3.819E-03
Ammonia (NH3)	N/A	N/A	N/A	N/A	N/A
Nitrogen Oxides (NOX)	0.031	Pounds	Horsepower - Hour	EPA AP-42 (Table 3.3-1)	1.772E-02
PM ₁₀ -Primary (Filt + Cond) (PM10-PRI)	2.20E-03	Pounds	Horsepower - Hour	EPA AP-42 (Table 3.3-1)	1.258E-03
PM _{2.5} -Filterable (PM25-FIL)	2.20E-03	Pounds	Horsepower - Hour	EPA AP-42 (Table 3.3-1)	1.258E-03
PM Condensable (PM-CON)	N/A	N/A	N/A	N/A	N/A
Sulfur Dioxide (SO2)	8.04E-06	Pounds	Gallons	Mass Balance	2.348E-07
Volatile Organic Compounds (VOC)	0.0025141	Pounds	Horsepower - Hour	EPA AP-42 (Table 3.3-1)	1.437E-03
Lead and lead compounds	N/A	N/A	N/A	N/A	N/A

Stack Description:	
Stack Detail:	
ID:	28
Type:	Horizontal
Apportion%:	100
Measurement Units:	Feet, degrees Fahrenheit, feet per second, actual cubic feet per minute
Base Elevation:	248
Stack Height:	12.99
Stack Diameter:	0.33
Exit Gas Temp:	899
Exit Gas Velocity:	210
Actual Exit Gas Flow Rate:	1077.68
Data Source:	
Description:	Emergency IC Engine
Latitude:	61.241467
Longitude:	-149.7285
Location Description:	
Horizontal Accuracy (m):	Unknown
Datum:	NAD-1983

ADEC Reporting Form Emission Inventory Reporting State of Alaska Department of Environmental Conservation Division of Air Quality		Emission Inventory Year - 2017	
Emission Unit:			
ID:	29		
Description:	Emergency Engine		
Manufacturer:	Cummins		
Model Number:	HRS-6-P		
Serial Number:			
Year of Manufacture:			
Maximum Nameplate Capacity:	150 kW or 212 hp (95% efficiency)		
Design Capacity:	150 kW or 212 hp (95% efficiency)		
Manufactured Year:			
Installed Date:	1957		
Initial Startup Date:	1957		
Retired Date:	N/A		
Purpose:			
Operational Use:			
Portability:			
Control Equipment (List All): NONE			
Processes (List All):			
	PROCESS:	Primary	
	SCC Code:	20100102 Internal Combustion Engines >> Electric Generation >> Distillate Oil (Diesel) >> Reciprocating	
	Material Processed:	Distillate Oil (Diesel)	
	Operational Periods:	1/1/2017 - 12/31/2017	
	FUEL INFORMATION		
	Ash Content (weight %):	Negligible	
	Elem. Sulfur Content (weight %):	0.000057	
	H2S Sulfur Content (ppmv):	N/A	
	Heat Content(MMBtu/1000 gal):	137	
	Heat Input (MMBtu/hr):		
	Heat Output (MMBtu/hr):		
	THROUGHPUT		
	Total Amount:	98.4 Gallons	
	Summer %:	32%	
	Fall %:	23%	
	Winter %:	21%	
	Spring %:	24%	
	Days/Week of Operation:	0.01	
	Weeks/Year of Operation:	0.05	
	Hours/Day of Operation:	0.02	
Hours/Year of Operation:	9.1		

EMISSIONS					
Pollutant	Emission Factor	Emission Factor Numerator	Emission Factor Denominator	Emission Factor Source	Tons Emitted (Total)
Carbon Monoxide (CO)	6.68E-03	Pounds	Horsepower - Hour	EPA AP-42 (Table 3.3-1)	6.436E-03
Ammonia (NH3)	N/A	N/A	N/A	N/A	N/A
Nitrogen Oxides (NOX)	0.031	Pounds	Horsepower - Hour	EPA AP-42 (Table 3.3-1)	2.987E-02
PM ₁₀ -Primary (Filt + Cond) (PM10-PRI)	2.20E-03	Pounds	Horsepower - Hour	EPA AP-42 (Table 3.3-1)	2.119E-03
PM _{2.5} -Filterable (PM25-FIL)	2.20E-03	Pounds	Horsepower - Hour	EPA AP-42 (Table 3.3-1)	2.119E-03
PM Condensable (PM-CON)	N/A	N/A	N/A	N/A	N/A
Sulfur Dioxide (SO2)	8.04E-06	Pounds	Gallons	Mass Balance	3.956E-07
Volatile Organic Compounds (VOC)	0.0025141	Pounds	Horsepower - Hour	EPA AP-42 (Table 3.3-1)	2.422E-03
Lead and lead compounds	N/A	N/A	N/A	N/A	N/A

Stack Description:	
Stack Detail:	
ID:	29
Type:	Horizontal
Apportion%:	100
Measurement Units:	Feet, degrees Fahrenheit, feet per second, actual cubic feet per minute
Base Elevation:	240
Stack Height:	12.99
Stack Diameter:	0.33
Exit Gas Temp:	899
Exit Gas Velocity:	210
Actual Exit Gas Flow Rate:	1077.68
Data Source:	
Description:	Emergency IC Engine
Latitude:	61.239352
Longitude:	-149.732838
Location Description:	
Horizontal Accuracy (m):	Unknown
Datum:	NAD-1983

