MINNESOTA POLLUTION CONTROL AGENCY

Air Individual Permit
Major Amendment
13700022-101

Permittee: **Duluth Steam Plant 1**

Facility name: **Duluth Steam Plant 1**
1 Lake Place Drive
Duluth, MN 55802-2324
St. Louis County

Operating permit issuance date: October 28, 2015

Expiration date: October 28, 2020
* All Title I Conditions do not expire

Major Amendment: April 3, 2019

Permit characteristics: Federal; Part 70/ Major for NSR

*The Permittee may continue to operate this facility after the expiration date of the permit, per the provision under Minn. R. 7007.0450, subp. 3.

The emission units, control equipment and emission stacks at the stationary source authorized in this permit amendment are as described in the submittals listed in the Permit Applications Table.

This permit amendment supersedes Air Emission Permit No. 13700022-005 and authorizes the Permittee to modify the stationary source at the address listed above unless otherwise noted in the permit. The Permittee must comply with all the conditions of the permit. Any changes or modifications to the stationary source must be performed in compliance with Minn. R. 7007.1150 to 7007.1500. Terms used in the permit are as defined in the state air pollution control rules unless the term is explicitly defined in the permit.

Unless otherwise indicated, all the Minnesota rules cited as the origin of the permit terms are incorporated into the SIP under 40 CFR § 52.1220 and as such are enforceable by the U.S. Environmental Protection Agency (EPA) Administrator or citizens under the Clean Air Act.

Signature: Jared LaFave

This document has been electronically signed.

for Don Smith, P.E., Manager
Air Quality Permits Section
Industrial Division

for the Minnesota Pollution Control Agency

Table of Contents

Page

1. Permit applications table 3
2. Where to send submittals 4
3. Facility description 5
4. Summary of subject items 7
5. Limits and other requirements 8
6. Submittal/action requirements 61
7. Appendices 76

Appendix A. Insignificant Activities and General Applicable Requirements
Appendix B. Modeled Parameters Relied Upon to Comply with PM_{10}, SO_2 and NO_2 National Ambient Air Quality Standards
Appendix C. Modeled Parameters Relied Upon to Comply with PM_{10}, SO_2 and NO_2 Equivalent or Better Dispersion Modeling Requirement
Appendix D. Equations for Wood CO Emissions
Appendix E. 40 CFR pt. 63, subp. JJJJJJ Equations
Appendix F. 40 CFR pt. 63, subp. ZZZZ Requirements
Appendix G. 40 CFR pt. 63, subp. A Provisions
Appendix H. Best Management Practices for Emergency Generator
Appendix I. Fugitive Dust Control Plan

1. Permit applications table

Subsequent permit applications:

Title description	Application receipt date	Action number
Major Amendment	06/22/2018	13700022-101
Major Amendment	04/11/2017	
Minor Amendment	06/02/2016	
Administrative Amendment	10/25/2016	
Part 70 Reissuance	02/03/2014	13700022-005

2. Where to send submittals

Send submittals that are required to be submitted to the EPA regional office to:

Chief Air Enforcement
Air and Radiation Branch
EPA Region V
77 West Jackson Boulevard
Chicago, Illinois 60604

Each submittal must be postmarked or received by the date specified in the applicable Table. Those submittals required by Minn. R. 7007.0100 to 7007.1850 must be certified by a responsible official, defined in Minn. R. 7007.0100, subp. 21. Other submittals shall be certified as appropriate if certification is required by an applicable rule or permit condition.

Send submittals that are required by the Acid Rain Program to:

U.S. Environmental Protection Agency
Clean Air Markets Division
1200 Pennsylvania Avenue NW (6204N)
Washington, D.C. 20460

Send any application for a permit or permit amendment to:

Fiscal Services – 6th Floor
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

Also, where required by an applicable rule or permit condition, send to the Permit Document Coordinator notices of:

a. Accumulated insignificant activities
b. Installation of control equipment
c. Replacement of an emissions unit, and
d. Changes that contravene a permit term

Unless another person is identified in the applicable Table, send all other submittals to:

AQ Compliance Tracking Coordinator
Industrial Division
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

Or

Email a signed and scanned PDF copy to:
submitstacktest.pca@state.mn.us
(for submittals related to stack testing)
AQRoutineReport.PCA@state.mn.us
(for other compliance submittals)
(See complete email instructions in "Routine Air Report Instructions Letter" at http://www.pca.state.mn.us/nwqh472.)

3. Facility description

Duluth Steam Plant 1 is a district heating system for the City of Duluth. This facility was built in 1932 and it consists of four steam boilers that each burn multiple fuels, a pneumatic ash handling system, and an emergency generator. Each boiler can produce 100,000 pounds of steam per hour and each has a heat input capacity of 115 MMBtu/hr. The fugitive emission sources at the facility consist of coal truck unloading, coal transfer to bunker, ash truck loading, and fugitive dust from paved roads. Insignificant sources at the facility consists of four welders, cleaning solvents, paint spray cans, and a renewable fuel oil (RFO) tank. There are two fabric filters at the facility used to control the boilers and ash system. The facility Part 70 Operating Permit (No. 13700022-005) was last reissued on October 28, 2015.

The primary fuel for the steam boilers is pulverized subbituminous coal. Natural gas is used as the principal backup fuel for boilers 2 and 3 (EQUI 8 and EQUI 6, respectively), and No. 2 fuel oil is used for startup and flame stabilization when combusting coal. As part of the City of Duluth's plan to generate 20% of its energy through renewable resources, the Permittee added wood, and RFO as allowable fuels. The addition of RFO is intended to reduce coal combustion, and will add the flexibility necessary for the facility to move towards the ultimate goal of eliminating coal use. While wood is an allowable fuel, the boilers have not been modified to accommodate wood combustion, and there are no longer any plans to do so.

Coal is delivered to the location by trucks, and is conveyed by an enclosed bucket elevator to a belt conveyor. The belt conveyor discharges coal into the storage bunkers. Coal is then fed from the bunkers through pulverizers to the boilers. Ash from the coal combustion is pneumatically conveyed to storage silos.

Baghouses are the only pollution control equipment at the facility. Baghouse TREA 1 controls particulate emissions from the boilers when combusting wood, No. 2 fuel oil, or coal. Emissions are not required to be controlled by TREA 1 if the boilers are only combusting RFO or natural gas unless the facility wishes to receive credit for emissions inventory purposes. Baghouse TREA 2 controls particulate emissions from the ash handling system at all times.

The main pollutants of concern are particulate matter (PM), particulate matter 10 micrometers or less (PM10), particulate matter 2.5 micrometers or less (PM2.5), sulfur dioxide (SO2), nitrogen oxides (NOx), carbon monoxide (CO), and hazardous air pollutants (HAPs). The facility is a major source under the federal New Source Review program and the federal Part 70 operating permit program.

The facility is a synthetic minor source under the federal National Emission Standards for Hazardous Air Pollutants (NESHAP) program. The highest single HAP emissions are hydrochloric acid (HCl). In addition, HCl is by far the largest contributor to Total HAP emissions from any fuel, accounting for almost 90% of the Total HAPs emitted. HCl is only emitted from the boilers when combusting coal or wood. The facility has accepted boiler limits on heat input, steam output, and amount of coal and wood used in addition to limits on Total/Single HAPs. The facility is also required to track the HCl content of coal and wood used. By limiting fuel use, tracking the HCl content of the fuel, and limiting HCl emissions to 9.5 tons per year (tpy), the single HAP major source threshold cannot be exceeded because there are no other sources of HCl emissions. These limits also effectively prevent the Total HAP major source threshold from being exceeded because HCl is such a significant portion of the Total HAPs emitted and there is no other HAP emitted in a large enough quantity to cause Total HAP emissions to exceed the Total HAP major source threshold. This combination of limits keep the potential emissions of HAPs below the major source thresholds. Additional discussion between the MPCA and EPA regarding this can be found as Attachment 7 to the TSD of this permit.

The facility is also subject to several emission limits derived from air dispersion modeling used to demonstrate compliance with the National Ambient Air Quality Standards (NAAQS) for particulate matter less than 10 microns (PM10), sulfur dioxide (SO2) and nitrogen dioxide (NO2).

4. Summary of subject items

SI ID: Description	Relationship Type	Related SI ID: Description
TFAC 1: Duluth Steam Plant 1		
ACTV 1: All IA's		
COMG 1: Boilers	has members	EQUI 5, EQUI 6, EQUI 7, EQUI 8
EQUI 2: Pneumatic Ash Handling System - Material Handling Equipment	sends to	STRU 12: Pneumatic Ash handling System
EQUI 2: Pneumatic Ash Handling System - Material Handling Equipment	is controlled by	TREA 2: Fabric Filter - High Temperature, i.e., T>250 Degrees F
EQUI 5: Boiler 1	sends to	STRU 8: Main Stack
EQUI 5: Boiler 1	is controlled by	TREA 1: Fabric Filter - High Temperature, i.e., T>250 Degrees F
EQUI 6: Boiler 3	sends to	STRU 8: Main Stack
EQUI 6: Boiler 3	is controlled by	TREA 1: Fabric Filter - High Temperature, i.e., T>250 Degrees F
EQUI 7: Boiler 4	sends to	STRU 8: Main Stack
EQUI 7: Boiler 4	is controlled by	TREA 1: Fabric Filter - High Temperature, i.e., T>250 Degrees F
EQUI 8: Boiler 2	sends to	STRU 8: Main Stack
EQUI 8: Boiler 2	is controlled by	TREA 1: Fabric Filter - High Temperature, i.e., T>250 Degrees F
EQUI 9: Emergency Generator	sends to	STRU 13: Stack for Emergency Generator
STRU 1: Steam Plant Main Building		
STRU 2: Metal Shop		
STRU 3: Offices		
STRU 4: Generator Building		
STRU 5: Baghouse		
STRU 8: Main Stack		
STRU 12: Pneumatic Ash handling System		
STRU 13: Stack for Emergency Generator		
TREA 1: Fabric Filter - High Temperature, i.e., T>250 Degrees F		
TREA 2: Fabric Filter - High Temperature, i.e., T>250 Degrees F		

5. Limits and other requirements

Subject Item	Sec.SI.Reqt	SI des:SI desc	Requirement & Citation
TFAC 1	13700022	Duluth Steam Plant 1	
	5.1.1		The Permittee is authorized to construct/modify the following equipment: EQUI 5 (Boiler 1) and EQUI 7 (Boiler 4). The authorization to construct expires five years after issuance of Air Emissions Permit No. 13700022-101. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000]
	5.1.2		Permit Appendices: This permit contains appendices as listed in the permit Table of Contents. The Permittee shall comply with all requirements contained in the following Appendices, Appendix A. Insignificant Activities and General Applicable Requirements Appendix D. Equations for Wood CO Emissions Appendix E. 40 CFR pt. 63, subp. JJJJJJ Equations Appendix F. 40 CFR pt. 63, subp. ZZZZ Requirements Appendix G. 40 CFR pt. 63, subp. A Provisions Appendix H. Best Management Practices for Emergency Generator Appendix I. Fugitive Dust Control Plan Modeling parameters in Appendices B and C are included for reference only as described elsewhere in this permit. [Minn. R. 7007.0800, subp. 2]
	5.1.3		PERMIT SHIELD: Subject to the limitations in Minn. R. 7007.1800, compliance with the conditions of this permit shall be deemed compliance with the specific provision of the applicable requirement identified in the permit as the basis of each condition. Subject to the limitations of Minn. R. 7007.1800 and 7017.0100, subp. 2, notwithstanding the conditions of this permit specifying compliance practices for applicable requirements, any person (including the Permittee) may also use other credible evidence to establish compliance or noncompliance with applicable requirements. This permit shall not alter or affect the liability of the Permittee for any violation of applicable requirements prior to or at the time of permit issuance. [Minn. R. 7007.1800(A)(2)]
	5.1.4		Access areas, roads, parking facilities: The Permittee shall not cause or permit the use of access areas surrounding coal stockpiles and use of all active truck haul roads and parking facilities which are located within a coal handling facility whose coal throughput by truck is less than 200,000 tons unless such areas and roads are treated with water, oils, or chemical agents. [Minn. R. 7011.1105(A)]

	5.1.5		Comply with Fugitive Emission Control Plan: The Permittee shall follow the actions and recordkeeping specified in the fugitive dust control plan in Appendix I of this permit. If the Commissioner determines the Permittee is out of compliance with Minn. R. 7011.0150 or the fugitive control plan, then the Permittee may be required to amend the control plan and/or to install and operate particulate matter ambient monitors as requested by the Commissioner. [Minn. R. 7007.0100, Minn. R. 7007.0800, subp. 2, Minn. R. 7009.0020, Minn. R. 7011.0150, Minn. Stat. 116.07, subd. 4a]
	5.1.6		Truck and hauler unloading stations: The Permittee shall control fugitive particulate emissions from the unloading of trucks or haulers by dust suppression methods so that the emissions from such sources are minimized. Clean up all coal spilled on roads or access areas as soon as practicable using methods that minimize the amount of dust suspended. [Minn. R. 7011.1105(I), Minn. R. 7011.1105(C)]
	5.1.7		Stockpiles, Stockpile Construction, and Reclaiming: The Permittee shall (1) Control fugitive particulate emissions by dust suppression methods on such operations so that fugitive particulate emissions are minimized, or (2) In the alternative, use an underground bottom feed (plow) of coal to an underground conveyor system provided the exhaust gases from the enclosed spaces do not contain particulate matter in excess of 0.020 grains per dry standard cubic foot (gr/dscf). [Minn. R. 7011.1105(F)]
	5.1.8		Test Burns: Alternative fuels may be burned in any of the boilers on a test burn basis under the following conditions: 1. Emissions of any criteria pollutant do not exceed the significant net emission increase levels as defined by 40 CFR Section 52.21. The Permittee shall calculate the emissions that will result from the trial burn prior to commencement of the burn. 2. No emission limits set in the permit are exceeded. The Permittee shall monitor wherever possible to assure that emission limits are not exceeded. The Permittee shall verify using emission factors that the emission limits will not be exceeded. Solid wastes, as defined in 40 CFR Section 258.2, shall not be burned. This definition includes mineral spirits and cleaning agents. The wood burned must meet the definition of "Clean Cellulosic Biomass" found in 40 CFR Section 241.2. Used oil must meet the specifications outlined in 40 CFR Section 279.11. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000]

	5.1.9		Test Burns: The purpose of the test burn shall be to determine the feasibility of the fuel type for the emission source, and shall be conducted only for as long as necessary to make the determination. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000]
	5.1.10		These requirements apply if a reasonable possibility (RP) as defined in 40 CFR Section 52.21(r)(6)(vi) exists that a proposed project, analyzed using the actual-to-projected-actual (ATPA) test (either by itself or as part of the hybrid test at Section 52.21(a)(2)(iv)(f)) and found to not be part of a major modification, may result in a significant emissions increase (SEI). If the ATPA test is not used for the project, or if there is no RP that the proposed project could result in a SEI, these requirements do not apply to that project. The Permittee is only subject to the Preconstruction Documentation requirement for a project where a RP occurs only within the meaning of Section 52.21(r)(6)(vi)(b). Even though a particular modification is not subject to New Source Review (NSR), or where there isn't a RP that a proposed project could result in a SEI, a permit amendment, recordkeeping, or notification may still be required by Minn. R. 7007.1150 - 7007.1500. [Minn. R. 7007.0800, subp. 2, Title I Condition: 40 CFR 52.21(r)(6) and Minn. R. 7007.3000]
	5.1.11		Preconstruction Documentation -- Before beginning actual construction on a project, the Permittee shall document the following: 1. Project description 2. Identification of any emission unit whose emissions of an NSR pollutant could be affected 3. Pre-change potential emissions of any affected existing emission unit, and the projected post-change potential emissions of any affected existing or new emission unit. 4. A description of the applicability test used to determine that the project is not a major modification for any regulated NSR pollutant, including the baseline actual emissions, the projected actual emissions, the amount of emissions excluded due to increases not associated with the modification and that the emission unit could have accommodated during the baseline period, an explanation of why the amounts were excluded, and any creditable contemporaneous increases and decreases that were considered in the determination. The Permittee shall maintain records of this documentation. [Minn. R. 7007.0800, subps. 4-5, Minn. R. 7007.1200, subp. 4, Title I Condition: 40 CFR 52.21(r)(6) and Minn. R. 7007.3000]
	5.1.12		The Permittee shall monitor the actual emissions of any regulated NSR pollutant that could increase as a result of the project and that

			were analyzed using the ATPA test, and the potential emissions of any regulated NSR pollutant that could increase as a result of the project and that were analyzed using potential emissions in the hybrid test. The Permittee shall calculate and maintain a record of the sum of the actual and potential (if the hybrid test was used in the analysis) emissions of the regulated pollutant, in tons per year on a calendar year basis, for a period of 5 years following resumption of regular operations after the change, or for a period of 10 years following resumption of regular operations after the change if the project increases the design capacity of or potential to emit of any unit associated with the project. [Minn. R. 7007.0800, subps. 4-5, Title I Condition: 40 CFR 52.21(r)(6) and Minn. R. 7007.3000]
	5.1.13		The Permittee must submit a report to the Agency if the annual summed (actual, plus potential if used in hybrid test) emissions differ from the preconstruction projection and exceed the baseline actual emissions by a significant amount as listed at 40 CFR Section 52.21(b)(23). Such report shall be submitted to the Agency within 60 days after the end of the year in which the exceedances occur. The report shall contain: a. The name and ID number of the Facility, and the name and telephone number of the Facility contact person. b. The annual emissions (actual, plus potential if any part of the project was analyzed using the hybrid test) for each pollutant for which the preconstruction projection and significant emissions increase are exceeded c. Any other information, such as an explanation as to why the summed emissions differ from the preconstruction projection. [Minn. R. 7007.0800, subps. 4-5, Title I Condition: 40 CFR 52.21(r)(6) and Minn. R. 7007.3000]
	5.1.14		The Permittee shall comply with National Primary and Secondary Ambient Air Quality Standards, 40 CFR pt. 50, and the Minnesota Ambient Air Quality Standards, Minn. R. 7009.0010 to 7009.0090. Compliance shall be demonstrated upon written request by the MPCA. [Minn. R. 7007.0100, subp. 7(A), 7(L), & 7(M), Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0010-7009.0090, Minn. Stat. 116.07, subd. 4a, Minn. Stat. 116.07, subd. 9]
	5.1.15		Circumvention: Do not install or use a device or means that conceals or dilutes emissions, which would otherwise violate a federal or state air pollution control rule, without reducing the total amount of pollutant emitted. [Minn. R. 7011.0020]
	5.1.16		Air Pollution Control Equipment: Operate all pollution control equipment whenever the corresponding process equipment and emission units are operated. Control exceptions when combusting certain fuels can be found under TREA 1 of this permit. [Minn. R. 7007.0800, subp. 16(J), Minn. R. 7007.0800, subp. 2]
	5.1.17		Operation and Maintenance Plan: Retain at the stationary source an operation and maintenance plan for all air pollution control

			equipment. At a minimum, the O & M plan shall identify all air pollution control equipment and control practices and shall include a preventative maintenance program for the equipment and practices, a description of (the minimum but not necessarily the only) corrective actions to be taken to restore the equipment and practices to proper operation to meet applicable permit conditions, a description of the employee training program for proper operation and maintenance of the control equipment and practices, and the records kept to demonstrate plan implementation. [Minn. R. 7007.0800, subp. 14, Minn. R. 7007.0800, subp. 16(J)]
	5.1.18		Operation Changes: In any shutdown, breakdown, or deviation the Permittee shall immediately take all practical steps to modify operations to reduce the emission of any regulated air pollutant. The Commissioner may require feasible and practical modifications in the operation to reduce emissions of air pollutants. No emissions units that have an unreasonable shutdown or breakdown frequency of process or control equipment shall be permitted to operate. [Minn. R. 7019.1000, subp. 4]
	5.1.19		Fugitive Emissions: Do not cause or permit the handling, use, transporting, or storage of any material in a manner which may allow avoidable amounts of particulate matter to become airborne. Comply with all other requirements listed in Minn. R. 7011.0150. [Minn. R. 7011.0150]
	5.1.20		Noise: The Permittee shall comply with the noise standards set forth in Minn. R. 7030.0010 to 7030.0080 at all times during the operation of any emission units. This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act. [Minn. R. 7030.0010-7030.0080]
	5.1.21		Inspections: The Permittee shall comply with the inspection procedures and requirements as found in Minn. R. 7007.0800, subp. 9(A). [Minn. R. 7007.0800, subp. 9(A)]
	5.1.22		The Permittee shall comply with the General Conditions listed in Minn. R. 7007.0800, subp. 16. [Minn. R. 7007.0800, subp. 16]
	5.1.23		Performance Testing: Conduct all performance tests in accordance with Minn. R. ch. 7017 unless otherwise noted in this permit. [Minn. R. ch. 7017]
	5.1.24		Performance Test Notifications and Submittals: Performance Test Notification and Plan: due 30 days before each Performance Test Performance Test Pre-test Meeting: due 7 days before each Performance Test Performance Test Report: due 45 days after each Performance Test The Notification, Test Plan, and Test Report must be submitted in a format specified by the commissioner. [Minn. R. 7017.2017, Minn. R. 7017.2030, subps. 1-4, Minn. R. 7017.2035, subps. 1-2]

	5.1.25		Limits set as a result of a performance test (conducted before or after permit issuance) apply until superseded as stated in the MPCA's Notice of Compliance letter granting preliminary approval. Preliminary approval is based on formal review of a subsequent performance test on the same unit as specified by Minn. R. 7017.2025, subp. 3. The limit is final upon issuance of a permit amendment incorporating the change. [Minn. R. 7017.2025, subp. 3]
	5.1.26		Monitoring Equipment Calibration - The Permittee shall either: 1. Calibrate or replace required monitoring equipment every 12 months; or 2. Calibrate at the frequency stated in the manufacturer's specifications. For each monitor, the Permittee shall maintain a record of all calibrations, including the date conducted, and any corrective action that resulted. The Permittee shall include the calibration frequencies, procedures, and manufacturer's specifications (if applicable) in the Operations and Maintenance Plan. Any requirements applying to continuous emission monitors are listed separately in this permit. [Minn. R. 7007.0800, subp. 4(D)]
	5.1.27		Operation of Monitoring Equipment: Unless noted elsewhere in this permit, monitoring a process or control equipment connected to that process is not necessary during periods when the process is shutdown, or during checks of the monitoring systems, such as calibration checks and zero and span adjustments. If monitoring records are required, they should reflect any such periods of process shutdown or checks of the monitoring system. [Minn. R. 7007.0800, subp. 4(D)]
	5.1.28		Recordkeeping: Retain all records at the stationary source, unless otherwise specified within this permit, for a period of five (5) years from the date of monitoring, sample, measurement, or report. Records which must be retained at this location include all calibration and maintenance records, all original recordings for continuous monitoring instrumentation, and copies of all reports required by the permit. Records must conform to the requirements listed in Minn. R. 7007.0800, subp. 5(A). [Minn. R. 7007.0800, subp. 5(C)]
	5.1.29		Recordkeeping: Maintain records describing any insignificant modifications (as required by Minn. R. 7007.1250, subp. 3) or changes contravening permit terms (as required by Minn. R. 7007.1350, subp. 2), including records of the emissions resulting from those changes. [Minn. R. 7007.0800, subp. 5(B)]
	5.1.30		If the Permittee determines that no permit amendment or notification is required prior to making a change, the Permittee must retain records of all calculations required under Minn. R. 7007.1200. For expiring permits, these records shall be kept for a period of five years from the date the change was made or until permit reissuance, whichever is longer. The records shall be kept at

			the stationary source for the current calendar year of operation and may be kept at the stationary source or office of the stationary source for all other years. The records may be maintained in either electronic or paper format. [Minn. R. 7007.1200, subp. 4]
	5.1.31		Shutdown Notifications: Notify the Commissioner at least 24 hours in advance of a planned shutdown of any control equipment or process equipment if the shutdown would cause any increase in the emissions of any regulated air pollutant. If the owner or operator does not have advance knowledge of the shutdown, notification shall be made to the Commissioner as soon as possible after the shutdown. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 3. At the time of notification, the owner or operator shall inform the Commissioner of the cause of the shutdown and the estimated duration. The owner or operator shall notify the Commissioner when the shutdown is over. [Minn. R. 7019.1000, subp. 3]
	5.1.32		Breakdown Notifications: Notify the Commissioner within 24 hours of a breakdown of more than one hour duration of any control equipment or process equipment if the breakdown causes any increase in the emissions of any regulated air pollutant. The 24-hour time period starts when the breakdown was discovered or reasonably should have been discovered by the owner or operator. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 2. At the time of notification or as soon as possible thereafter, the owner or operator shall inform the Commissioner of the cause of the breakdown and the estimated duration. The owner or operator shall notify the Commissioner when the breakdown is over. [Minn. R. 7019.1000, subp. 2]
	5.1.33		Notification of Deviations Endangering Human Health or the Environment: As soon as possible after discovery, notify the Commissioner or the state duty officer, either orally or by facsimile, of any deviation from permit conditions which could endanger human health or the environment. [Minn. R. 7019.1000, subp. 1]
	5.1.34		Notification of Deviations Endangering Human Health or the Environment Report: Within 2 working days of discovery, notify the Commissioner in writing of any deviation from permit conditions which could endanger human health or the environment. Include the following information in this written description: 1. the cause of the deviation; 2. the exact dates of the period of the deviation, if the deviation has been corrected; 3. whether or not the deviation has been corrected; 4. the anticipated time by which the deviation is expected to be corrected, if not yet corrected; and

			5. steps taken or planned to reduce, eliminate, and prevent reoccurrence of the deviation. [Minn. R. 7019.1000, subp. 1]
	5.1.35		Application for Permit Amendment: If a permit amendment is needed, submit an application in accordance with the requirements of Minn. R. 7007.1150 through Minn. R. 7007.1500. Submittal dates vary, depending on the type of amendment needed. Upon adoption of a new or amended federal applicable requirement, and if there are 3 or more years remaining in the permit term, the Permittee shall file an application for an amendment within nine months of promulgation of the applicable requirement, pursuant to Minn. R. 7007.0400, subp. 3. [Minn. R. 7007.0400, subp. 3, Minn. R. 7007.1150 - 7007.1500]
	5.1.36		Extension Requests: The Permittee may apply for an Administrative Amendment to extend a deadline in a permit by no more than 120 days, provided the proposed deadline extension meets the requirements of Minn. R. 7007.1400, subp. 1(H). Performance testing deadlines from the General Provisions of 40 CFR pt. 60 and pt. 63 are examples of deadlines for which the MPCA does not have authority to grant extensions and therefore do not meet the requirements of Minn. R. 7007.1400, subp. 1(H). [Minn. R. 7007.1400, subp. 1(H)]
	5.1.37		Emission Inventory Report: due on or before April 1 of each calendar year following permit issuance. Submit in a format specified by the Commissioner. [Minn. R. 7019.3000-7019.3100]
	5.1.38		Emission Fees: due 30 days after receipt of an MPCA bill. [Minn. R. 7002.0005-7002.0095]
	5.1.39		Modeled Parameters for NO2, SO2, and PM10: The parameters used in NO2, SO2, and PM10 modeling for permit number 13700022-003 are listed in Appendix B of this permit. The parameters used in NO2, SO2 and PM10 Equivalent or Better Dispersion modeling for Air Emission Permit No. 13700022-004 are listed in Appendix C of this permit. The parameters describe the operation of the facility at maximum permitted capacity. The purpose of listing the parameters in the appendix is to provide a benchmark for future changes. [Minn. R. 7007.0100, subp. 7(A), Minn. R. 7007.0100, subp. 7(L), Minn. R. 7007.0100, subp. 7(M), Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0010-0090, Minn. Stat. 116.07, subd. 4a, Minn. Stat. 116.07, subd. 9]
	5.1.40		Sulfur Dioxide: Equivalent or Better Dispersion (EBD) Modeling Triggers (Modeling Not Required) for SO2: Changes that do not require a permit amendment or that require a minor or administrative permit amendment do not trigger the EBD Modeling Submittal requirement. The Permittee shall keep updated records on site of all modeled SO2 parameters and emission rates listed in Appendix B. The Permittee shall submit any changes to modeled SO2 parameters and emission rates with the next required modeling submittal. [Minn. R. 7007.0100, subp. 7(A), Minn. R.

			7007.0100, subp. 7(L), Minn. R. 7007.0100, subp. 7(M), Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0010-0090, Minn. Stat. 116.07, subd. 4a, Minn. Stat. 116.07, subd. 9]
	5.1.41		Sulfur Dioxide: EBD Modeling Triggers (Modeling Required) for SO2: Changes that require, or would require, a moderate or major permit amendment due to an increase in SO2 emissions and affect any modeled SO2 parameter or emission rate listed in Appendix B, or an addition to the information documented in Appendix B, trigger the EBD Remodeling Submittal requirement. The Permittee shall include previously made changes to modeled SO2 parameters and emission rates listed in Appendix B that did not previously trigger the EBD Modeling Submittal requirement with this modeling submittal. [Minn. R. 7007.0100, subp. 7(A), Minn. R. 7007.0100, subp. 7(L), Minn. R. 7007.0100, subp. 7(M), Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0010-0090, Minn. Stat. 116.07, subd. 4a, Minn. Stat. 116.07, subd. 9]
	5.1.42		Sulfur Dioxide: EBD Modeling Submittal for SO2: For changes meeting the criteria in the EBD Modeling Triggers (Modeling Required) requirement, the Permittee shall submit an EBD modeling submittal in accordance with the current version of the MPCA Air Dispersion Modeling Guidance and shall wait for written approval (for major amendments, in the form of an issued permit amendment; for moderate amendments, in the form of a construction authorization letter) before making such changes. [Minn. R. 7007.0100, subp. 7(A), Minn. R. 7007.0100, subp. 7(L), Minn. R. 7007.0100, subp. 7(M), Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0010-0090, Minn. Stat. 116.07, subd. 4a, Minn. Stat. 116.07, subd. 9]
	5.1.43		PM < 10 micron: Equivalent or Better Dispersion (EBD) Modeling Triggers (Modeling Required) for PM10: Any changes that affect any modeled PM10 parameter or emission rate listed in Appendix B, or an addition to the information documented in Appendix B, trigger the EBD Remodeling Submittal requirement. This includes changes that do not require a permit amendment as well as changes that require any type of permit amendment. Changes made under the Administrative amendment process are excluded from this requirement. [Minn. R. 7007.0100, subp. 7(A), Minn. R. 7007.0100, subp. 7(L), Minn. R. 7007.0100, subp. 7(M), Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0010-0090, Minn. Stat. 116.07, subd. 4a, Minn. Stat. 116.07, subd. 9]
	5.1.44		PM < 10 micron: EBD Modeling Submittal for PM10: For changes meeting the criteria in the EBD Modeling Triggers (Modeling Required) requirement, the Permittee shall submit an EBD modeling submittal in accordance with the current version of the MPCA Air Dispersion Modeling Guidance and shall wait for written approval (for major amendments, in the form of an issued permit amendment; for moderate amendments, in the form of a construction authorization letter) before making such changes. For

			changes that do not require a moderate or major amendment, written approval of the EBD modeling may be given before permit issuance; however, this approval applies only to the EBD modeling and not to any other changes. [Minn. R. 7007.0100, subp. 7(A), Minn. R. 7007.0100, subp. 7(L), Minn. R. 7007.0100, subp. 7(M), Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0010-0090, Minn. Stat. 116.07, subd. 4a, Minn. Stat. 116.07, subd. 9]
	5.1.45		EBD Modeling Submittal Content for SO2 and PM10: The information submitted must include, for stack and vent sources, source emission rate, location, height, diameters, exit velocity, exit temperature, discharge direction, use of rain caps or rain hats, and, if applicable, locations and dimensions of nearby buildings. For non-stack/vent sources, this includes the source emission rate, location, size and shape, release height, and, if applicable, any emission rate scalars, and the initial lateral dimensions and initial vertical dimensions and adjacent building heights. [Minn. R. 7007.0100, subp. 7(A), Minn. R. 7007.0100, subp. 7(L), Minn. R. 7007.0100, subp. 7(M), Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0010-0090, Minn. Stat. 116.07, subd. 4a, Minn. Stat. 116.07, subd. 9]
	5.1.46		Outdated EBD Baseline Modeling for SO2 and PM10: Prior to conducting the EBD analysis, the Permittee shall use the current version of the MPCA Air Dispersion Modeling Guidance to determine if the Baseline Modeling (the most recent refined modeling demonstration) is outdated. If the Baseline Modeling is outdated, the Permittee shall update the Baseline Modeling to be consistent with the current version of the MPCA Air Dispersion Modeling Guidance. The updated modeling will become the new Baseline Modeling. This requirement does not require the Permittee to complete a new refined modeling demonstration using the revisions made for the EBD demonstration. [Minn. R. 7007.0100, subp. 7(A), Minn. R. 7007.0100, subp. 7(L), Minn. R. 7007.0100, subp. 7(M), Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0010-0090, Minn. Stat. 116.07, subd. 4a, Minn. Stat. 116.07, subd. 9]
	5.1.47		EBD Modeling Results for SO2 and PM10: The dispersion characteristics due to the revisions of the information in Appendix B must be equivalent to or better than the dispersion characteristics modeled December 31, 2008. The Permittee shall demonstrate this equivalency in the proposal. [Minn. R. 7007. 0100, subp. 7(M), Minn. R. 7007.0100, subp. 7(A), Minn. R. 7007.0100, subp. 7(L), Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0010-0090, Minn. Stat. 116.07, subd. 4a, Minn. Stat. 116.07, subd. 9]
	5.1.48		Computer Dispersion Modeling Triggers for SO2 and PM10: The Permittee shall conduct a refined remodeling analysis in accordance with the Computer Dispersion Modeling requirements of this permit and the current version of the MPCA Air Dispersion Modeling Guidance if: (1) the results of the EBD modeling analysis