ADEC Reporting Form Emission Inventory Reporting State of Alaska Department of Environmental Conservation Division of Air Quality		Emission Inventory Year - 2017	
Emission Unit:			
ID:	90		
Description:	Backup Generator Engine		
Manufacturer:	Caterpillar		
Model Number:	C-175		
Serial Number:			
Year of Manufacture:			
Maximum Nameplate Capacity:	3,000 kW		
Design Capacity:	3,000 kW		
Manufactured Year:			
Installed Date:	2010		
Initial Startup Date:	10/2010		
Retired Date:	N/A		
Purpose:			
Operational Use:			
Portability:			
Control Equipment (List All): NONE			
Processes (List All):			
	PROCESS:		Primary
	SCC Code:		20100102 Internal Combustion Engines >> Electric Generation >> Distillate Oil (Diesel) >> Reciprocating
	Material Processed:		Distillate Oil (Diesel)
	Operational Periods:		1/1/2017 - 12/31/2017
	FUEL INFORMATION		
	Ash Content (weight %):		Negligible
	Elem. Sulfur Content (weight %):		0.000057
	H2S Sulfur Content (ppmv):		N/A
	Heat Content(MMBtu/1000 gal):		137
	Heat Input (MMBtu/hr):		
	Heat Output (MMBtu/hr):		
	THROUGHPUT		
	Total Amount:		3415.0 Gallons
	Summer %:		16%
	Fall %:		25%
	Winter %:		13%
	Spring %:		46%
	Days/Week of Operation:		0.01
	Weeks/Year of Operation:		0.09
	Hours/Day of Operation:		0.04
Hours/Year of Operation:		15.8	

EMISSIONS					
Pollutant	Emission Factor	Emission Factor Numerator	Emission Factor Denominator	Emission Factor Source	Tons Emitted (Total)
Carbon Monoxide (CO)	0.061	Pounds	Gallon	Manufacturer's Data	1.042E-01
Ammonia (NH3)	N/A	N/A	N/A	N/A	N/A
Nitrogen Oxides (NOX)	0.2817	Pounds	Gallon	Manufacturer's Data	4.810E-01
PM ₁₀ -Primary (Filt + Cond) (PM10-PRI)	0.0028	Pounds	Gallon	Manufacturer's Data	4.781E-03
PM _{2.5} -Filterable (PM25-FIL)	0.0028	Pounds	Gallon	Manufacturer's Data	4.781E-03
PM Condensable (PM-CON)	N/A	N/A	N/A	N/A	N/A
Sulfur Dioxide (SO2)	8.04E-06	Pounds	Gallon	Mass Balance	1.372E-05
Volatile Organic Compounds (VOC)	0.012	Pounds	Gallon	Manufacturer's Data	2.049E-02
Lead and lead compounds	N/A	N/A	N/A	N/A	N/A

Stack Description:	
Stack Detail:	
ID:	90
Type:	Vertical
Apportion%:	100
Measurement Units:	Feet, degrees Fahrenheit, feet per second, actual cubic feet per minute
Base Elevation:	278
Stack Height:	14.01
Stack Diameter:	1.67
Exit Gas Temp:	851
Exit Gas Velocity:	64.96
Actual Exit Gas Flow Rate:	8537.29
Data Source:	
Description:	Backup Generator
Latitude:	61.257166
Longitude:	-149.719159
Location Description:	
Horizontal Accuracy (m):	Unknown
Datum:	NAD-1983

ADEC Reporting Form Emission Inventory Reporting State of Alaska Department of Environmental Conservation Division of Air Quality		Emission Inventory Year - 2017	
Emission Unit:			
ID:	91		
Description:	Backup Generator Engine		
Manufacturer:	Caterpillar		
Model Number:	C-175		
Serial Number:			
Year of Manufacture:			
Maximum Nameplate Capacity:	3,000 kW		
Design Capacity:	3,000 kW		
Manufactured Year:			
Installed Date:	2010		
Initial Startup Date:	10/2010		
Retired Date:	N/A		
Purpose:			
Operational Use:			
Portability:			
Control Equipment (List All): NONE			
Processes (List All):			
	PROCESS:	Primary	
	SCC Code:	20100102 Internal Combustion Engines >> Electric Generation >> Distillate Oil (Diesel) >> Reciprocating	
	Material Processed:	Distillate Oil (Diesel)	
	Operational Periods:	1/1/2017 - 12/31/2017	
	FUEL INFORMATION		
	Ash Content (weight %):	Negligible	
	Elem. Sulfur Content (weight %):	0.000057	
	H2S Sulfur Content (ppmv):	N/A	
	Heat Content(MMBtu/1000 gal):	137	
	Heat Input (MMBtu/hr):		
	Heat Output (MMBtu/hr):		
	THROUGHPUT		
	Total Amount:	5105.0 Gallons	
	Summer %:	21%	
	Fall %:	41%	
	Winter %:	10%	
	Spring %:	28%	
	Days/Week of Operation:	0.02	
	Weeks/Year of Operation:	0.14	
	Hours/Day of Operation:	0.06	
Hours/Year of Operation:	23.6		

EMISSIONS					
Pollutant	Emission Factor	Emission Factor Numerator	Emission Factor Denominator	Emission Factor Source	Tons Emitted (Total)
Carbon Monoxide (CO)	0.061	Pounds	Gallon	Manufacturer's Data	1.557E-01
Ammonia (NH3)	N/A	N/A	N/A	N/A	N/A
Nitrogen Oxides (NOX)	0.2817	Pounds	Gallon	Manufacturer's Data	7.190E-01
PM ₁₀ -Primary (Filt + Cond) (PM10-PRI)	0.0028	Pounds	Gallon	Manufacturer's Data	7.147E-03
PM _{2.5} -Filterable (PM25-FIL)	0.0028	Pounds	Gallon	Manufacturer's Data	7.147E-03
PM Condensable (PM-CON)	N/A	N/A	N/A	N/A	N/A
Sulfur Dioxide (SO2)	8.04E-06	Pounds	Gallon	Mass Balance	2.051E-05
Volatile Organic Compounds (VOC)	0.012	Pounds	Gallon	Manufacturer's Data	3.063E-02
Lead and lead compounds	N/A	N/A	N/A	N/A	N/A

Stack Description:	
Stack Detail:	
ID:	91
Type:	Vertical
Apportion%:	100
Measurement Units:	Feet, degrees Fahrenheit, feet per second, actual cubic feet per minute
Base Elevation:	278
Stack Height:	14.01
Stack Diameter:	1.67
Exit Gas Temp:	851
Exit Gas Velocity:	64.96
Actual Exit Gas Flow Rate:	8537.29
Data Source:	
Description:	Backup Generator
Latitude:	61.257069
Longitude:	-149.719159
Location Description:	
Horizontal Accuracy (m):	Unknown
Datum:	NAD-1983

ADEC Reporting Form Emission Inventory Reporting State of Alaska Department of Environmental Conservation Division of Air Quality		Emission Inventory Year - 2017	
Emission Unit:			
ID:	92		
Description:	Backup Generator Engine		
Manufacturer:	Caterpillar		
Model Number:	C-175		
Serial Number:			
Year of Manufacture:			
Maximum Nameplate Capacity:	3,000 kW		
Design Capacity:	3,000 kW		
Manufactured Year:			
Installed Date:	2010		
Initial Startup Date:	10/2010		
Retired Date:	N/A		
Purpose:			
Operational Use:			
Portability:			
Control Equipment (List All): NONE			
Processes (List All):			
	PROCESS:	Primary	
	SCC Code:	20100102 Internal Combustion Engines >> Electric Generation >> Distillate Oil (Diesel) >> Reciprocating	
	Material Processed:	Distillate Oil (Diesel)	
	Operational Periods:	1/1/2017 - 12/31/2017	
	FUEL INFORMATION		
	Ash Content (weight %):	Negligible	
	Elem. Sulfur Content (weight %):	0.000057	
	H2S Sulfur Content (ppmv):	N/A	
	Heat Content(MMBtu/1000 gal):	137	
	Heat Input (MMBtu/hr):		
	Heat Output (MMBtu/hr):		
	THROUGHPUT		
	Total Amount:	4599.0 Gallons	
	Summer %:	10%	
	Fall %:	18%	
	Winter %:	10%	
	Spring %:	62%	
	Days/Week of Operation:	0.02	
	Weeks/Year of Operation:	0.13	
	Hours/Day of Operation:	0.06	
Hours/Year of Operation:	21.3		

EMISSIONS					
Pollutant	Emission Factor	Emission Factor Numerator	Emission Factor Denominator	Emission Factor Source	Tons Emitted (Total)
Carbon Monoxide (CO)	0.061	Pounds	Gallon	Manufacturer's Data	1.403E-01
Ammonia (NH3)	N/A	N/A	N/A	N/A	N/A
Nitrogen Oxides (NOX)	0.2817	Pounds	Gallon	Manufacturer's Data	6.478E-01
PM ₁₀ -Primary (Filt + Cond) (PM10-PRI)	0.0028	Pounds	Gallon	Manufacturer's Data	6.439E-03
PM _{2.5} -Filterable (PM25-FIL)	0.0028	Pounds	Gallon	Manufacturer's Data	6.439E-03
PM Condensable (PM-CON)	N/A	N/A	N/A	N/A	N/A
Sulfur Dioxide (SO2)	8.04E-06	Pounds	Gallon	Mass Balance	1.848E-05
Volatile Organic Compounds (VOC)	0.012	Pounds	Gallon	Manufacturer's Data	2.759E-02
Lead and lead compounds	N/A	N/A	N/A	N/A	N/A

Stack Description:	
Stack Detail:	
ID:	92
Type:	Vertical
Apportion%:	100
Measurement Units:	Feet, degrees Fahrenheit, feet per second, actual cubic feet per minute
Base Elevation:	278
Stack Height:	14.01
Stack Diameter:	1.67
Exit Gas Temp:	851
Exit Gas Velocity:	64.96
Actual Exit Gas Flow Rate:	8537.29
Data Source:	
Description:	Backup Generator
Latitude:	61.25697
Longitude:	-149.719159
Location Description:	
Horizontal Accuracy (m):	Unknown
Datum:	NAD-1983