			do not demonstrate equivalent or better dispersion characteristics; (2) a conclusion cannot readily be made about the dispersion, or (3) the criteria in the EBD Modeling Triggers requirement are met and the Permittee has previously conducted three successive EBD analyses using the same Baseline Modeling. [Minn. R. 7007. 0100, subp. 7(A), Minn. R. 7007. 0100, subp. 7(L), Minn. R. 7007. 0800, subps. 1-2, Minn. R. 7007.0100, subp. 7(M), Minn. R. 7009.0010-0090, Minn. Stat. 116.07, subd. 4a, Minn. Stat. 116.07, subd. 9]
	5.1.49		Computer Dispersion Modeling Protocol: due 180 days after receipt of written MPCA request for SO2 and PM10 refined modeling. The Permittee shall submit a Computer Dispersion Modeling Protocol that is complete and approvable by MPCA by the deadline in this requirement. This protocol will describe the proposed modeling methodology and input data, in accordance with the current version of the MPCA Air Dispersion Modeling Guidance. [Minn. R. 7007.0100, subp. 7(A), Minn. R. 7007.0100, subp. 7(L), Minn. R. 7007.0100, subp. 7(M), Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0010-0090, Minn. Stat. 116.07, subd. 4a, Minn. Stat. 116.subd. 9]
	5.1.50		Computer Dispersion Modeling Protocol: due 60 days after receipt of written MPCA request for revisions to the submitted protocol for SO2 and PM10 modeling. [Minn. R. 7007.0100, subp. 7(A), Minn. R. 7007.0100, subp. 7(L), Minn. R. 7007.0100, subp. 7(M), Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0010-0090, Minn. Stat. 116.07, subd. 4a, Minn. Stat. 116.07, subd. 9]
	5.1.51		Computer Dispersion Modeling Results: due 180 days after receipt of written MPCA approval of Computer Dispersion Modeling Protocol for SO2 and PM10. The Permittee shall submit a final Computer Dispersion Modeling Report that is complete and approvable by MPCA by the deadline in this requirement. The submittal shall adhere to the current version of the MPCA Air Dispersion Modeling Guidance and the approved Computer Dispersion Modeling Protocol. [Minn. R. 7007.0100, subp. 7(A), Minn. R. 7007.0100, subp. 7(L), Minn. R. 7007.0100, subp. 7(M), Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0010-0090, Minn. Stat. 116.07, subd. 4a, Minn. Stat. 116.07, subd. 9]
	5.1.52		Mercury Emission Inventory Report: due on or before April 1 of each calendar year following permit issuance, to be submitted on a form approved by the Commissioner. The initial report for mercury emissions must cover the calendar year 2015. If any annual emission inventory report demonstrates that mercury emissions are below 3 lbs for the reporting year, then the Permittee shall report mercury emissions every three years, along with the Air Toxics Inventory. If the Permittee is subject to triennial mercury emissions reporting, and any Air Toxics Inventory demonstrates that mercury emissions are greater than or equal to 3 lbs for the reporting year, then the Permittee shall re-commence annual

			mercury emissions reporting. [Minn. R. 7019.3000-3100, Minn. R. 7005.0100, subp. 23b]
COMG 1	GP001	Boilers	
	5.2.1		COMG 1 (Boilers) emission limits apply to the combined emissions, heat input, and steam output of all four boilers (EQUI 5, EQUI 6, EQUI 7, and EQUI 8). [Minn. R. 7007.0800, subps. 1-2]
	5.2.2		The Permittee shall limit emissions of PM < 10 micron <= 7.7 pounds per hour 24-hour rolling average. [Minn. R. 7007.0100, subp. 7(A), Minn. R. 7007.0100, subp. 7(L), Minn. R. 7007.0100, subp. 7(M), Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0010-0090, Minn. Stat. 116.07, subd. 4a, Minn. Stat. 116.07, subd. 9]
	5.2.3		The Permittee shall limit emissions of PM < 10 micron <= 19.9 tons per year 12-month rolling sum. [Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0100, subp. 7(A), Minn. R. 7009.0100, subp. 7(L), Minn. R. 7009.0100, subp. 7(M), Minn. Stat. 116.07, subp. 4a, Minn. Stat. 116.07, subp. 9]
	5.2.4		The Permittee shall limit emissions of Sulfur Dioxide <= 425 pounds per hour 3-hour rolling average. [Minn. R. 7007.0100, subp. 7(L), Minn. R. 7007.0100, subp. 7(M), Minn. R. 7007.0100, supb. 7(A), Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0010-0090, Minn. Stat. 116.07, subd. 4a, Minn. Stat. 116.07, subd. 9]
	5.2.5		The Permittee shall limit emissions of Sulfur Dioxide <= 425 pounds per hour 24-hour rolling average. [Minn. R. 7007.0100, subp. 7(A), Minn. R. 7007.0100, subp. 7(L), Minn. R. 7007.0100, subp. 7(M), Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0010-0090, Minn. Stat. 116.07, subd. 4a, Minn. Stat. 116.07, subd. 9]
	5.2.6		The Permittee shall limit emissions of Sulfur Dioxide <= 1039 tons per year 12-month rolling sum. [Minn. R. 7007.0100, subp. 7(A), Minn. R. 7007.0100, subp. 7(L), Minn. R. 7007.0100, subp. 7(M), Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0010, 0080, Minn. Stat. 116.07, subd. 4a, Minn. Stat. 116.07, subd. 9]
	5.2.7		The Permittee shall limit emissions of Nitrogen Oxides <= 594 tons per year 12-month rolling sum. [Minn. R. 7007.0100, subp. 7(A), Minn. R. 7007.0100, subp. 7(L), Minn. R. 7007.0100, subp. 7(M), Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0010-0090, Minn. Stat. 116.07, subd. 4a, Minn. Stat. 116.07, subd. 9]
	5.2.8		The Permittee shall limit HAPs - Single <= 9.5 tons per year 12-month rolling sum. This limit applies continuously under all conditions. Single HAP emissions are to be calculated by the 30th day of each month for the previous 12-month period as described in COMG 1. [Title I Condition: Avoid major source under 40 CFR 63.2]
	5.2.9		The Permittee shall limit HAPs - Total <= 24.0 tons per year 12-month rolling sum. This limit applies continuously under all conditions. [Title I Condition: Avoid major source under 40 CFR

			63.2]
	5.2.10		The Permittee shall limit Carbon Monoxide <= 235 tons per year 12-month rolling sum for CO attributed to wood combustion. CO emissions are to be calculated by the 30th day of each month for the previous 12-month period. This is a state-only requirement and is not enforceable by the U.S. Environmental Protection Agency Administrator and citizens under the Clean Air Act. [Minn. R. 4410.4300, subp. 15(A), Minn. R. 7007.0800, subp. 2]
	5.2.11		Allowable Fuel Types: Limited to subbituminous coal, natural gas, No. 2 fuel oil, wood, and renewable fuel oil (RFO). The wood, and RFO burned must meet the definition of "Clean Cellulosic Biomass" found in 40 CFR Section 241.2 and shall not meet the definition of "Solid Waste" found in 40 CFR Section 258.2. [Minn. R. 7007.0100, subp. 7(A), Minn. R. 7007.0100, subp. 7(L), Minn. R. 7007.0100, subp. 7(M), Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0010-0090, Minn. Stat. 116.07, subd. 4a, Minn. Stat. 116.07, subd. 9]
	5.2.12		The Permittee shall limit Process Throughput <= 95000 tons per year 12-month rolling sum for subbituminous coal. Coal throughput is to be calculated by the 30th day of each month for the previous 12-month period as described later in this permit. [Title I Condition: Avoid major source under 40 CFR 63.2]
	5.2.13		The Permittee shall limit Sulfur Content of Fuel <= 0.60 percent by weight of subbituminous coal. [Minn. R. 7007.0100, subp. 7(A), Minn. R. 7007.0100, subp. 7(L), Minn. R. 7007.0100, subp. 7(M), Minn. R. 7007.0800, subp. 9, Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0010-0090, Minn. Stat. 116.07, subd. 4a, Minn. Stat. 116.07, subd. 9]
	5.2.14		The Permittee shall limit Coal Ash <= 8.5 percent by weight of subbituminous coal. [Minn. R. 7007.0100, subp. 7(A), Minn. R. 7007.0100, subp. 7(L), Minn. R. 7007.0100, subp. 7(M), Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0010-0090, Minn. Stat. 116.07, subd. 4a, Minn. Stat. 116.07, subd. 9]
	5.2.15		The Permittee shall limit Sulfur Content of Fuel <= 15 parts per million for No. 2 fuel oil. [Minn. R. 7005.0100, subp. 35a]
	5.2.16		The Permittee shall limit the total Heat Input from Wood, No. 2 Fuel Oil, or Coal <= 345 million Btu per hour 24-hour block average. [Minn. R. 7007.0800, subp. 2, Minn. Stat. 116.07, subd. 4a]
	5.2.17		The Permittee shall limit total Steam Flow from Wood, No. 2 Fuel Oil, or Coal <= 300000 pounds per hour 24-hour block average. [Minn. R. 7007.0800, subp. 2, Minn. Stat. 116.07, subd. 4a]
	5.2.18		Sulfur Content of Fuel: Fuel Supplier Certification: The Permittee shall obtain and maintain a fuel supplier certification for each shipment of No. 2 fuel oil, certifying that the sulfur content does

			not exceed 15 ppm for No. 2 fuel oil. [Minn. R. 7007.0800, subps. 4-5]
	5.2.19		Heat Input: The Permittee shall continuously record the maximum COMG 1 hourly and 24-hour block average heat input in MMBtu of heat input per hour. [Minn. R. 7007.0800, subps. 4-5]
	5.2.20		Steam Flow: The Permittee shall continuously record the maximum COMG 1 hourly and 24-hour block average steam production rate in pounds of steam flow per hour. [Minn. R. 7007.0800, subps. 4-5]
	5.2.21		Daily Recordkeeping: On each day of operation once combustion of wood commences, the Permittee shall calculate, record, and maintain the total quantity of wood fuel used at the facility. This shall be based on written usage logs. This is a state-only requirement and is not enforceable by the U.S. Environmental Protection Agency Administrator and citizens under the Clean Air Act. [Minn. R. 4410.4300, subp. 15(A), Minn. R. 7007.0800, subps. 4-5]
	5.2.22		Chloride: Wood Chloride Content: Once combustion of wood commences, once every month during operation and whenever the source of wood changes, the Permittee shall analyze wood fuel for Chloride content using EPA Reference Method 26 (or another method approved by MPCA) and record the result in a written log. The result of the most recent fuel analysis shall be used to calculate HCl emissions, as described later in this permit. [Minn. R. 7007.0800, subps. 4-5]
	5.2.23		Wood Heat Content: Once combustion of wood commences, once every month during operation and whenever the source of wood changes, the Permittee shall analyze wood fuel for heat content and record the result in a written log. The result of the most recent fuel analysis shall be used to calculate wood CO emissions, as described in this permit. This is a state-only requirement and is not enforceable by the U.S. Environmental Protection Agency Administrator and citizens under the Clean Air Act. [Minn. R. 4410.4300, subp. 15(A), Minn. R. 7007.0800, subps. 4-5]
	5.2.24		Carbon Monoxide: Wood CO Emission Factor. The Permittee shall calculate the wood CO emission factor using Equation 1 of Appendix D and the results of the most recent performance test required for EQUI 5 through EQUI 8. The wood CO emission factor shall be reset after each annual performance test using the provisions found in COMG 1. Until a wood CO emission factor is developed using these provisions, wood CO emissions shall be calculated using an emission factor of 0.60 lb/MMBtu, as published in Table 1.6-2 of AP-42. This is a state-only requirement and is not enforceable by the U.S.

			Environmental Protection Agency Administrator and citizens under the Clean Air Act. [Minn. R. 4410.4300, subp. 15(A), Minn. R. 7007.0800, subps. 4-5]
	5.2.25		Carbon Monoxide: Monthly Recordkeeping - Wood CO Emissions: Once wood combustion commences, by the 30th of the month, the Permittee shall calculate and record the following: 1) The total usage of wood fuel for the previous calendar month using the daily usage records. This record shall also include the high heating values of wood fuel as determined by the wood fuel analyses; 2) The wood CO emissions for the previous month using the formulas specified in Appendix D of this permit; and 3) The 12-month rolling sum wood CO emissions for the previous 12-month period by summing the monthly wood CO emissions data for the previous 12 months. This is a state-only requirement and is not enforceable by the U.S. Environmental Protection Agency Administrator and citizens under the Clean Air Act. [Minn. R. 4410.4300, subp. 15(A), Minn. R. 7007.0800, subps. 4-5]
	5.2.26		Carbon Monoxide: Monthly Calculation - Wood CO Emissions: By the 30th of the month once wood combustion commences, the Permittee shall calculate the wood CO emissions using Equation 2 in Appendix D of the permit. This is a state-only requirement and is not enforceable by the U.S. Environmental Protection Agency Administrator and citizens under the Clean Air Act. [Minn. R. 4410.4300, subp. 15(A), Minn. R. 7007.0800, subps. 4-5]
	5.2.27		Recordkeeping for Subbituminous Coal Throughput: By the 30th day of the month, the Permittee shall calculate and record the total amount of coal used in all the boilers for the previous calendar month using the monthly records, and the total coal throughput for previous month. [Minn. R. 7007.0800, subps. 4-5, Title I Condition: Avoid major source under 40 CFR 63.2]
	5.2.28		Coal and Wood Fuel Sampling, Sulfur and Chloride Content Monitoring: The Permittee shall collect a coal and/or wood sample once a month and analyze each sample for sulfur and/or chloride content in weight percent, in accordance with current ASTM methods. Sampling and analysis is required for both coal and wood if both are combusted in a calendar month. Records must be maintained of the sulfur and/or chloride content in weight percent of the coal and/or wood. [Minn. R. 7007.0100, subp. 7(A), Minn. R. 7007.0100, subp. 7(L), Minn. R. 7007.0100, subp. 7(M), Minn. R. 7007.0800, subp. 4, Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0010-0090, Minn. Stat. 116.07, subd. 4a, Minn. Stat. 116.07, subd. 9]

	5.2.29		Hydrochloric acid: Monthly Recordkeeping - HCl Emissions: By the 30th day of each calendar month, the Permittee shall calculate and record the HCl emission rate (in tons per month) for the previous calendar month. The Permittee shall use the chloride content of each coal and/or wood type received and the quantities of each coal and/or wood type combusted in the preceding calendar month to perform the calculation, and shall assume that all chloride is converted to HCl upon combustion. The Permittee shall maintain a record of the chloride analyses for coal and wood, the calculations used to determine HCl emissions, and the total monthly HCl emissions. [Minn. R. 7007.0800, subps. 4-5]
	5.2.30		HAPs - Single: Monthly Recordkeeping - HAPs: Within 30 days after the end of each calendar month, the Permittee shall calculate and record the 12-month rolling sum of HCl emissions from coal and wood by summing the monthly HCl emissions for the previous 12 months. The Permittee shall use this number to demonstrate compliance with the HAPs-Single and the HAPs-Total limits. [Minn. R. 7007.0800, subps. 4-5, Title I Condition: Avoid major source under 40 CFR 63.2]
	5.2.31		The Permittee is not required to install and operate CEMS, but must conduct the required Performance Tests. For additional applicable performance test requirements, refer to the general performance testing requirements at the Total Facility (TFAC) section of the permit and to individual performance testing requirements at EQUI 5, EQUI 6, EQUI 7, and EQUI 8. [Minn. R. 7017.2020, subp. 1]
	5.2.32		Carbon Monoxide: Protocol for Re-Setting the Emission Factor Used For Calculating Wood CO Emissions: The Permittee shall conduct performance testing under conditions that produce the maximum CO emission rate, using US E.P.A. reference method 10 to measure the wood CO emission factor as required in COMG 1 of this permit. The Permittee shall report the test results in lb/MMBtu in the performance test report required by Minn. R. 7017.2035, subp. 1. The emission factor used for calculating wood CO emissions shall be re-set to the 3-hour average emission rate in lb/MMBtu, measured during the most recent MPCA-approved wood CO emission factor performance test. The new emission factor used for calculating wood CO emissions determined using this Protocol applies to all boilers (EQUI 5 - EQUI 8) and shall be effective upon receipt of the Notice of Compliance (NOC) letter that approves the test results and shall be incorporated into the permit during the next permit amendment. [Minn. R. 4410.4300, subp. 15(A), Minn. R. 7007.0800, subp. 2]

	5.2.33		Carbon Monoxide: The Permittee must apply for and obtain a major permit amendment if the Permittee wishes to deviate from the Protocol for Re-setting the Emission Factor Used for Calculating Wood CO Emissions established by this permit. [Minn. R. 7007.1500, subp. 1]
	5.2.34		Notwithstanding the Protocol detailed above, the MPCA reserves the right to set operational limits and requirements as allowed under Minn. R. 7017.2025. If the MPCA sets limits, the new limits shall be implemented upon receipt of the NOC letter that notifies the Permittee of preliminary approval. The limits set according to Minn. R. 7017.2025 are final upon issuance of a permit amendment incorporating the change. [Minn. R. 7017.2025]
	5.2.35		NESHAP SUBPART JJJJJJ REQUIREMENTS - This Standard is Not Delegated to MPCA. The Permittee shall follow the 40 CFR pt. 63, subp. JJJJJJ requirements for boilers in the Coal Subcategory, as defined in 40 CFR Section 63.11237, listed in this permit. At a time when any boiler (EQUI 5 - EQUI 8) can be classified as being in the Biomass Subcategory, as defined in 40 CFR Section 63.11237, the Permittee shall follow the 40 CFR pt. 63, subp. JJJJJJ requirements for boilers in the Biomass Subcategory listed in this permit for that boiler. A boiler can be classified as being in the Biomass subcategory when more than 15 percent of the boiler's heat input is produced by burning biomass in a given month and operation is intended to continue at this level for the remainder of the year. [Minn. R. 7007.0800, subp. 2]
	5.2.36		Within 30 days of any boiler (EQUI 5 - EQUI 8) changing classification to the Biomass Subcategory, as defined in 40 CFR Section 63.11237, the Permittee shall submit to MPCA a notification containing the information specified in 40 CFR Section 63.11225(g). [Minn. R. 7007.0800, subp. 2]
	5.2.37		The Permittee must conduct initial performance testing on one boiler per year after changing to the Biomass Subcategory, as defined in 40 CFR Section 63.11237, beginning within 12 months of achieving normal operation. Each boiler must be tested once within 48 months of achieving normal operation after changing to the Biomass Subcategory. [Minn. R. 7017.2020, subp. 1, Minn. R. 4410.4300, subp. 15(A)]
	5.2.38		The following requirements apply to any COMG 1 boiler in the Coal Subcategory, as defined in 40 CFR Section 63.11237. [40 CFR 63.11200(a), Minn. R. 7007.0800, subps. 1-2]
	5.2.39		The Permittee shall limit emissions of Carbon Monoxide <= 420 parts per million by volume on a dry basis corrected to 3 percent

			oxygen. This limit applies to each boiler individually. [40 CFR 63.11201(a), 40 CFR pt. 63, subp. JJJJJJ(Table 1)(Item 6)]
	5.2.40		Mercury <= 2.2E-5 pounds per million Btu heat input. This limit applies to each boiler individually. [40 CFR 63.11201(a), 40 CFR pt. 63, subp. JJJJJJ(Table 1)(Item 6)]
	5.2.41		Startups and Shutdowns. The Permittee must minimize the boiler's startup and shutdown periods and conduct startups and shutdowns according to the manufacturer's recommended procedures. If manufacturer's recommended procedures are not available, the Permittee must follow recommended procedures for a unit of similar design for which manufacturer's recommended procedures are available. [40 CFR 63.11201(b), 40 CFR pt. 63, subp. JJJJJJ(Table 2)(Item 1)]
	5.2.42		Energy Assessment. The Permittee must have a one-time energy assessment performed by a qualified energy assessor. An energy assessment completed on or after January 1, 2008, that meets or is amended to meet the energy assessment requirements in this table satisfies the energy assessment requirement. Energy assessor approval and qualification requirements are waived in instances where past or amended energy assessments are used to meet the energy assessment requirements. A facility that operates under an energy management program compatible with ISO 50001 that includes the affected units also satisfies the energy assessment requirement. The energy assessment must include the following with extent of the evaluation for items (1) to (4) appropriate for the on-site technical hours listed in 40 CFR Section 63.11237: (1) A visual inspection of the boiler system, (2) An evaluation of operating characteristics of the affected boiler systems, specifications of energy use systems, operating and maintenance procedures, and unusual operating constraints, (3) An inventory of major energy use systems consuming energy from affected boiler(s) and which are under control of the boiler owner or operator, (4) A review of available architectural and engineering plans, facility operation and maintenance procedures and logs, and fuel usage, (5) A list of major energy conservation measures that are within the facility's control, (6) A list of the energy savings potential of the energy conservation measures identified, and (7) A comprehensive report detailing the ways to improve efficiency, the cost of specific improvements, benefits, and the time frame for recouping those investments. [40 CFR 63.11201(b), 40 CFR pt. 63, subp. JJJJJJ(Table 2)(Item 16)]
	5.2.43		Fuel Analysis. Except during periods of startup and shutdown, the Permittee must maintain the fuel type or fuel mixture (annual average) such that the mercury emission rate calculated according to 40 CFR Section 63.11211(c) is less than the applicable emission limit for mercury. [40 CFR 63.11201(c), 40 CFR pt. 63, sub. JJJJJJ(Table 3)(Item 6)]

	5.2.44		Operating Load. Except during periods of startup and shutdown, the Permittee must maintain the operating load of each unit such that it does not exceed 110 percent of the average operating load recorded during the most recent performance stack test. [40 CFR 63.11201(c), 40 CFR pt. 63, sub. JJJJJJ(Table 3)(Item 7)]
	5.2.45		Oxygen Analyzer System. Except during periods of startup and shutdown, the Permittee must maintain the 30-day rolling average oxygen level at or above the minimum oxygen level as defined in 40 CFR Section 63.11237. This requirement does not apply to units that install an oxygen trim system since these units will set the trim system to the level specified in 40 CFR Section 63.11224(a)(7). Minimum oxygen level is defined in 40 CFR Section 63.11237 as the lowest hourly average oxygen level measured according to 40 CFR pt. 63, subp. JJJJJJ, Table 6 during the most recent performance stack test demonstrating compliance with the applicable carbon monoxide emission limit. [40 CFR 63.11201(c), 40 CFR pt. 63, sub. JJJJJJ(Table 3)(Item 8)]
	5.2.46		The standards in 40 CFR Section 63.11201 apply at all times the affected boiler is operating, except during periods of startup and shutdown as defined in 40 CFR Section 63.11237, during which time the Permittee must comply only with 40 CFR pt. 63, subp. JJJJJJ, Table 2. [40 CFR 63.11201(d)]
	5.2.47		At all times the Permittee must operate and maintain any affected source, 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 the Permittee to make any further efforts to reduce emissions if levels required by 40 CFR pt. 63, subp. JJJJJJ have been achieved. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator that 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 CFR 63.11205(a)]
	5.2.48		The Permittee must demonstrate compliance with all applicable emission limits using performance stack testing, fuel analysis, or a continuous monitoring system (CMS), including a continuous emission monitoring system (CEMS), a continuous opacity monitoring system (COMS), or a continuous parameter monitoring system (CPMS), where applicable. The Permittee may demonstrate compliance with the applicable mercury emission limit using fuel analysis if the emission rate calculated according to 40 CFR Section 63.11211(c) is less than the applicable emission limit. Otherwise, the Permittee must demonstrate compliance using stack testing. [40 CFR 63.11205(b)]
	5.2.49		Site-Specific Monitoring Plan. The Permittee must develop a site-

			specific monitoring plan according to the site-specific monitoring requirements in this permit for the use of any CEMS, COMS, or CPMS. This requirement also applies to the Permittee if the Permittee petitions the EPA Administrator for alternative monitoring parameters under 40 CFR Section 63.8(f). [40 CFR 63.11205(c), 40 CFR 63.11224(c)]
	5.2.50		Site-Specific Monitoring Plan. For the oxygen analyzer system, the Permittee must develop and submit to the Administrator for approval upon request, a site-specific monitoring plan that addresses the requirements below: (i) Installation of the CMS sampling probe or other interface at a measurement location relative to each affected process unit such that the measurement is representative of control of the exhaust emissions; (ii) Performance and equipment specifications for the sample interface, the pollutant concentration or parametric signal analyzer, and the data collection and reduction systems; and (iii) Performance evaluation procedures and acceptance criteria (e.g., calibrations). (iv) Ongoing operation and maintenance procedures in accordance with the general requirements of 40 CFR Section 63.8(c)(1)(ii), (c)(3), and (c)(4)(ii); (v) Ongoing data quality assurance procedures in accordance with the general requirements of 40 CFR Section 63.8(d); and (vi) Ongoing recordkeeping and reporting procedures in accordance with the general requirements of 40 CFR Section 63.10(c) (as applicable in 40 CFR pt. 63, subp. JJJJJJ, Table 8), (e)(1), and (e)(2)(i). [40 CFR 63.11205(c)(1), 40 CFR 63.11224(c)(1) and (2)]
	5.2.51		Site-Specific Monitoring Plan. The Permittee must submit this site-specific monitoring plan, if requested, at least 60 days before the initial performance evaluation of the CMS. [40 CFR 63.11205(c)(1), 40 CFR 63.11224(c)(1)]
	5.2.52		Site-Specific Monitoring Plan. The Permittee must conduct a performance evaluation of each CMS in accordance with the site-specific monitoring plan. [40 CFR 63.11205(c)(2), 40 CFR 63.11224(c)(3)]
	5.2.53		Site-Specific Monitoring Plan. The Permittee must operate and maintain the CMS in continuous operation according to the site-specific monitoring plan. [40 CFR 63.11205(c)(3), 40 CFR 63.11224(c)(4)]
	5.2.54		The Permittee must demonstrate initial compliance with the applicable emission limits no later than 180 days after March 21, 2014 and according to the applicable provisions in 40 CFR Section 63.7(a)(2), except as provided in 40 CFR Section 63.11210(j). [40 CFR 63.11210(b)]
	5.2.55		The Permittee must demonstrate initial compliance with the applicable work practice standards and management practices no

			later than March 21, 2014 and according to the applicable provisions in 40 CFR Section 63.7(a)(2), except as provided in 40 CFR Section 63.11210(j). [40 CFR 63.11210(c)]
	5.2.56		For affected boilers that switch fuels or make a physical change to the boiler that results in the applicability of a different subcategory within 40 CFR pt. 63, subp. JJJJJJ, the Permittee must demonstrate compliance within 180 days of the effective date of the fuel switch or the physical change. Notification of such changes must be submitted according to 40 CFR Section 63.11225(g). [40 CFR 63.11210(h)]
	5.2.57		Carbon Monoxide: Performance Tests. The Permittee must demonstrate initial compliance with the CO emission limit specified in 40 CFR pt. 63, subp. JJJJJJ, Table 1 that applies by conducting performance (stack) tests according to 40 CFR Section 63.11212 and 40 CFR pt. 63, subp. JJJJJJ, Table 4. [40 CFR 63.11210(a)]
	5.2.58		Carbon Monoxide: Performance Tests. To demonstrate compliance with the emission limits of 40 CFR pt. 63, subp. JJJJJJ through performance (stack) testing, the Permittee's initial compliance requirements include conducting performance tests according to 40 CFR Section 63.11212 and CFR pt. 63, subp. JJJJJJ, Table 4, establishing operating limits according to 40 CFR Section 63.11222, CFR pt. 63, subp. JJJJJJ, Table 6 and 40 CFR Section 63.11211(b), as applicable, and conducting CMS performance evaluations according to 40 CFR Section 63.11224. For affected boilers that burn a single type of fuel, the Permittee is exempted from the compliance requirements of conducting a fuel analysis for each type of fuel burned in the boiler. For purposes of 40 CFR pt. 63, subp. JJJJJJ, boilers that use a supplemental fuel only for startup, unit shutdown, and transient flame stability purposes still qualify as affected boilers that burn a single type of fuel, and the supplemental fuel is not subject to the fuel analysis requirements under 40 CFR Section 63.11213 and 40 CFR pt. 63, subp. JJJJJJ, Table 5. [40 CFR 63.11211(a)]
	5.2.59		Carbon Monoxide: Performance Tests. Stack tests and procedure requirements: (a) The Permittee must conduct all performance tests according to 40 CFR Section 63.7(c), (d), (f), and (h). The Permittee must also develop a site-specific test plan according to the requirements in 40 CFR Section 63.7(c). (b) The Permittee must conduct each stack test according to the requirements in 40 CFR pt. 63, subp. JJJJJJ, Table 4. Boilers that use a CEMS for CO are exempt from the initial CO performance testing in 40 CFR pt. 63, subp. JJJJJJ, Table 4 and the oxygen concentration operating limit requirement specified in 40 CFR pt. 63, subp. JJJJJJ, Table 3. (c) The Permittee must conduct performance stack tests at the representative operating load conditions while burning the type of

			fuel or mixture of fuels that have the highest emissions potential for each regulated pollutant, and the Permittee must demonstrate initial compliance and establish the operating limits based on these performance stack tests. For subcategories with more than one emission limit, these requirements could result in the need to conduct more than one performance stack test. Following each performance stack test and until the next performance stack test, the Permittee must comply with the operating limit for operating load conditions specified in 40 CFR pt. 63, subp. JJJJJJ, Table 3. (d) The Permittee must conduct a minimum of three separate test runs for each performance stack test required in 40 CFR Section 63.11212, as specified in 40 CFR Section 63.7(e)(3) and in accordance with the provisions in 40 CFR pt. 63, subp. JJJJJJ, Table 4. [40 CFR 63.11210(a), 40 CFR 63.11211(a), 40 CFR 63.11212]
	5.2.60		Carbon Monoxide: Performance Tests. To conduct a performance test for CO, the Permittee must: a. Select the sampling ports location and the number of traverse points using Method 1 in Appendix A-1 to 40 CFR pt. 60. b. Determine oxygen and carbon dioxide concentrations of the stack gas using Method 3A or 3B in Appendix A-2 to 40 CFR pt. 60, or ASTM D6522-00 (Reapproved 2005), or ANSI/ASME PTC 19.10-1981. c. Measure the moisture content of the stack gas using Method 4 in Appendix A-3 to 40 CFR pt. 60. d. Measure the carbon monoxide emission concentration using Method 10, 10A, or 10B in Appendix A-4 to 40 CFR pt. 60 or ASTM D6522-00 and a minimum 1 hour sampling time per run. [40 CFR 63.11210(a), 40 CFR 63.11211(a), 40 CFR pt. 63, sub. JJJJJJ(Table 4)(Item 3)]
	5.2.61		Carbon Monoxide: Oxygen Analyzer System. The Permittee must install, calibrate, operate, and maintain an oxygen analyzer system, as defined in 40 CFR Section 63.11237, according to the manufacturer's recommendations and 40 CFR Section 63.11224(a)(7) and (d), as applicable, by March 21, 2014. Oxygen monitors and oxygen trim systems must be installed to monitor oxygen in the boiler flue gas, boiler firebox, or other appropriate intermediate location. [40 CFR 63.11211(a), 40 CFR 63.11224(a)]
	5.2.62		Carbon Monoxide: Oxygen Analyzer System. The Permittee must operate the oxygen analyzer system at or above the minimum oxygen level that is established as the operating limit according to 40 CFR pt. 63, subp. JJJJJJ, Table 6 when firing the fuel or fuel mixture utilized during the most recent CO performance stack test. Operation of oxygen trim systems to meet these requirements shall not be done in a manner which compromises furnace safety. [40 CFR 63.11224(a), 40 CFR 63.11224(a)(7)]
	5.2.63		Carbon Monoxide: Oxygen Analyzer System. The Permittee must install, operate, and maintain the oxygen analyzer system according

			to the procedures below: (1) The oxygen analyzer system must complete a minimum of one cycle of operation every 15 minutes. The Permittee must have data values from a minimum of four successive cycles of operation representing each of the four 15-minute periods in an hour, or at least two 15-minute data values during an hour when CMS calibration, quality assurance, or maintenance activities are being performed, to have a valid hour of data. (2) The Permittee must calculate hourly arithmetic averages from each hour of CPMS data in units of the operating limit and determine the 30-day rolling average of all recorded readings, except as provided in 40 CFR Section 63.11221(c). Calculate a 30-day rolling average from all of the hourly averages collected for the 30-day operating period using Equation 1 in Appendix E of the permit. (3) For purposes of collecting data, the Permittee must operate the CPMS as specified in 40 CFR Section 63.11221(b). For purposes of calculating data averages, the Permittee must use all the data collected during all periods in assessing compliance, except that the Permittee must exclude certain data as specified in 40 CFR Section 63.11221(c). Periods when CPMS data are unavailable may constitute monitoring deviations as specified in 40 CFR Section 63.11221(d). (4) Record the results of each inspection, calibration, and validation check. [40 CFR 63.11224(a), 40 CFR 63.11224(d)]
	5.2.64		Carbon Monoxide: Oxygen Analyzer System. The Permittee must establish a unit-specific limit for minimum oxygen level using data from the oxygen analyzer system specified in 40 CFR Section 63.11224(a) according to the following requirements: (a) Collect oxygen data every 15 minutes during the entire period of the performance stack tests; (b) Determine the average hourly oxygen concentration for each individual test run in the three-run performance stack test by computing the average of all the 15-minute readings taken during each test run. [40 CFR 63.11211(a), 40 CFR pt. 63, sub. JJJJJJ(Table 6)(Item 3)]
	5.2.65		Carbon Monoxide: Operating Load. The Permittee must establish a unit-specific limit for maximum operating load according to 40 CFR Section 63.11212(c) using data from the operating load monitors (fuel feed monitors or steam generation monitors) according to the following requirements: (a) Collect operating load data (fuel feed rate or steam generation data) every 15 minutes during the entire period of the performance test. (b) Determine the average operating load by computing the hourly averages using all of the 15-minute readings taken during each performance test.