ADEC Reporting Form Emission Inventory Reporting State of Alaska Department of Environmental Conservation Division of Air Quality		Emission Inventory Year - 2017	
Emission Unit:			
ID:		93	
Description:		Emergency Generator Engine	
Manufacturer:		Volvo Penta	
Model Number:		TAD1241GE	
Serial Number:			
Year of Manufacture:			
Maximum Nameplate Capacity:		526 bhp	
Design Capacity:		526 bhp	
Manufactured Year:			
Installed Date:		2008	
Initial Startup Date:		2008	
Retired Date:		N/A	
Purpose:			
Operational Use:			
Portability:			
Control Equipment (List All): NONE			
Processes (List All):			
		PROCESS: Primary	
		SCC Code: 20100102	
		Internal Combustion Engines >> Electric Generation >> Distillate Oil (Diesel) >> Reciprocating	
		Material Processed: Distillate Oil (Diesel)	
		Operational Periods: 1/1/2017 - 12/31/2017	
		FUEL INFORMATION	
		Ash Content (weight %): Negligible	
		Elem. Sulfur Content (weight %): 0.000057	
		H2S Sulfur Content (ppmv): N/A	
		Heat Content(MMBtu/1000 gal): 137	
		Heat Input (MMBtu/hr):	
		Heat Output (MMBtu/hr):	
		THROUGHPUT	
		Total Amount: 341.4 Gallons	
		Summer %: 21%	
		Fall %: 37%	
		Winter %: 21%	
		Spring %: 21%	
		Days/Week of Operation: 0.01	
		Weeks/Year of Operation: 0.05	
		Hours/Day of Operation: 0.02	
		Hours/Year of Operation: 9.0	

EMISSIONS					
Pollutant	Emission Factor	Emission Factor Numerator	Emission Factor Denominator	Emission Factor Source	Tons Emitted (Total)
Carbon Monoxide (CO)	6.68E-03	Pounds	Horsepower - Hour	EPA AP-42 (Table 3.3-1)	1.581E-02
Ammonia (NH3)	N/A	N/A	N/A	N/A	N/A
Nitrogen Oxides (NOX)	0.031	Pounds	Horsepower - Hour	EPA AP-42 (Table 3.3-1)	7.338E-02
PM ₁₀ -Primary (Filt + Cond) (PM10-PR1)	2.20E-03	Pounds	Horsepower - Hour	EPA AP-42 (Table 3.3-1)	5.207E-03
PM _{2.5} -Filterable (PM25-FIL)	2.20E-03	Pounds	Horsepower - Hour	EPA AP-42 (Table 3.3-1)	5.207E-03
PM Condensable (PM-CON)	N/A	N/A	N/A	No AP-42 Emission Factor	N/A
Sulfur Dioxide (SO2)	8.04E-06	Pounds	Gallons	Mass Balance	1.372E-06
Volatile Organic Compounds (VOC)	0.0025141	Pounds	Horsepower - Hour	EPA AP-42 (Table 3.3-1)	5.951E-03
Lead and lead compounds	N/A	N/A	N/A	N/A	N/A

Stack Description:	
Stack Detail:	
ID:	93
Type:	Vertical
Apportion%:	100
Measurement Units:	Feet, degrees Fahrenheit, feet per second, actual cubic feet per minute
Base Elevation:	464
Stack Height:	10.01
Stack Diameter:	0.5
Exit Gas Temp:	923
Exit Gas Velocity:	221.78
Actual Exit Gas Flow Rate:	2612.78
Data Source:	
Description:	Emergency Generator
Latitude:	61.22725
Longitude:	-149.650376
Location Description:	
Horizontal Accuracy (m):	Unknown
Datum:	NAD-1983

ADEC Reporting Form Emission Inventory Reporting State of Alaska Department of Environmental Conservation Division of Air Quality		Emission Inventory Year - 2017	
Emission Unit:			
ID:	94		
Description:	LFG Generator Engine		
Manufacturer:	GE Jenbacher		
Model Number:	JGS 420		
Serial Number:			
Year of Manufacture:			
Maximum Nameplate Capacity:	1,966 bhp (landfill gas) or 1,721 bhp (natural gas)		
Design Capacity:	1,966 bhp (landfill gas) or 1,721 bhp (natural gas)		
Manufactured Year:			
Installed Date:	2012		
Initial Startup Date:	08/2012		
Retired Date:	N/A		
Purpose:			
Operational Use:			
Portability:			
Control Equipment (List All): NONE			
Processes (List All):			
	PROCESS: Primary		
	SCC Code: 20100802 Internal Combustion Engines >> Electric Generation >> Landfill Gas >> Reciprocating		
	Material Processed: Landfill Gas/Natural Gas		
	Operational Periods: 1/1/2017 - 12/31/2017		
	FUEL INFORMATION		
	Ash Content (weight %): N/A		
	Elem. Sulfur Content (weight %): N/A		
	H2S Sulfur Content (ppmv): 35.5		
	Heat Content(MMBtu/MMscf): 533		
	Heat Input (MMBtu/hr):		
	Heat Output (MMBtu/hr):		
	THROUGHPUT		
	Total Amount: 172,299.0 (1000 Cubic Feet) Landfill Gas		
	Summer %: 23%		
	Fall %: 28%		
	Winter %: 23%		
	Spring %: 26%		
	Days/Week of Operation: 5.96		
	Weeks/Year of Operation: 44.27		
	Hours/Day of Operation: 20.38		
Hours/Year of Operation: 7,437.0			