			(c) Determine the average of the three test run averages during the performance test, and multiply this by 1.1 (110 percent) as the operating limit. [40 CFR 63.11211, 40 CFR pt. 63, sub. JJJJJJ(Table 6)(Item 4)]
	5.2.66		Mercury: Fuel Analysis. The Permittee must demonstrate initial compliance with the mercury emission limit specified in 40 CFR pt. 63, subp. JJJJJJ, Table 1 that applies by conducting fuel analyses according to 40 CFR Section 63.11213 and CFR pt. 63, subp. JJJJJJ, Table 5. [40 CFR 63.11210(a)]
	5.2.67		Mercury: Fuel Analysis. The Permittee must conduct fuel analyses according to 40 CFR Section 63.11213 and 40 CFR pt. 63, subp. JJJJJJ, Table 5 and follow the procedures below: (1) If the Permittee burns more than one fuel type, the Permittee must determine the fuel type, or mixture, the Permittee could burn in the boiler that would result in the maximum emission rates of mercury. (2) The Permittee must determine the 90th percentile confidence level fuel mercury concentration of the composite samples analyzed for each fuel type using Equation 2 in Appendix E of the permit. (3) To demonstrate compliance with the applicable mercury emission limit, the emission rate that the Permittee calculates for the boiler using the above equation must be less than the applicable mercury emission limit. [40 CFR 63.11211(c)]
	5.2.68		Mercury: Fuel Analysis. The Permittee must conduct fuel analyses according to the procedures in 40 CFR Section 63.11213(b) and (c) and 40 CFR pt. 63, subp. JJJJJJ, Table 5, as applicable. The Permittee is not required to conduct fuel analyses for fuels used for only startup, unit shutdown, and transient flame stability purposes. The Permittee is required to conduct fuel analyses only for fuels and units that are subject to emission limits for mercury in 40 CFR pt. 63, subp. JJJJJJ, Table 1. [40 CFR 63.11213(a)]
	5.2.69		Mercury: Fuel Analysis. At a minimum, the Permittee must obtain three composite fuel samples for each fuel type according to the procedures in 40 CFR pt. 63, subp. JJJJJJ, Table 5. Each composite sample must consist of a minimum of three samples collected at approximately equal intervals during a test run period. [40 CFR 63.11213(b)]
	5.2.70		Mercury: Fuel Analysis. The Permittee must determine the concentration of mercury in the fuel in units of pounds per million Btu of each composite sample for each fuel type according to the procedures in 40 CFR pt. 63, subp. JJJJJJ, Table 5. [40 CFR 63.11213(c)]
	5.2.71		Mercury: Fuel Analysis. Requirements for fuel analysis: a. Collect fuel samples using procedure in 40 CFR Section 63.11213(b) or ASTM D2234/D2234Ma (for coal) or ASTM D6323a (for biomass) or equivalent.

			b. Compose fuel samples using procedure in 40 CFR Section 63.11213(b) or equivalent. c. Prepare composited fuel samples using EPA SW-846-3050B (for solid samples) or EPA SW-846-3020A (for liquid samples) or ASTM D2013/D2013M (for coal) or ASTM D5198 (for biomass) or equivalent. d. Determine heat content of the fuel type using ASTM D5865 (for coal) or ASTM E711 (for biomass) or equivalent. e. Determine moisture content of the fuel type using ASTM D3173 or ASTM E871 or equivalent. f. Measure mercury concentration in fuel sample using ASTM D6722 (for coal) or EPA SW-846-7471B (for solid samples) or EPA SW-846-7470A (for liquid samples) or equivalent. g. Convert concentrations into units of lb/MMBtu of heat content. [40 CFR 63.11210(a), 40 CFR pt. 63, sub. JJJJJJ(Table 5)(Item 1)]
	5.2.72		Energy Assessment. The Permittee must submit a signed certification in the Notification of Compliance Status report that an energy assessment of the boiler and its energy use systems was completed according to 40 CFR pt. 63, subp. JJJJJJ, Table 2 and is an accurate depiction of the facility. [40 CFR 63.11214(c)]
	5.2.73		Startups and Shutdowns. The Permittee must minimize the boiler's startup and shutdown periods following the manufacturer's recommended procedures, if available. If manufacturer's recommended procedures are not available, the Permittee must follow recommended procedures for a unit of similar design for which manufacturer's recommended procedures are available. The Permittee must submit a signed statement in the Notification of Compliance Status report that indicates that the Permittee conducted startups and shutdowns according to the manufacturer's recommended procedures or procedures specified for a boiler of similar design if manufacturer's recommended procedures are not available. [40 CFR 63.11214(d)]
	5.2.74		The Permittee must monitor and collect data according to 40 CFR Section 63.11221 and the site-specific monitoring plan required by 40 CFR Section 63.11205(c). [40 CFR 63.11221(a)]
	5.2.75		The Permittee must operate the monitoring system and collect data at all required intervals at all times the affected source is operating and compliance is required, except for periods of monitoring system malfunctions or out-of-control periods (see 40 CFR Section 63.8(c)(7)), repairs associated with monitoring system malfunctions or out-of-control periods, and required monitoring system quality assurance or quality control activities including, as applicable, calibration checks, required zero and span adjustments, and scheduled CMS maintenance as defined in the site-specific monitoring plan. A monitoring system malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring system to provide valid data. Monitoring system failures that are caused in part by poor maintenance or careless operation are not

			malfunctions. The Permittee is required to complete monitoring system repairs in response to monitoring system malfunctions or out-of-control periods and to return the monitoring system to operation as expeditiously as practicable. [40 CFR 63.11221(b)]
	5.2.76		The Permittee may not use data collected during monitoring system malfunctions or out-of-control periods, repairs associated with monitoring system malfunctions or out-of-control periods, or required monitoring system quality assurance or quality control activities in calculations used to report emissions or operating levels. Any such periods must be reported according to the requirements in 40 CFR Section 63.11225. The Permittee must use all the data collected during all other periods in assessing the operation of the control device and associated control system. [40 CFR 63.11221(c)]
	5.2.77		Except for periods of monitoring system malfunctions or monitoring system out-of-control periods, repairs associated with monitoring system malfunctions or monitoring system out-of-control periods, and required monitoring system quality assurance or quality control activities (including, as applicable, calibration checks, required zero and span adjustments, and scheduled CMS maintenance as defined in the site-specific monitoring plan), failure to collect required data is a deviation of the monitoring requirements. [40 CFR 63.11221(d)]
	5.2.78		Following the date on which the initial compliance demonstration is completed or is required to be completed under 40 CFR Sections 63.7 and 63.11196, whichever date comes first, the Permittee must continuously monitor the operating parameters. Operation above the established maximum, below the established minimum, or outside the allowable range of the operating limits specified in 40 CFR Section 63.11222(a) constitutes a deviation from the operating limits established under 40 CFR pt. 63, subp. JJJJJJ, except during performance tests conducted to determine compliance with the emission and operating limits or to establish new operating limits. Operating limits are confirmed or reestablished during performance tests. [40 CFR 63.11222(a)(1)]
	5.2.79		The Permittee must report each instance in which the Permittee did not meet each emission limit and operating limit in 40 CFR pt. 63, subp. JJJJJJ, Tables 1 and 3 that apply. These instances are deviations from the emission limits in 40 CFR pt. 63, subp. JJJJJJ. These deviations must be reported according to the requirements in 40 CFR Section 63.11225. [40 CFR 63.11222(b)]
	5.2.80		Carbon Monoxide: Performance Tests. The Permittee must conduct performance (stack) tests used to demonstrate compliance with the CO emissions limit according to 40 CFR Section 63.11212 on a triennial basis, except as specified in 40 CFR Section 63.11220(b) through (d). Triennial performance tests must be completed no more than 37 months after the previous performance test. [40 CFR 63.11220(a)]
	5.2.81		Carbon Monoxide: Oxygen Analyzer System. The Permittee must

			demonstrate continuous compliance with the oxygen analyzer system operating limit by: a. Continuously monitoring the oxygen content of flue gas according to 40 CFR Section 63.11224 (This requirement does not apply to units that install an oxygen trim system since these units will set the trim system to the level specified in 40 CFR Section 63.11224(a)(7)); and b. Reducing the data to 30-day rolling averages; and c. Maintaining the 30-day rolling average oxygen content at or above the minimum oxygen level established during the most recent CO performance test. [40 CFR 63.11222(a), 40 CFR pt. 63, subp. JJJJJJ(Table 7)(Item 7)]
	5.2.82		Carbon Monoxide: Operating Load. The Permittee must demonstrate continuous compliance with the operating load operating limit by: a. Collecting operating load data (fuel feed rate or steam generation data) every 15 minutes; and b. Reducing the data to 30-day rolling averages; and c. Maintaining the 30-day rolling average at or below the operating limit established during the performance test according to 40 CFR Section 63.11212(c) and 40 CFR pt. 63, subp. JJJJJJ, Table 6. [40 CFR 63.11222(a), 40 CFR pt. 63, subp. JJJJJJ(Table 7)(Item 9)]
	5.2.83		Mercury: Fuel Analysis. The Permittee must conduct a fuel analysis according to 40 CFR Section 63.11213 for each type of fuel burned as specified in 40 CFR Section 63.11220(c)(1) and (2) below: (1) When demonstrating initial compliance with the mercury emission limit, if the mercury constituents in the fuel or fuel mixture are measured to be equal to or less than half of the mercury emission limit, the Permittee does not need to conduct further fuel analysis sampling but must continue to comply with all applicable operating limits and monitoring requirements. (2) When demonstrating initial compliance with the mercury emission limit, if the mercury constituents in the fuel or fuel mixture are greater than half of the mercury emission limit, the Permittee must conduct quarterly sampling. If the Permittee plans to burn a new type of fuel or fuel mixture, the Permittee must conduct a fuel analysis before burning the new type of fuel or mixture in the boiler. The Permittee must recalculate the mercury emission rate using Equation 2 of Appendix E. The recalculated mercury emission rate must be less than the applicable emission limit. [40 CFR 63.11220(c)]
	5.2.84		Mercury: Fuel Analysis. The Permittee must keep records of the type and amount of all fuels burned in each boiler during the reporting period to demonstrate that all fuel types and mixtures of fuels burned would result in lower emissions of mercury than the

			applicable emission limit. [40 CFR 63.11222(a)(2)]
	5.2.85		Mercury: Fuel Analysis. If the Permittee plans to burn a new type of fuel, the Permittee must determine the mercury concentration for any new fuel type in units of pounds per million Btu, using the procedures in Equation 1 of 40 CFR Section 63.11211 based on supplier data or the Permittee's own fuel analysis, and meet the requirements in 40 CFR Section 63.11222(a)(3)(i) or (ii) below: (i) The recalculated mercury emission rate must be less than the applicable emission limit. (ii) If the mercury concentration is higher than mercury fuel input during the previous performance test, then the Permittee must conduct a new performance test within 60 days of burning the new fuel type or fuel mixture according to the procedures in 40 CFR Section 63.11212 to demonstrate that the mercury emissions do not exceed the emission limit. [40 CFR 63.11222(a)(3)]
	5.2.86		Mercury: Fuel Analysis. The Permittee must demonstrate continuous compliance with the fuel analysis operating limit by: a. Only burning the fuel types and fuel mixtures used to demonstrate compliance with the applicable emission limit according to 40 CFR Section 63.11213 as applicable; and b. Keeping monthly records of fuel use according to 40 CFR Sections 63.11222(a)(2) and 63.11225(b)(4). [40 CFR 63.11222(a), 40 CFR pt. 63, subp. JJJJJJ(Table 7)(Item 6)]
	5.2.87		Startup and Shutdown. The Permittee must minimize the boiler's startup and shutdown periods following the manufacturer's recommended procedures, if available. If manufacturer's recommended procedures are not available, the Permittee must follow recommended procedures for a unit of similar design for which manufacturer's recommended procedures are available. The Permittee must submit a signed statement in the Notification of Compliance Status report that indicates that the Permittee conducted startups and shutdowns according to the manufacturer's recommended procedures or procedures specified for a boiler of similar design if manufacturer's recommended procedures are not available. [40 CFR 63.11223(g)]
	5.2.88		The Permittee must submit all of the notifications in 40 CFR Sections 63.7(b); 63.8(e) and (f); and 63.9(b) through (e), (g), and (h) that apply by the dates specified in those sections except as specified in 40 CFR Section 63.11225(a)(2) and (4). [40 CFR 63.11225(a)(1)]
	5.2.89		Initial Notification. An Initial Notification must be submitted no later than January 20, 2014 or within 120 days after the source becomes subject to 40 CFR pt. 63, subp. JJJJJJ. [40 CFR 63.11225(a)(2)]
	5.2.90		Notification of Intent. The Permittee must submit a Notification of Intent to conduct a performance test at least 60 days before the performance stack test is scheduled to begin. [40 CFR

			63.11225(a)(3)]
	5.2.91		Notification of Compliance Status. The Permittee must submit the Notification of Compliance Status no later than 120 days after March 21, 2014 unless the Permittee must conduct a performance stack test. If the Permittee must conduct a performance stack test, the Permittee must submit the Notification of Compliance Status within 60 days of completing the performance stack test. The Permittee must submit the Notification of Compliance Status in accordance with 40 CFR Section 63.11225(a)(4)(i) and (vi). The Notification of Compliance Status must include the information and certification(s) of compliance in 40 CFR Section 63.11225(a)(4)(i) through (v), as applicable, and signed by a responsible official. (i) The Permittee must submit the information required in 40 CFR Section 63.9(h)(2), except the information listed in 40 CFR Section 63.9(h)(2)(i)(B), (D), (E), and (F). The Permittee must submit the data specified in 40 CFR Section 63.11225(e). If the Permittee conducts other monitoring procedures or methods, the Permittee must submit that data to the Administrator at the appropriate address listed in 40 CFR Section 63.13. (iii) "This facility has had an energy assessment performed according to 40 CFR Section 63.11214(c)." (v) For units that do not qualify for a statutory exemption as provided in section 129(g)(1) of the Clean Air Act: "No secondary materials that are solid waste were combusted in any affected unit." (vi) The notification must be submitted electronically using the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX) (www.epa.gov/cdx). However, if the reporting form specific to 40 CFR pt. 63, subp. JJJJJJ is not available in CEDRI at the time that the report is due, the written Notification of Compliance Status must be submitted to the Administrator at the appropriate address listed in 40 CFR Section 63.13. [40 CFR 63.11225(a)(4)]
	5.2.92		Notification of Compliance Status. If the Permittee is using data from a previously conducted emission test to serve as documentation of conformance with the emission standards and operating limits of 40 CFR pt. 63, subp. JJJJJJ, the Permittee must include in the Notification of Compliance Status the date of the test and a summary of the results, not a complete test report, relative to 40 CFR pt. 63, subp. JJJJJJ. [40 CFR 63.11225(a)(5)]
	5.2.93		Notification of Solid Waste Combustion. If the Permittee intends to commence or recommence combustion of solid waste, the Permittee must provide 30 days prior notice of the date upon which the Permittee will commence or recommence combustion of solid waste. The notification must identify: (1) The name of the owner or operator of the affected source, the location of the source, the boiler(s) that will commence burning solid waste, and the date of the notice. (2) The currently applicable subcategory under this 40 CFR pt. 63,

			subp. JJJJJJ. (3) The date on which the Permittee became subject to the currently applicable emission limits. (4) The date upon which the Permittee will commence combusting solid waste. [40 CFR 63.11225(f)]
	5.2.94		Notification of 40 CFR pt. 63, subp. JJJJJJ Applicability. If the Permittee has switched fuels or made a physical change to the boiler and the fuel switch or change resulted in the applicability of a different subcategory within 40 CFR pt. 63, subp. JJJJJJ, in the boiler becoming subject to 40 CFR pt. 63, subp. JJJJJJ, or in the boiler switching out of 40 CFR pt. 63, subp. JJJJJJ due to a change to 100 percent natural gas, or the Permittee has taken a permit limit that resulted in the Permittee being subject to 40 CFR pt. 63, subp. JJJJJJ, the Permittee must provide notice of the date upon which the Permittee switched fuels, made the physical change, or took a permit limit within 30 days of the change. The notification must identify: (1) The name of the owner or operator of the affected source, the location of the source, the boiler(s) that have switched fuels, were physically changed, or took a permit limit, and the date of the notice. (2) The date upon which the fuel switch, physical change, or permit limit occurred. [40 CFR 63.11225(g)]
	5.2.95		Compliance Certification Report. The Permittee must prepare, by March 1 of each year, and submit to the Administrator upon request, an annual Compliance Certification Report for the previous calendar year containing the information specified below in 40 CFR Section 63.11225(b)(1) through (4). The Permittee must submit the report by March 15 if the Permittee had any instance described by 40 CFR Section 63.11225(b)(3). [40 CFR 63.11225(b)]
	5.2.96		Compliance Certification Report. Content of Compliance Certification Report: (1) Company name and address. (2) Statement by a 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 40 CFR pt. 63, subp. JJJJJJ. The notification must include the following certification(s) of compliance, as applicable, and signed by a responsible official: - For units that do not qualify for a statutory exemption as provided in section 129(g)(1) of the Clean Air Act: "No secondary materials that are solid waste were combusted in any affected unit." - "This facility complies with the requirement in 40 CFR Sections 63.11214(d) and 63.11223(g) to minimize the boiler's time spent during startup and shutdown and to conduct startups and shutdowns according to the manufacturer's recommended procedures or procedures specified for a boiler of similar design if

			manufacturer's recommended procedures are not available." (3) 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. (4) The total fuel use by each affected boiler subject to an emission limit, for each calendar month within the reporting period, including, but not limited to, a description of the fuel, whether the fuel has received a non-waste determination by you or EPA through a petition process to be a non-waste under 40 CFR Section 241.3(c), whether the fuel(s) were processed from discarded non-hazardous secondary materials within the meaning of 40 CFR Section 241.3, and the total fuel usage amount with units of measure. [40 CFR 63.11225(b)(1) - (4)]
	5.2.97		As required in 40 CFR Section 63.10(b)(2)(xiv), the Permittee must keep a copy of each notification and report that the Permittee submitted to comply with 40 CFR pt. 63, subp. JJJJJJ and all documentation supporting any Initial Notification or Notification of Compliance Status that the Permittee submitted. [40 CFR 63.11225(c)(1)]
	5.2.98		The Permittee must keep records to document conformance with the work practices, emission reduction measures, and management practices required by 40 CFR Section 63.11214 and 40 CFR Section 63.11223 as specified below: (iii) For each boiler required to conduct an energy assessment, the Permittee must keep a copy of the energy assessment report. (iv) For each boiler subject to an emission limit in 40 CFR pt. 63, subp. JJJJJJ, Table 1, the Permittee must also keep records of monthly fuel use by each boiler, including the type(s) of fuel and amount(s) used. [40 CFR 63.11225(c)(2)]
	5.2.99		The Permittee must maintain a copy of all calculations and supporting documentation that were done to demonstrate compliance with the mercury emission limits. Supporting documentation should include results of any fuel analyses. The Permittee can use the results from one fuel analysis for multiple boilers provided they are all burning the same fuel type. [40 CFR 63.11225(c)(3)]
	5.2.100		The Permittee must maintain records of the occurrence and duration of each malfunction of the boiler, or of the associated air pollution control and monitoring equipment. [40 CFR 63.11225(c)(4)]
	5.2.101		The Permittee must maintain records of actions taken during periods of malfunction to minimize emissions in accordance with the general duty to minimize emissions in 40 CFR Section 63.11205(a), including corrective actions to restore the malfunctioning boiler, air pollution control, or monitoring equipment to its normal or usual manner of operation. [40 CFR

			63.11225(c)(5)]
	5.2.102		The Permittee must keep the records of all inspection and monitoring data required by 40 CFR Sections 63.11221 and 63.11222, and the information identified in 40 CFR Section 63.11225(c)(6)(i) through (vi) for each required inspection or monitoring. (i) The date, place, and time of the monitoring event. (ii) Person conducting the monitoring. (iii) Technique or method used. (iv) Operating conditions during the activity. (v) Results, including the date, time, and duration of the period from the time the monitoring indicated a problem to the time that monitoring indicated proper operation. (vi) Maintenance or corrective action taken (if applicable). [40 CFR 63.11225(c)(6)]
	5.2.103		The records must be in a form suitable and readily available for expeditious review. The Permittee must keep each record for 5 years following the date of each recorded action. The Permittee must keep each record on-site or be accessible from a central location by computer or other means that instantly provide access at the site 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 CFR 63.11225(d)]
	5.2.104		Within 60 days after the date of completing each performance test (defined in 40 CFR Section 63.2) as required by 40 CFR pt. 63, subp. JJJJJJ the Permittee must submit the results of the performance tests, including any associated fuel analyses, required by 40 CFR pt. 63, subp. JJJJJJ to EPA's WebFIRE database by using CEDRI that is accessed through EPA's CDX (www.epa.gov/cdx). Performance test data must be submitted in the file format generated through use of EPA's Electronic Reporting Tool (ERT) (see http://www.epa.gov/ttn/chief/ert/index.html). Only data collected using test methods on the ERT Web site are subject to this requirement for submitting reports electronically to WebFIRE. Owners or operators who claim that some of the information being submitted for performance tests is confidential business information (CBI) must submit a complete ERT file including information claimed to be CBI on a compact disk or other commonly used electronic storage media (including, but not limited to, flash drives) to EPA. The electronic media must be clearly marked as CBI and mailed to U.S. EPA/OAPQS/CORE CBI Office, Attention: WebFIRE Administrator, MD C404-02, 4930 Old Page Rd., Durham, NC 27703. The same ERT file with the CBI omitted must be submitted to EPA via CDX as described earlier in 40 CFR Section 63.11225(e)(1). At the discretion of the Administrator, the Permittee must also submit these reports, including CBI, to the Administrator in the format specified by the Administrator. For any

			performance test conducted using test methods that are not listed on the ERT Web site, the Permittee shall submit the results of the performance test in paper submissions to the Administrator at the appropriate address listed in 40 CFR Section 63.13. [40 CFR 63.11225(e)(1)]
	5.2.105		The following requirements apply to any COMG 1 boiler in the Biomass Subcategory, as defined in 40 CFR Section 63.11237. [40 CFR 63.11200(b), Minn. R. 7007.0800, subps. 1-2]
	5.2.106		Startups and Shutdowns. The Permittee must minimize the boiler's startup and shutdown periods and conduct startups and shutdowns according to the manufacturer's recommended procedures. If manufacturer's recommended procedures are not available, the Permittee must follow recommended procedures for a unit of similar design for which manufacturer's recommended procedures are available. [40 CFR 63.11201(b), 40 CFR pt. 63, subp. JJJJJJ(Table 2)(Item 1)]
	5.2.107		Tune-Ups. The Permittee must conduct an initial tune-up as specified in 40 CFR Section 63.11214, and conduct a tune-up of the boiler biennially as specified in 40 CFR Section 63.11223. [40 CFR 63.11201(b), 40 CFR pt. 63, subp. JJJJJJ(Table 2)(Item 6)]
	5.2.108		Energy Assessment. The Permittee must have a one-time energy assessment performed by a qualified energy assessor. An energy assessment completed on or after January 1, 2008, that meets or is amended to meet the energy assessment requirements in this table satisfies the energy assessment requirement. Energy assessor approval and qualification requirements are waived in instances where past or amended energy assessments are used to meet the energy assessment requirements. A facility that operates under an energy management program compatible with ISO 50001 that includes the affected units also satisfies the energy assessment requirement. The energy assessment must include the following with extent of the evaluation for items (1) to (4) appropriate for the on-site technical hours listed in 40 CFR Section 63.11237: (1) A visual inspection of the boiler system, (2) An evaluation of operating characteristics of the affected boiler systems, specifications of energy use systems, operating and maintenance procedures, and unusual operating constraints, (3) An inventory of major energy use systems consuming energy from affected boiler(s) and which are under control of the boiler owner or operator, (4) A review of available architectural and engineering plans, facility operation and maintenance procedures and logs, and fuel usage, (5) A list of major energy conservation measures that are within the facility's control, (6) A list of the energy savings potential of the energy conservation measures identified, and (7) A comprehensive report detailing the ways to improve efficiency, the cost of specific improvements, benefits, and the time frame for recouping those investments. [40 CFR 63.11201(b), 40 CFR pt. 63, subp. JJJJJJ(Table 2)(Item 16)]
	5.2.109		The standards in 40 CFR Section 63.11201 apply at all times the

			affected boiler is operating, except during periods of startup and shutdown as defined in 40 CFR Section 63.11237, during which time the Permittee must comply only with 40 CFR pt. 63, subp. JJJJJJ, Table 2. [40 CFR 63.11201(d)]
	5.2.110		At all times the Permittee must operate and maintain any affected source, 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 the Permittee to make any further efforts to reduce emissions if levels required by 40 CFR pt. 63, subp. JJJJJJ have been achieved. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator that 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 CFR 63.11205(a)]
	5.2.111		The Permittee must demonstrate initial compliance with the applicable work practice standards and management practices no later than March 21, 2014 and according to the applicable provisions in 40 CFR Section 63.7(a)(2), except as provided in 40 CFR Section 63.11210(j). [40 CFR 63.11210(c)]
	5.2.112		For affected boilers that switch fuels or make a physical change to the boiler that results in the applicability of a different subcategory within 40 CFR pt. 63, subp. JJJJJJ, the Permittee must demonstrate compliance within 180 days of the effective date of the fuel switch or the physical change. Notification of such changes must be submitted according to 40 CFR Section 63.11225(g). [40 CFR 63.11210(h)]
	5.2.113		Tune-Ups. The Permittee must conduct a performance tune-up according to 40 CFR Section 63.11223(b) and must submit a signed statement in the Notification of Compliance Status report that indicates that the Permittee conducted a tune-up of the boiler. [40 CFR 63.11214(b)]
	5.2.114		Tune-Ups. The Permittee must conduct the tune-up while burning the type of fuel (or fuels in the case of boilers that routinely burn two types of fuels at the same time) that provided the majority of the heat input to the boiler over the 12 months prior to the tune-up. [40 CFR 63.11223(a)]
	5.2.115		Tune-Ups. The Permittee must conduct a tune-up of the boiler as specified below: (1) 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 unit shutdown, not to exceed 36 months from the previous inspection). Units that produce electricity for sale may delay the burner inspection until the first outage, not to exceed 36 months from the previous

			inspection. (2) 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. (3) 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). Units that produce electricity for sale may delay the inspection until the first outage, not to exceed 36 months from the previous inspection. (4) 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. (5) 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. (6) Maintain on-site and submit, if requested by the Administrator, a report containing the following information: - 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. - A description of any corrective actions taken as a part of the tune-up of the boiler. - The type and amount of fuel used over the 12 months prior to the tune-up of the boiler, but only if the unit was physically and legally capable of using more than one type of fuel during that period. Units sharing a fuel meter may estimate the fuel use by each unit. (7) 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. [40 CFR 63.11223(a), 40 CFR 63.11223(b)(1) - (7)]
	5.2.116		Energy Assessment. The Permittee must submit a signed certification in the Notification of Compliance Status report that an energy assessment of the boiler and its energy use systems was completed according to 40 CFR pt. 63, subp. JJJJJJ, Table 2 and is an accurate depiction of the facility. [40 CFR 63.11214(c)]
	5.2.117		Tune-Ups. The Permittee must conduct a tune-up of the boiler biennially to demonstrate continuous compliance as specified in 40 CFR Section 63.11223(b)(1) through (7). Each biennial tune-up must be conducted no more than 25 months after the previous tune-up. [40 CFR 63.11223(b)]
	5.2.118		The Permittee must submit all of the notifications in 40 CFR Sections 63.7(b); 63.8(e) and (f); and 63.9(b) through (e), (g), and (h) that apply by the dates specified in those sections except as specified in 40 CFR Section 63.11225(a)(2) and (4). [40 CFR

			63.11225(a)(1)]
	5.2.119		Initial Notification. The Permittee must submit an Initial Notification no later than January 20, 2014 or within 120 days after the source becomes subject 40 CFR pt. 63, subp. JJJJJJ. [40 CFR 63.11225(a)(2)]
	5.2.120		Notification of Compliance Status. The Permittee must submit the Notification of Compliance Status no later than 120 days after March 21, 2014. [40 CFR 63.11225(a)(4)]
	5.2.121		Notification of Compliance Status. The Permittee must submit the Notification of Compliance Status in accordance with 40 CFR Section 63.11225(a)(4)(i) and (vi). The Notification of Compliance Status must include the information and certification(s) of compliance in 40 CFR Section 63.11225(a)(4)(i) through (v), as applicable, and signed by a responsible official. (i) The Permittee must submit the information required in 40 CFR Section 63.9(h)(2), except the information listed in 40 CFR Section 63.9(h)(2)(i)(B), (D), (E), and (F). If the Permittee conducts any performance tests or CMS performance evaluations, the Permittee must submit that data as specified in 40 CFR Section 63.11225(e). If the Permittee conducts any opacity or visible emission observations, or other monitoring procedures or methods, the Permittee must submit that data to the Administrator at the appropriate address listed in 40 CFR Section 63.13. (ii) "This facility complies with the requirements in 40 CFR Section 63.11214 to conduct an initial tune-up of the boiler." (iii) "This facility has had an energy assessment performed according to 40 CFR Section 63.11214(c)." (v) For units that do not qualify for a statutory exemption as provided in section 129(g)(1) of the Clean Air Act: "No secondary materials that are solid waste were combusted in any affected unit." (vi) The notification must be submitted electronically using the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX) (www.epa.gov/cdx). However, if the reporting form specific to 40 CFR pt. 63, subp. JJJJJJ is not available in CEDRI at the time that the report is due, the written Notification of Compliance Status must be submitted to the Administrator at the appropriate address listed in 40 CFR Section 63.13. [40 CFR 63.11225(a)(4)]
	5.2.122		Notification of Solid Waste Combustion. If the Permittee intends to commence or recommence combustion of solid waste, the Permittee must provide 30 days prior notice of the date upon which the Permittee will commence or recommence combustion of solid waste. The notification must identify: (1) The name of the owner or operator of the affected source, the location of the source, the boiler(s) that will commence burning solid waste, and the date of the notice.