EMISSIONS					
Pollutant	Emission Factor	Emission Factor Numerator	Emission Factor Denominator	Emission Factor Source	Tons Emitted (Total)
Carbon Monoxide (CO)	3.6	Grams	Brake Horsepower - Hour	Vendor Data	5.802E+01
Ammonia (NH3)	N/A	N/A	N/A	N/A	N/A
Nitrogen Oxides (NOX)	0.6	Grams	Brake Horsepower - Hour	Vendor Data	9.670E+00
PM ₁₀ -Primary (Filt + Cond) (PM10-PRI)	0.018	Grams	Brake Horsepower - Hour	Vendor Data	2.901E-01
PM _{2.5} -Filterable (PM25-FIL)	0.009	Grams	Brake Horsepower - Hour	Vendor Data	1.451E-01
PM Condensable (PM-CON)	N/A	N/A	N/A	N/A	N/A
Sulfur Dioxide (SO2)	0.20	Pounds	Hour	AQ0237CPT04 Technical Analysis Report Table A-1	7.530E-01
Volatile Organic Compounds (VOC)	1.0	Grams	Brake Horsepower - Hour	Vendor Data	1.612E+01
Lead and lead compounds	N/A	N/A	N/A	N/A	N/A

Stack Description:	
Stack Detail:	
ID:	94
Type:	Vertical
Apportion%:	100
Measurement Units:	Feet, degrees Fahrenheit, feet per second, actual cubic feet per minute
Base Elevation:	449
Stack Height:	43.01
Stack Diameter:	1.4583
Exit Gas Temp:	869
Exit Gas Velocity:	17.75
Actual Exit Gas Flow Rate:	1778.83
Data Source:	
Description:	Landfill Gas IC Engine
Latitude:	61.285066
Longitude:	-149.611679
Location Description:	
Horizontal Accuracy (m):	Unknown
Datum:	NAD-1983

ADEC Reporting Form Emission Inventory Reporting State of Alaska Department of Environmental Conservation Division of Air Quality		Emission Inventory Year - 2017			
Emission Unit:					
ID:	95				
Description:	LFG Generator Engine				
Manufacturer:	GE Jenbacher				
Model Number:	JGS 420				
Serial Number:					
Year of Manufacture:					
Maximum Nameplate Capacity:	1,966 bhp (landfill gas) or 1,721 bhp (natural gas)				
Design Capacity:	1,966 bhp (landfill gas) or 1,721 bhp (natural gas)				
Manufactured Year:					
Installed Date:	2012				
Initial Startup Date:	08/2012				
Retired Date:	N/A				
Purpose:					
Operational Use:					
Portability:					
Control Equipment (List All): NONE					
Processes (List All):					
	PROCESS: Primary				
	SCC Code: 20100802 Internal Combustion Engines >> Electric Generation >> Landfill Gas >> Reciprocating				
	Material Processed: Landfill Gas/Natural Gas				
	Operational Periods: 1/1/2017 - 12/31/2017				
	FUEL INFORMATION				
	Ash Content (weight %): N/A				
	Elem. Sulfur Content (weight %): N/A				
	H2S Sulfur Content (ppmv): 35.5				
	Heat Content(MMBtu/MMscf): 533				
	Heat Input (MMBtu/hr):				
	Heat Output (MMBtu/hr):				
	THROUGHPUT				
	Total Amount: 173,550.1 (1000 Cubic Feet) Landfill Gas				
	Summer %: 23%				
	Fall %: 26%				
	Winter %: 24%				
	Spring %: 27%				
	Days/Week of Operation: 6.00				
	Weeks/Year of Operation: 44.59				
	Hours/Day of Operation: 20.52				
Hours/Year of Operation: 7,491.0					

EMISSIONS					
Pollutant	Emission Factor	Emission Factor Numerator	Emission Factor Denominator	Emission Factor Source	Tons Emitted (Total)
Carbon Monoxide (CO)	3.6	Grams	Brake Horsepower - Hour	Vendor Data	5.844E+01
Ammonia (NH3)	N/A	N/A	N/A	N/A	N/A
Nitrogen Oxides (NOX)	0.6	Grams	Brake Horsepower - Hour	Vendor Data	9.740E+00
PM ₁₀ -Primary (Filt + Cond) (PM10-PRI)	0.018	Grams	Brake Horsepower - Hour	Vendor Data	2.922E-01
PM _{2.5} -Filterable (PM25-FIL)	0.009	Grams	Brake Horsepower - Hour	Vendor Data	1.461E-01
PM Condensable (PM-CON)	N/A	N/A	N/A	N/A	N/A
Sulfur Dioxide (SO2)	0.20	Pounds	Hour	AQ0237CPT04 Technical Analysis Report Table A-1	7.585E-01
Volatile Organic Compounds (VOC)	1.0	Grams	Brake Horsepower - Hour	Vendor Data	1.623E+01
Lead and lead compounds	N/A	N/A	N/A	N/A	N/A

Stack Description:	
Stack Detail:	
ID:	95
Type:	Vertical
Apportion%:	100
Measurement Units:	Feet, degrees Fahrenheit, feet per second, actual cubic feet per minute
Base Elevation:	449
Stack Height:	43.01
Stack Diameter:	1.4583
Exit Gas Temp:	869
Exit Gas Velocity:	17.75
Actual Exit Gas Flow Rate:	1778.83
Data Source:	
Description:	Landfill Gas IC Engine
Latitude:	61.285108
Longitude:	-149.611703
Location Description:	
Horizontal Accuracy (m):	Unknown
Datum:	NAD-1983

ADEC Reporting Form Emission Inventory Reporting State of Alaska Department of Environmental Conservation Division of Air Quality		Emission Inventory Year - 2017			
Emission Unit:					
ID:	96				
Description:	LFG Generator Engine				
Manufacturer:	GE Jenbacher				
Model Number:	JGS 420				
Serial Number:					
Year of Manufacture:					
Maximum Nameplate Capacity:	1,966 bhp (landfill gas) or 1,721 bhp (natural gas)				
Design Capacity:	1,966 bhp (landfill gas) or 1,721 bhp (natural gas)				
Manufactured Year:					
Installed Date:	2012				
Initial Startup Date:	08/2012				
Retired Date:	N/A				
Purpose:					
Operational Use:					
Portability:					
Control Equipment (List All): NONE					
Processes (List All):					
	PROCESS:		Primary		
	SCC Code:		20100802 Internal Combustion Engines >> Electric Generation >> Landfill Gas >> Reciprocating		
	Material Processed:		Landfill Gas/Natural Gas		
	Operational Periods:		1/1/2017 - 12/31/2017		
	FUEL INFORMATION				
	Ash Content (weight %):		N/A		
	Elem. Sulfur Content (weight %):		N/A		
	H2S Sulfur Content (ppmv):		35.5		
	Heat Content(MMBtu/MMscf):		533		
	Heat Input (MMBtu/hr):				
	Heat Output (MMBtu/hr):				
	THROUGHPUT				
	Total Amount:		125,870.7 (1000 Cubic Feet) Landfill Gas		
	Summer %:		37%		
	Fall %:		29%		
	Winter %:		11%		
	Spring %:		23%		
	Days/Week of Operation:		4.35		
	Weeks/Year of Operation:		32.34		
	Hours/Day of Operation:		14.88		
Hours/Year of Operation:		5,433.0			

EMISSIONS					
Pollutant	Emission Factor	Emission Factor Numerator	Emission Factor Denominator	Emission Factor Source	Tons Emitted (Total)
Carbon Monoxide (CO)	3.6	Grams	Brake Horsepower - Hour	Vendor Data	4.239E+01
Ammonia (NH3)	N/A	N/A	N/A	N/A	N/A
Nitrogen Oxides (NOX)	0.6	Grams	Brake Horsepower - Hour	Vendor Data	7.064E+00
PM ₁₀ -Primary (Filt + Cond) (PM10-PRI)	0.018	Grams	Brake Horsepower - Hour	Vendor Data	2.119E-01
PM _{2.5} -Filterable (PM25-FIL)	0.009	Grams	Brake Horsepower - Hour	Vendor Data	1.060E-01
PM Condensable (PM-CON)	N/A	N/A	N/A	N/A	N/A
Sulfur Dioxide (SO2)	0.20	Pounds	Hour	AQ0237CPT04 Technical Analysis Report Table A-1	5.501E-01
Volatile Organic Compounds (VOC)	1.0	Grams	Brake Horsepower - Hour	Vendor Data	1.177E+01
Lead and lead compounds	N/A	N/A	N/A	N/A	N/A

Stack Description:	
Stack Detail:	
ID:	96
Type:	Vertical
Apportion%:	100
Measurement Units:	Feet, degrees Fahrenheit, feet per second, actual cubic feet per minute
Base Elevation:	449
Stack Height:	43.01
Stack Diameter:	1.4583
Exit Gas Temp:	869
Exit Gas Velocity:	17.75
Actual Exit Gas Flow Rate:	1778.83
Data Source:	
Description:	Landfill Gas IC Engine
Latitude:	61.28515
Longitude:	-149.611728
Location Description:	
Horizontal Accuracy (m):	Unknown
Datum:	NAD-1983