			(2) The currently applicable subcategory under 40 CFR pt. 63, subp. JJJJJJ. (3) The date on which the Permittee became subject to the currently applicable emission limits. (4) The date upon which the Permittee will commence combusting solid waste. [40 CFR 63.11225(f)]
	5.2.123		Notification of 40 CFR pt. 63, subp. JJJJJJ Applicability. If the Permittee has switched fuels or made a physical change to the boiler and the fuel switch or change resulted in the applicability of a different subcategory within 40 CFR pt. 63, subp. JJJJJJ, in the boiler becoming subject to 40 CFR pt. 63, subp. JJJJJJ, or in the boiler switching out of 40 CFR pt. 63, subp. JJJJJJ due to a change to 100 percent natural gas, or the Permittee has taken a permit limit that resulted in the Permittee being subject to 40 CFR pt. 63, subp. JJJJJJ, the Permittee must provide notice of the date upon which the Permittee switched fuels, made the physical change, or took a permit limit within 30 days of the change. The notification must identify: (1) The name of the owner or operator of the affected source, the location of the source, the boiler(s) that have switched fuels, were physically changed, or took a permit limit, and the date of the notice. (2) The date upon which the fuel switch, physical change, or permit limit occurred. [40 CFR 63.11225(g)]
	5.2.124		Compliance Certification Report. The Permittee must prepare, by March 1 of each year, and submit to the Administrator upon request, an annual Compliance Certification Report for the previous calendar year containing the information specified in 40 CFR Section 63.11225(b)(1) through (4). The Permittee must submit the report by March 15 if the Permittee had any instance described by 40 CFR Section 63.11225(b)(3). For boilers that are subject only to a requirement to conduct a biennial tune-up according to 40 CFR Section 63.11223(a) and not subject to emission limits or operating limits, the Permittee may prepare only a biennial report as specified in 40 CFR Section 63.11225(b)(1) and (2). [40 CFR 63.11225(b)]
	5.2.125		Compliance Certification Report. Content of Compliance Certification Report: (1) Company name and address. (2) Statement by a 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 40 CFR pt. 63, subp. JJJJJJ. The notification must include the following certification(s) of compliance, as applicable, and signed by a responsible official: - "This facility complies with the requirements in 40 CFR Section 63.11223 to conduct a biennial tune-up of each boiler." - For units that do not qualify for a statutory exemption as provided in section 129(g)(1) of the Clean Air Act: "No secondary materials

			that are solid waste were combusted in any affected unit." - "This facility complies with the requirement in 40 CFR Sections 63.11214(d) and 63.11223(g) to minimize the boiler's time spent during startup and shutdown and to conduct startups and shutdowns according to the manufacturer's recommended procedures or procedures specified for a boiler of similar design if manufacturer's recommended procedures are not available." (3) 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 CFR 63.11225(b)(1) - (3)]
	5.2.126		As required in 40 CFR Section 63.10(b)(2)(xiv), the Permittee must keep a copy of each notification and report that the Permittee submitted to comply with 40 CFR pt. 63, subp. JJJJJJ and all documentation supporting any Initial Notification or Notification of Compliance Status submitted. [40 CFR 63.11223(a), 40 CFR 63.11225(c)(1)]
	5.2.127		The Permittee must keep records to document conformance with the work practices, emission reduction measures, and management practices required by 40 CFR Section 63.11214 and 40 CFR Section 63.11223 as specified below: (i) 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. (iii) For each boiler required to conduct an energy assessment, the Permittee must keep a copy of the energy assessment report. [40 CFR 63.11223(a), 40 CFR 63.11225(c)(2)]
	5.2.128		The Permittee must maintain records of the occurrence and duration of each malfunction of the boiler, or of the associated air pollution control and monitoring equipment. [40 CFR 63.11223(a), 40 CFR 63.11225(c)(4)]
	5.2.129		The Permittee must maintain records of actions taken during periods of malfunction to minimize emissions in accordance with the general duty to minimize emissions in 40 CFR Section 63.11205(a), including corrective actions to restore the malfunctioning boiler, air pollution control, or monitoring equipment to its normal or usual manner of operation. [40 CFR 63.11223(a), 40 CFR 63.11225(c)(5)]
	5.2.130		The Permittee must keep the records of all inspection and monitoring data required by 40 CFR Sections 63.11221 and 63.11222, and the information identified below for each required inspection or monitoring. (i) The date, place, and time of the monitoring event. (ii) Person conducting the monitoring. (iii) Technique or method used. (iv) Operating conditions during the activity.

			(v) Results, including the date, time, and duration of the period from the time the monitoring indicated a problem to the time that monitoring indicated proper operation. (vi) Maintenance or corrective action taken (if applicable). [40 CFR 63.11223(a), 40 CFR 63.11225(c)(6)]
	5.2.131		The records must be in a form suitable and readily available for expeditious review. The Permittee must keep each record for 5 years following the date of each recorded action. The Permittee must keep each record on-site or be accessible from a central location by computer or other means that instantly provide access at the site 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 CFR 63.11225(d)]
	5.2.132		The Permittee shall comply with the following 40 CFR pt. 63 General Provisions. [40 CFR 63.11235]
	5.2.133		Methods for determining compliance will be, in part, based on the results of performance tests, conformance with operation and maintenance requirements, review of records, and inspection of the source as specified in 40 CFR Section 63.6(f)(2) The Permittee many use the results of performance testing conducted previously if it meets the requirements of 40 CFR Section 63.6(f)(iii). [40 CFR 63.6(f)(2), Minn. R. 7011.7000]
	5.2.134		Finding of compliance. The Commissioner or the Administrator will make a finding concerning an affected source's compliance with a non-opacity emission standard upon obtaining all the compliance information required by the relevant standard. [40 CFR 63.6(f)(3), Minn. R. 7011.7000]
	5.2.135		The Permittee may establish the use of an alternative nonopacity emission standard by following the procedure specified in 40 CFR Section 63.6(g). [40 CFR 63.6(g), Minn. R. 7011.7000]
	5.2.136		Until an extension of compliance has been granted by the Administrator, the Permittee shall comply with all applicable requirements of 40 CFR pt. 63, subp. A. [40 CFR 63.6(i)(1), Minn. R. 7011.7000]
	5.2.137		The Administrator may grant an extension of compliance with an emission standard, as specified in 40 CFR Section 63.6(i). [40 CFR 63.6(i), Minn. R. 7011.7000]
	5.2.138		Methods for determining compliance. Compliance with opacity emission standards shall be determined by conducting observations in accordance with Test Method 9 in 40 CFR, pt. 60, Appendix A or the method specified in 40 CFR Section 63.6(h)(7)(ii). Whenever a visible emission test method is not specified, compliance with visible emission standards in this part shall be determined by conducting observations in accordance with Test Method 22 in 40 CFR pt. 60, Appendix A. [40 CFR 63.6(h)(2), Minn. R. 7011.7000]
	5.2.139		Notification of opacity or visible emission observations. The Permittee shall notify the Commissioner and the Administrator in

			writing of the anticipated date for conducting opacity or visible emission observations in accordance with 40 CFR Section 63.9(f). [40 CFR 63.6(h)(4)]
	5.2.140		Conduct of opacity or visible emission observations. For initial compliance, opacity or visible emission observations shall be conducted concurrently with the initial performance test unless otherwise specified in 40 CFR Section 63.6(h)(5)(A) and (B). [40 CFR 63.6(h)(5), Minn. R. 7011.7000]
	5.2.141		Recordkeeping. The Permittee shall make available, upon request by the Commissioner or Administrator, such records to determine the conditions under which the visual observations were made and shall provide evidence indicating proof of current visible observer emission certification. [40 CFR 63.6(h)(6), Minn. R. 7011.7000]
	5.2.142		Use of a continuous opacity monitoring system. i) The Permittee required to use a continuous opacity monitoring system (COMS) shall record the monitoring data produced during a performance test and shall furnish the Commissioner and the Administrator a written report of the monitoring results in accordance with the provisions of 40 CFR Section 63.10(e)(4). ii) The Permittee may submit, for compliance purposes, COMS data results produced during any performance test required under 40 CFR Section 63.7 in lieu of Method 9 data in accordance with the process specified in 40 CFR Section 63.6(h)(7). iii) COMS data shall be reduced to 6-minute averages over the duration of the mass emission performance test. iv) The Permittee is responsible for demonstrating that he/she has complied with the performance evaluation requirements of 40 CFR Section 63.8(e), that the COMS has been properly maintained, operated, and data quality-assured, as specified in 40 CFR Sections 63.8(c) and (d), and that the resulting data have not been altered in any way. [40 CFR 63.6(h)(7), Minn. R. 7011.7000]
	5.2.143		Finding of compliance. The Commissioner or the Administrator will make a finding concerning an affected source's compliance with an opacity or visible emission standard upon obtaining all the compliance information required by the relevant standard and any information available needed to determine whether proper operation and maintenance practices are being used. [40 CFR 63.6(h)(8), Minn. R. 7011.7000]
	5.2.144		If the Commissioner or the Administrator finds that affected source is in compliance with all relevant standards for which initial performance tests were conducted, but during the time such performance tests were conducted fails to meet any relevant opacity emission standard, the Permittee may petition the Administrator to make appropriate adjustment to the opacity emission standard for the affected source. Until the Administrator notifies the Permittee, the relevant opacity emission standard remains applicable. [40 CFR 63.6(h)(9), Minn. R. 7011.7000]
	5.2.145		Notification of performance test.

			1) The Permittee must notify the Commissioner and the Administrator of their intention to conduct a performance test at least 60 calendar days before the performance test is initially scheduled to begin. 2) In the event the Permittee is unable to conduct the performance test on the date specified due to unforeseeable circumstances, the Permittee must notify the Commissioner and the Administrator as soon as practicable and without delay prior to the scheduled performance test date and specify the date when the performance test is rescheduled. [40 CFR 63.7(b), Minn. R. 7017.2015]
	5.2.146		Submission of site-specific test plan. Before conducting a required performance test, the Permittee shall develop and, if requested by the Commissioner or the Administrator, shall submit a site-specific test plan for approval in accordance with the requirements of 40 CFR Section 63.7(c)(2). [40 CFR 63.7(c)(2), Minn. R. 7017.2015]
	5.2.147		Approval of site-specific test plan. The Administrator will notify the Permittee of approval or intention to deny approval of the site-specific test plan (if review of the site-specific test plan is requested) within 30 calendar days after receipt of the original plan and within 30 calendar days after receipt of any supplementary information. [40 CFR 63.7(c)(3), Minn. R. 7017.2015]
	5.2.148		Performance testing facilities. The Permittee, at the request of the Commissioner or the Administrator, shall provide performance testing facilities as specified in 40 CFR Section 63.7(d). [40 CFR 63.7(d), Minn. R. 7017.2015]
	5.2.149		Conduct of performance tests. Performance tests shall be conducted and data shall be reduced in accordance with the test methods and procedures set forth in 40 CFR Section 63.7(e), in each relevant standard, and, if required, in applicable appendices of 40 CFR parts 51, 60, 61. The Commissioner has delegation to approve a minor or intermediate modification (if validated by Method 301) to a reference method or specified monitoring procedure as allowed for in 40 CFR Section 63.7(e)(2)(i) and (ii). [40 CFR 63.7(e)(2), Minn. R. 7017.2015]
	5.2.150		Unless otherwise specified in a relevant standard or test method, each performance test shall consist of three separate runs using the applicable test method. Each run shall be conducted for the time and under the conditions specified in the relevant standard. For the purpose of determining compliance with a relevant standard, the arithmetic mean of the results of the three runs shall apply, unless otherwise approved in accordance with provisions of 40 CFR Section 63.7(e)(3). [40 CFR 63.7(e)(3), Minn. R. 7017.2015]
	5.2.151		Data analysis, recordkeeping, and reporting. Unless otherwise specified in a relevant standard or test method, or as otherwise approved by the Commissioner or Administrator in writing, results of a performance test shall include the analysis of samples, determination of emissions, and raw data. A performance test is "completed" when field sample collection is terminated. The

			Permittee shall report the results of the performance test to the Commissioner or Administrator before the close of business on the 60th day following the completion of the performance test, unless specified otherwise in a relevant standard or as approved otherwise in writing. The results of the performance test shall be submitted as part of the notification of compliance status required under 40 CFR Section 63.9(h) to the appropriate permitting authority. [40 CFR 63.7(g), Minn. R. 7017.2015]
	5.2.152		Waiver of performance tests. Until a waiver of a performance testing requirement has been granted by the Commissioner or the Administrator under 40 CFR Section 63.7(h), the Permittee remains subject to the requirements of 40 CFR Section 63.7(h). [40 CFR 63.7(h), Minn. R. 7017.2015]
	5.2.153		Conduct of monitoring. Monitoring shall be conducted as set forth in 40 CFR Section 63.8(a)(b)(1). [40 CFR 63.8(b)(1), Minn. R. 7017.2015]
	5.2.154		When the emissions from two or more affected sources are combined before being released to the atmosphere, the owner or operator may install an applicable CMS for each emission stream or for the combined emissions streams, provided the monitoring is sufficient to demonstrate compliance with the relevant standard unless other approved in accordance with 40 CFR Section 63.8(a)(b)(2). [40 CFR 63.8(a) and (b)(2), Minn. R. 7019.2015]
	5.2.155		The Permittee of a new or reconstructed major affected source for which an application for approval of construction or reconstruction is required under 40 CFR Section 63.5(d) must provide the following information in writing to the the Commissioner and the Administrator: 1) A notification of intention to construct a new major-emitting affected source, reconstruct a major-emitting affected source, or reconstruct a major source such that the source becomes a major-emitting affected source; and 2) A notification of the actual date of startup of the source, delivered or postmarked within 15 calendar days after that date. [40 CFR 63.9(b)(4), Minn. R. 7019.0100]
	5.2.156		Notification of performance test. The Permittee shall notify the Commissioner and the Administrator in writing of his or her intention to conduct a performance test at least 60 calendar days before the performance test is scheduled to begin. [40 CFR 63.9(e), Minn. R. 7019.0100]
	5.2.157		Notification of opacity and visible emission observations. The Permittee shall notify the Commissioner and the Administrator in writing of the anticipated date for conducting opacity or visible emission observations. The notification shall be submitted with the notification of the performance test date, or if no performance test is required or visibility or other conditions prevent the opacity or visible emission observations from being conducted concurrently with the initial performance test. The Permittee shall deliver or

			postmark the notification not less than 30 days before the opacity or visible emission observations are scheduled to take place. [40 CFR 63.9(f), Minn. R. 7019.0100]
	5.2.158		Notification of compliance status. Each time a notification of compliance status is required under 40 CFR pt. 63, subp. A, the Permittee shall submit to the Commissioner a notification of compliance status containing the information required by 40 CFR Section 63.9(h), signed by the responsible official who shall certify its accuracy, attesting to whether the source has complied with the relevant standard. The notification must be sent by the 60th day following the completion of the relevant compliance demonstration activity specified in the relevant standard. If no performance test is required but opacity or visible emission observations are required, the notification of compliance status shall be sent by the 30th day following the completion of opacity or visible emission observations. Notifications may be combined as long as the due date requirement for each notification is met. [40 CFR 63.9(h), Minn. R. 7019.0100]
	5.2.159		The Permittee shall submit reports to the Commissioner and shall send a copy of each report to the Administrator. [40 CFR 63.10(a), Minn. R. 7019.0100]
	5.2.160		Recordkeeping. The Permittee shall maintain files of all information (including all reports and notifications) required by 40 CFR pt. 63 in a form suitable and readily available for expeditious inspection and review. The files shall be retained for at least 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. At a minimum, the most recent 2 years of data must be retained on site. [40 CFR 63.10(b)(1), Minn. R. 7019.0100, subp. 2(B)]
	5.2.161		The Permittee shall maintain, at a minimum, the following information in the files: 1) all maintenance performed on the pollution control equipment; 2) all required measurements needed to demonstrate compliance with a relevant standard; 3) all results of performance tests and opacity and visible emission observations; 4) all measurements as may be necessary to determine the conditions of performance tests and performance evaluations; 5) any information demonstrating whether a source is meeting the requirements for a waiver of record keeping or reporting requirements under this part; 6) all documents supporting initial notifications and notifications of compliance status. [40 CFR 63.10(b)(2), Minn. R. 7019.0100, subp. 2(B)]
	5.2.162		Notwithstanding the requirements in 40 CFR Sections 63.10(d) and 63.10(e), the Permittee shall submit reports to the Commissioner and the Administrator in accordance with the reporting

			requirements in the relevant standard. [40 CFR 63.10(d)(1), Minn. R. 7019.0100]
	5.2.163		Progress reports. The Permittee who is required to submit progress reports as a condition of receiving an extension of compliance under 40 CFR Section 63.6(i) shall submit such reports to the Commissioner and the Administrator by the dates specified in the written extension of compliance. [40 CFR 60.10(d)(4), Minn. R. 7019.0100]
EQUI 2	EU006	Pneumatic Ash Handling System - Material Handling Equipment	
	5.3.1		The Permittee shall limit the Ash Handling System Process Throughput <= 8415 tons per year 12-month rolling sum. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2)and Minn. R. 7007.3000]
	5.3.2		Particulate Matter <= 0.30 grains per dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735. [Minn. R. 7011.0715, subp. 1(A)]
	5.3.3		Opacity <= 20 percent opacity. [Minn. R. 7011.0715, subp. 1(B)]
	5.3.4		Process Throughput: Monthly Recordkeeping of Ash Throughput. By the 30th of the month, the Permittee shall calculate and record the total ash handled in tons for the previous calendar month. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000]
	5.3.5		Process Throughput: Monthly Recordkeeping of Ash Throughput. By the 30th of the month, the Permittee shall calculate and record the 12 month rolling sum of ash throughput for the previous 12 month period by summing the monthly data for the previous 12 months. [Minn. R. 7007.0800, subps. 4-5]
EQUI 5	EU001	Boiler 1	
	5.4.1		The Permittee shall vent emissions from EQUI 5 to control equipment meeting the requirements of TREA 1 whenever EQUI 5 combusts coal, No. 2 fuel oil, or wood. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000]
	5.4.2		Filterable Particulate Matter <= 0.40 pounds per million Btu heat input. The potential to emit from the unit is 0.050 lb/MMBtu due to equipment design and allowable fuels. [Minn. R. 7011.0510, subp. 1]
	5.4.3		Opacity <= 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. [Minn. R. 7011.0510,

			subp. 2]
	5.4.4		Sulfur Dioxide <= 4.0 pounds per million Btu heat input. The potential to emit from the unit is 1.22 lb/MMBtu due to equipment design and allowable fuels. [Minn. R. 7011.0510, subp. 1]
	5.4.5		The Permittee shall limit boiler Heat Input <= 92 million Btu per hour 24-hour block average while combusting any wood. This heat input equals 80% of the boiler capacity. [Minn. R. 7007.0800, subp. 2, Minn. Stat. 116.07, subd. 4a]
	5.4.6		The Permittee is not required to install and operate CEMS, but must conduct this required Performance Test. For additional applicable performance test requirements, see the general performance testing requirements at the Total Facility (TFAC) section of this permit. [Minn. R. 7017.2020, subp. 1]
	5.4.7		Recordkeeping: Maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of the pulverizer including; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative. [40 CFR 60.7(b), Minn. R. 7019.0100, subp. 1]
	5.4.8		Heat Input: Recordkeeping: The Permittee shall maintain a continuous record of the maximum hourly (total load) heat input. [Minn. R. 7007.0800, subps. 4-5]
	5.4.9		Heat Input: Recordkeeping: The Permittee shall calculate and record the 24-hour Block Average heat input on a daily basis. [Minn. R. 7007.0800, subps. 4-5]
	5.4.10		Steam Flow: Recordkeeping: The Permittee shall maintain a continuous record of the maximum hourly steam production rate. [Minn. R. 7007.0800, subps. 4-5]
EQUI 6	EU003	Boiler 3	
	5.5.1		The Permittee shall vent emissions from EQUI 6 to control equipment meeting the requirements of TREA 1 whenever EQUI 6 combusts coal, No. 2 fuel oil, or wood. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000]
	5.5.2		Filterable Particulate Matter <= 0.40 pounds per million Btu heat input. The potential to emit from the unit is 0.050 lb/MMBtu due to equipment design and allowable fuels. [Minn. R. 7011.0510, subp. 1]
	5.5.3		Opacity <= 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. [Minn. R. 7011.0510, subp. 2]
	5.5.4		Sulfur Dioxide <= 4.0 pounds per million Btu heat input. The potential to emit from the unit is 1.22 lb/MMBtu due to equipment design and allowable fuels. [Minn. R. 7011.0510, subp. 1]