ADEC Reporting Form Emission Inventory Reporting State of Alaska Department of Environmental Conservation Division of Air Quality		Emission Inventory Year - 2017	
Emission Unit:			
ID:	98		
Description:	LFG Generator Engine		
Manufacturer:	GE Jenbacher		
Model Number:	JGS 420		
Serial Number:			
Year of Manufacture:			
Maximum Nameplate Capacity:	1,966 bhp (landfill gas) or 1,721 bhp (natural gas)		
Design Capacity:	1,966 bhp (landfill gas) or 1,721 bhp (natural gas)		
Manufactured Year:			
Installed Date:	2012		
Initial Startup Date:	08/2012		
Retired Date:	N/A		
Purpose:			
Operational Use:			
Portability:			
Control Equipment (List All): NONE			
Processes (List All):			
	PROCESS: Primary		
	SCC Code: 20100802 Internal Combustion Engines >> Electric Generation >> Landfill Gas >> Reciprocating		
	Material Processed: Landfill Gas/Natural Gas		
	Operational Periods: 1/1/2017 - 12/31/2017		
	FUEL INFORMATION		
	Ash Content (weight %): N/A		
	Elem. Sulfur Content (weight %): N/A		
	H2S Sulfur Content (ppmv): 35.5		
	Heat Content(MMBtu/MMscf): 533		
	Heat Input (MMBtu/hr):		
	Heat Output (MMBtu/hr):		
	THROUGHPUT		
	Total Amount: 148,389.9 (1000 Cubic Feet) Landfill Gas		
	Summer %: 28%		
	Fall %: 30%		
	Winter %: 19%		
	Spring %: 23%		
	Days/Week of Operation: 5.13		
	Weeks/Year of Operation: 38.13		
	Hours/Day of Operation: 17.55		
Hours/Year of Operation: 6,405.0			

EMISSIONS					
Pollutant	Emission Factor	Emission Factor Numerator	Emission Factor Denominator	Emission Factor Source	Tons Emitted (Total)
Carbon Monoxide (CO)	3.6	Grams	Brake Horsepower - Hour	Vendor Data	4.997E+01
Ammonia (NH3)	N/A	N/A	N/A	N/A	N/A
Nitrogen Oxides (NOX)	0.6	Grams	Brake Horsepower - Hour	Vendor Data	8.328E+00
PM ₁₀ -Primary (Filt + Cond) (PM10-PRI)	0.018	Grams	Brake Horsepower - Hour	Vendor Data	2.499E-01
PM _{2.5} -Filterable (PM25-FIL)	0.009	Grams	Brake Horsepower - Hour	Vendor Data	1.249E-01
PM Condensable (PM-CON)	N/A	N/A	N/A	N/A	N/A
Sulfur Dioxide (SO2)	0.20	Pounds	Hour	AQ0237CPT04 Technical Analysis Report Table A-1	6.485E-01
Volatile Organic Compounds (VOC)	1.0	Grams	Brake Horsepower - Hour	Vendor Data	1.388E+01
Lead and lead compounds	N/A	N/A	N/A	N/A	N/A

Stack Description:	
Stack Detail:	
ID:	98
Type:	Vertical
Apportion%:	100
Measurement Units:	Feet, degrees Fahrenheit, feet per second, actual cubic feet per minute
Base Elevation:	449
Stack Height:	43.01
Stack Diameter:	1.4583
Exit Gas Temp:	869
Exit Gas Velocity:	17.75
Actual Exit Gas Flow Rate:	1778.83
Data Source:	
Description:	Landfill Gas IC Engine
Latitude:	61.285193
Longitude:	-149.611754
Location Description:	
Horizontal Accuracy (m):	Unknown
Datum:	NAD-1983

ADEC Reporting Form Emission Inventory Reporting State of Alaska Department of Environmental Conservation Division of Air Quality		Emission Inventory Year - 2017			
Emission Unit:					
ID:	99				
Description:	LFG Generator Engine				
Manufacturer:	GE Jenbacher				
Model Number:	JGS 420				
Serial Number:					
Year of Manufacture:					
Maximum Nameplate Capacity:	1,966 bhp (landfill gas) or 1,721 bhp (natural gas)				
Design Capacity:	1,966 bhp (landfill gas) or 1,721 bhp (natural gas)				
Manufactured Year:					
Installed Date:	2012				
Initial Startup Date:	08/2012				
Retired Date:	N/A				
Purpose:					
Operational Use:					
Portability:					
Control Equipment (List All): NONE					
Processes (List All):					
	PROCESS:		Primary		
	SCC Code:		20100802 Internal Combustion Engines >> Electric Generation >> Landfill Gas >> Reciprocating		
	Material Processed:		Landfill Gas/Natural Gas		
	Operational Periods:		1/1/2017 - 12/31/2017		
	FUEL INFORMATION				
	Ash Content (weight %):		N/A		
	Elem. Sulfur Content (weight %):		N/A		
	H2S Sulfur Content (ppmv):		35.5		
	Heat Content(MMBtu/MMscf):		533		
	Heat Input (MMBtu/hr):				
	Heat Output (MMBtu/hr):				
	THROUGHPUT				
	Total Amount:		185,968.1 (1000 Cubic Feet) Landfill Gas		
	Summer %:		28%		
	Fall %:		26%		
	Winter %:		20%		
	Spring %:		26%		
	Days/Week of Operation:		6.43		
	Weeks/Year of Operation:		47.78		
	Hours/Day of Operation:		21.99		
Hours/Year of Operation:		8,027.0			

EMISSIONS					
Pollutant	Emission Factor	Emission Factor Numerator	Emission Factor Denominator	Emission Factor Source	Tons Emitted (Total)
Carbon Monoxide (CO)	3.6	Grams	Brake Horsepower - Hour	Vendor Data	6.262E+01
Ammonia (NH3)	N/A	N/A	N/A	N/A	N/A
Nitrogen Oxides (NOX)	0.6	Grams	Brake Horsepower - Hour	Vendor Data	1.044E+01
PM ₁₀ -Primary (Filt + Cond) (PM10-PRI)	0.018	Grams	Brake Horsepower - Hour	Vendor Data	3.131E-01
PM _{2.5} -Filterable (PM25-FIL)	0.009	Grams	Brake Horsepower - Hour	Vendor Data	1.566E-01
PM Condensable (PM-CON)	N/A	N/A	N/A	N/A	N/A
Sulfur Dioxide (SO2)	0.20	Pounds	Hour	AQ0237CPT04 Technical Analysis Report Table A-1	8.128E-01
Volatile Organic Compounds (VOC)	1.0	Grams	Brake Horsepower - Hour	Vendor Data	1.740E+01
Lead and lead compounds	N/A	N/A	N/A	N/A	N/A

Stack Description:	
Stack Detail:	
ID:	99
Type:	Vertical
Apportion%:	100
Measurement Units:	Feet, degrees Fahrenheit, feet per second, actual cubic feet per minute
Base Elevation:	449
Stack Height:	43.01
Stack Diameter:	1.4583
Exit Gas Temp:	869
Exit Gas Velocity:	17.75
Actual Exit Gas Flow Rate:	1778.83
Data Source:	
Description:	Landfill Gas IC Engine
Latitude:	61.285235
Longitude:	-149.611778
Location Description:	
Horizontal Accuracy (m):	Unknown
Datum:	NAD-1983

ADEC Reporting Form Emission Inventory Reporting State of Alaska Department of Environmental Conservation Division of Air Quality		Emission Inventory Year - 2017			
Emission Unit:					
ID:	100				
Description:	CHPP Backup Sump Pump Engine				
Manufacturer:	Waukesha				
Model Number:	FCU				
Serial Number:					
Year of Manufacture:					
Maximum Nameplate Capacity:	Unknown				
Design Capacity:	35 bhp				
Manufactured Year:					
Installed Date:	Unknown (prior to 2006)				
Initial Startup Date:	Unknown (prior to 2006)				
Retired Date:	N/A				
Purpose:					
Operational Use:					
Portability:					
Control Equipment (List All): NONE					
Processes (List All):					
	PROCESS:		Primary		
	SCC Code:		20300301		
	Material Processed:		Gasoline		
	Operational Periods:		1/1/2017 - 12/31/2017		
	FUEL INFORMATION				
	Ash Content (weight %):		Negligible		
	Elem. Sulfur Content (weight %):		0.001		
	H2S Sulfur Content (ppmv):		N/A		
	Heat Content(MMBtu/1000 gal):		130		
	Heat Input (MMBtu/hr):				
	Heat Output (MMBtu/hr):				
	THROUGHPUT				
	Total Amount:		3.8 Gallons		
	Summer %:		0%		
	Fall %:		100%		
	Winter %:		0%		
	Spring %:		0%		
	Days/Week of Operation:		0.00		
	Weeks/Year of Operation:		0.03		
	Hours/Day of Operation:		0.02		
Hours/Year of Operation:		5.6			

EMISSIONS					
Pollutant	Emission Factor	Emission Factor Numerator	Emission Factor Denominator	Emission Factor Source	Tons Emitted (Total)
Carbon Monoxide (CO)	6.96E-03	Pounds	Horsepower - Hour	EPA AP-42 (Table 3.3-1)	1.949E-05
Ammonia (NH3)	N/A	N/A	N/A	N/A	N/A
Nitrogen Oxides (NOX)	0.011	Pounds	Horsepower - Hour	EPA AP-42 (Table 3.3-1)	3.080E-05
PM ₁₀ -Primary (Filt + Cond) (PM10-PRI)	7.21E-04	Pounds	Horsepower - Hour	EPA AP-42 (Table 3.3-1)	2.019E-06
PM _{2.5} -Filterable (PM25-FIL)	7.21E-04	Pounds	Horsepower - Hour	EPA AP-42 (Table 3.3-1)	2.019E-06
PM Condensable (PM-CON)	N/A	N/A	N/A	No AP-42 Emission Factor	N/A
Sulfur Dioxide (SO2)	0.01234	Pounds	Gallons	Mass Balance	2.369E-05
Volatile Organic Compounds (VOC)	2.16E-02	Pounds	Horsepower - Hour	EPA AP-42 (Table 3.3-1)	2.116E-03
Lead and lead compounds	N/A	N/A	N/A	N/A	N/A

Stack Description:	
Stack Detail:	
ID:	100
Type:	Unknown
Apportion%:	100
Measurement Units:	Feet, degrees Fahrenheit, feet per second, actual cubic feet per minute
Base Elevation:	Unknown
Stack Height:	Unknown
Stack Diameter:	Unknown
Exit Gas Temp:	Unknown
Exit Gas Velocity:	Unknown
Actual Exit Gas Flow Rate:	Unknown
Data Source:	
Description:	Unknown
Latitude:	Unknown
Longitude:	Unknown
Location Description:	
Horizontal Accuracy (m):	Unknown
Datum:	Unknown