	5.5.5		The Permittee shall limit Heat Input <= 92 million Btu per hour 24-hour block average while combusting any wood. This heat input equals 80% of the boiler capacity. [Minn. R. 7007.0800, subp. 2, Minn. Stat. 116.07, subd. 4a]
	5.5.6		The Permittee is not required to install and operate CEMS, but must conduct this required Performance Test. For additional applicable performance test requirements, see the general performance testing requirements at the Total Facility (TFAC) section of this permit. [Minn. R. 7017.2020, subp. 1]
	5.5.7		Recordkeeping: Maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of the pulverizer including; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative. [40 CFR 60.7(b), Minn. R. 7019.0100, subp. 1]
	5.5.8		Heat Input: Recordkeeping: The Permittee shall maintain a continuous record of the maximum hourly (total load) heat input. [Minn. R. 7007.0800, subps. 4-5]
	5.5.9		Heat Input: Recordkeeping: The Permittee shall calculate and record the 24-hour Block Average heat input on a daily basis. [Minn. R. 7007.0800, subps. 4-5]
	5.5.10		Steam Flow: Recordkeeping: The Permittee shall maintain a continuous record of the maximum steam production rate. [Minn. R. 7007.0800, subps. 4-5]
EQUI 7	EU004	Boiler 4	
	5.6.1		The Permittee shall vent emissions from EQUI 7 to control equipment meeting the requirements of TREA 1 whenever EQUI 7 combusts coal, No. 2 fuel oil, or wood. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000]
	5.6.2		Filterable Particulate Matter <= 0.40 pounds per million Btu heat input. The potential to emit from the unit is 0.050 lb/MMBtu due to equipment design and allowable fuels. [Minn. R. 7011.0510, subp. 1]
	5.6.3		Opacity <= 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. [Minn. R. 7011.0510, subp. 2]
	5.6.4		Sulfur Dioxide <= 4.0 pounds per million Btu heat input. The potential to emit from the unit is 1.22 lb/MMBtu due to equipment design and allowable fuels. [Minn. R. 7011.0510, subp. 1]
	5.6.5		The Permittee shall limit Heat Input <= 92 million Btu per hour 24-hour block average while combusting any wood. This heat input equals 80% of the boiler capacity. [Minn. R. 7007.0800, subp. 2, Minn. Stat. 116.07, subd. 4a]

	5.6.6		The Permittee is not required to install and operate CEMS, but must conduct this required Performance Test. For additional applicable performance test requirements, see the general performance testing requirements at the Total Facility (TFAC) section of this permit. [Minn. R. 7017.2020, subp. 1]
	5.6.7		Recordkeeping: Maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of the pulverizer including; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative. [40 CFR 60.7(b), Minn. R. 7019.0100, subp. 1]
	5.6.8		Heat Input: Recordkeeping: The Permittee shall maintain continuous record of the maximum hourly (total load) heat input. [Minn. R. 7007.0800, subps. 4-5]
	5.6.9		Heat Input: Recordkeeping: The Permittee shall calculate and record the 24-hour Block Average heat input on a daily basis. [Minn. R. 7007.0800, subps. 4-5]
	5.6.10		Steam Flow: Recordkeeping: The Permittee shall maintain a continuous record of the maximum hourly steam production rate. [Minn. R. 7007.0800, subps. 4-5]
EQUI 8	EU002	Boiler 2	
	5.7.1		The Permittee shall vent emissions from EQUI 8 to control equipment meeting the requirements of TREA 1 whenever EQUI 8 combusts coal, No. 2 fuel oil, or wood. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000]
	5.7.2		Filterable Particulate Matter <= 0.40 pounds per million Btu heat input. The potential to emit from the unit is 0.050 lb/MMBtu due to equipment design and allowable fuels. [Minn. R. 7011.0510, subp. 1]
	5.7.3		Opacity <= 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. [Minn. R. 7011.0510, subp. 2]
	5.7.4		Sulfur Dioxide <= 4.0 pounds per million Btu heat input. The potential to emit from the unit is 1.22 lb/MMBtu due to equipment design and allowable fuels. [Minn. R. 7011.0510, subp. 1]
	5.7.5		The Permittee shall limit boiler Heat Input <= 92 million Btu per hour 24-hour block average while combusting any wood. This heat input equals 80% of the boiler capacity. [Minn. R. 7007.0800, subp. 2, Minn. Stat. 116.07, subd. 4a]
	5.7.6		The Permittee is not required to install and operate CEMS, but must conduct this required Performance Test. For additional applicable performance test requirements, see the

			general performance testing requirements at the Total Facility (TFAC) section of this permit. [Minn. R. 7017.2020, subp. 1]
	5.7.7		Recordkeeping: Maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of the pulverizer including; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative. [40 CFR 60.7(b), Minn. R. 7019.0100, subp. 1]
	5.7.8		Heat Input: Recordkeeping: The Permittee shall maintain a continuous record of the maximum hourly (total load) heat input. [Minn. R. 7007.0800, subps. 4-5]
	5.7.9		Heat Input: Recordkeeping: The Permittee shall calculate and record the 24-hour Block Average heat input on a daily basis. [Minn. R. 7007.0800, subps. 4-5]
	5.7.10		Steam Flow: Recordkeeping: The Permittee shall maintain a continuous record of the maximum hourly steam production rate. [Minn. R. 7007.0800, subps. 4-5]
EQUI 9		Emergency Generator	
	5.8.1		Opacity <= 20 percent opacity once operating temperatures have been attained. [Minn. R. 7011.2300, subp. 1]
	5.8.2		Sulfur Dioxide <= 0.0015 pounds per million Btu heat input. The potential to emit from the unit is 0.0015 lb/MMBtu due to equipment design and allowable fuels. [Minn. R. 7011.2300, subp. 2(B)]
	5.8.3		Fuel type: No. 2 fuel oil/diesel fuel meeting the requirements of 40 CFR Section 80.510(c) only. [Minn. R. 7005.0100, subp. 35a]
	5.8.4		Hours of Operation: The Permittee shall maintain documentation on site that the unit is an emergency generator by design that qualifies under the U.S. EPA memorandum entitled "Calculating Potential to Emit (PTE) for Emergency Generators" dated September 6, 1995, limiting operation to 500 hours per year. [Minn. R. 7007.0800, subps. 4-5]
	5.8.5		The Permittee shall keep records of fuel type and usage on a monthly basis. [Minn. R. 7007.0800, subp. 5]
	5.8.6		Fuel Supplier Certification: The Permittee shall obtain and maintain a fuel supplier certification for each shipment of diesel fuel oil, certifying that the sulfur content does not exceed 0.0015 percent by weight. [Minn. R. 7007.0800, subps. 4-5]
	5.8.7		The Permittee must comply with all applicable requirements of 40 CFR pt. 63, subp. ZZZZ as follows: 40 CFR 63.6585(a); 40 CFR 63.6585(c); 40 CFR 63.6585(d);

			40 CFR 63.6590 (a)(1)(iii); 40 CFR 63.6595(a)(1); 40 CFR 63.6595(b)(2); 40 CFR 63.6603(a); 40 CFR 63.6604(b); 40 CFR 63.6605(a); 40 CFR 63.6605(b); 40 CFR 63.6625 (e); 40 CFR 63.6625 (e)(3); 40 CFR 63.6625(f); 40 CFR 63.6625(h); 40 CFR 63.6625(i); 40 CFR 63.6640(a); 40 CFR 63.6640(b); 40 CFR 63.6640(e); 40 CFR 63.6640(f); 40 CFR 63.6640(f)(1); 40 CFR 63.6640(f)(2)(i); 40 CFR 63.6640(f)(4); 40 CFR 63.6645(a)(2); 40 CFR 63.6650(a); 40 CFR 63.6650(f); 40 CFR 63.6650(h); 40 CFR 63.6655(a); 40 CFR 63.6655(d); 40 CFR 63.6655(e)(2); 40 CFR 63.6655(f)(2); 40 CFR 63.6660(a); 40 CFR 63.6660(b); 40 CFR 63.6660(c); 40 CFR 63.6665; 40 CFR 63.6675; 40 CFR pt. 63, subp. ZZZZ, Table 2b, item 3; 40 CFR pt. 63, subp. ZZZZ, Table 2d, item 4; 40 CFR pt. 63, subp. ZZZZ, Table 6, item 9; 40 CFR pt. 63, subp. ZZZZ, Table 7, item 4; and 40 CFR pt. 63, subp. ZZZZ, Table 8. A copy of 40 CFR pt. 63, subp. ZZZZ is included in Appendix F. If the standard changes or upon adoption of a new or amended federal applicable requirement, and if there are more than 3 years remaining in the permit term, the Permittee shall file an application for an amendment within nine months of promulgation of the applicable requirement, pursuant to Minn. R. 7007.0400, subp. 3. [40 CFR pt. 63, subp. ZZZZ, Minn. R. 7007.0400, subp. 3, Minn. R. 7007.1150-7007.1500, Minn. R. 7011.8150]
	5.8.8		The Permittee must comply with all applicable requirements of 40 CFR pt. 63, subp. A as follows:

			40 CFR 63.1(a); 40 CFR 63.1(b)(1); 40 CFR 63.1(b)(3); 40 CFR 63.1(c)(1); 40 CFR 63.1(c)(2); 40 CFR 63.1(c)(5); 40 CFR 63.1(e); 40 CFR 63.2; 40 CFR 63.3; 40 CFR 63.4(a); 40 CFR 63.4(b); 40 CFR 63.4(c); 40 CFR 63.5(a); 40 CFR 63.5(b); 40 CFR 63.5(d); 40 CFR 63.5(e); 40 CFR 63.5(f); 40 CFR 63.6(a)(1); 40 CFR 63.6(a)(2); 40 CFR 63.6(b)(1); 40 CFR 63.6(b)(2); 40 CFR 63.6(b)(3); 40 CFR 63.6(b)(4); 40 CFR 63.6(b)(5); 40 CFR 63.6(b)(7); 40 CFR 63.6(c)(1); 40 CFR 63.6(c)(2); 40 CFR 63.6(c)(5); 40 CFR 63.6(g); 40 CFR 63.6(i)(1); 40 CFR 63.6(i)(2); 40 CFR 63.6(i)(3); 40 CFR 63.6(i)(4); 40 CFR 63.6(i)(5); 40 CFR 63.6(i)(6); 40 CFR 63.6(i)(8); 40 CFR 63.6(i)(9); 40 CFR 63.6(i)(11); 40 CFR 63.6(j); 40 CFR 63.7(a)(2); 40 CFR 63.7(a)(2)(ix); 40 CFR 63.7(a)(3); 40 CFR 63.7(a)(4); 40 CFR 63.7(b); 40 CFR 63.7(c); 40 CFR 63.7(d); 40 CFR 63.7(f); 40 CFR 63.7(g);

			40 CFR 63.7(h); 40 CFR 63.8(b)(1); 40 CFR 63.8(b)(2); 40 CFR 63.8(b)(3); 40 CFR 63.8(c); 40 CFR 63.8(d); 40 CFR 63.8(e); 40 CFR 63.8(f); 40 CFR 63.8(g); 40 CFR 63.9(b)(1); 40 CFR 63.9(b)(2); 40 CFR 63.9(b)(4); 40 CFR 63.9(b)(5); 40 CFR 63.9(c); 40 CFR 63.9(d); 40 CFR 63.9(e); 40 CFR 63.9(g); 40 CFR 63.9(h); 40 CFR 63.9(i); 40 CFR 63.9(j); 40 CFR 63.10(a)(5); 40 CFR 63.10(a)(6); 40 CFR 63.10(a)(7); 40 CFR 63.10(b)(1); 40 CFR 63.10(b)(2)(vi)-(viii); 40 CFR 63.10(b)(2)(ix); 40 CFR 63.10(b)(2)(x); 40 CFR 63.10(b)(2)(xi); 40 CFR 63.10(b)(2)(xii); 40 CFR 63.10(b)(2)(xiii); 40 CFR 63.10(b)(2)(xiv); 40 CFR 63.10(b)(3); 40 CFR 63.10(c); 40 CFR 63.10(d)(1); 40 CFR 63.10(d)(2); 40 CFR 63.10(d)(4); 40 CFR 63.10(e); 40 CFR 63.10(f); 40 CFR 63.12; 40 CFR 63.13; 40 CFR 63.14; 40 CFR 63.15(a); and 40 CFR 63.15(b) A copy of 40 CFR pt. 63, subp. A is included in Appendix I. If the standard changes or upon adoption of a new or amended federal applicable requirement, and if there are more than 3 years remaining in the permit term, the Permittee shall file an application for an amendment within nine months of promulgation of the

			applicable requirement, pursuant to Minn. R. 7007.0400, subp. 3. [40 CFR 63.6665, 40 CFR pt. 63, subp. A, Minn. R. 7007.0400, subp. 3, Minn. R. 7007.1150-1500, Minn. R. 7011.7000, Minn. R. 7011.8150, Minn. R. 7017.1010 & 7017.2025, Minn. R. 7019.0100]
TREA 1	CE005	Fabric Filter - High Temperature, i.e., T>250 Degrees F	
	5.9.1		AOS #1 - Controlled by Baghouse: The Permittee shall vent emissions from EQUI 5, 6, 7, or 8 to TREA 1 whenever EQUI 5, 6, 7, or 8 combusts coal, No. 2 fuel oil, or wood, and operate and maintain TREA 1 at all times that any emissions resulting from the combustion of coal, No. 2 fuel oil, or wood are vented to TREA 1. The Permittee shall document periods of non-operation of TREA 1 whenever EQUI 5, 6, 7, or 8 is combusting coal, No. 2 fuel oil, or wood. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000]
	5.9.2		AOS #1 - Controlled by Baghouse: If the Permittee replaces TREA 1, the replacement control must meet or exceed the control efficiency requirements of TREA 1 as well as comply with all other requirements of TREA 1. Prior to making such a change, the Permittee shall apply for and obtain the appropriate permit amendment, as applicable. If no amendment is needed for the replacement, the Permittee shall submit an electronic notice to the Agency using Form CR-05. The notice must be received by the Agency seven working days prior to the commencement/start of replacement. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000]
	5.9.3		AOS #1 - Controlled by Baghouse: The Permittee shall operate and maintain control equipment such that it achieves a control efficiency for Particulate Matter >= 99.0 percent control efficiency. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000]
	5.9.4		AOS #1 - Controlled by Baghouse: The Permittee shall operate and maintain control equipment such that it achieves a control efficiency for PM < 10 micron >= 98.0 percent control efficiency. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000]
	5.9.5		AOS #1 - Controlled by Baghouse: The Permittee shall operate and maintain control equipment such that it achieves a control efficiency for PM < 2.5 micron >= 98.0 percent control efficiency. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000]

	5.9.6		AOS #1 - Controlled by Baghouse: The Permittee shall operate and maintain the control equipment such that it achieves an overall control efficiency for HAPs - Metal >= 79.0 percent control efficiency. [Title I Condition: Avoid major source under 40 CFR 63.2]
	5.9.7		AOS #1 - Controlled by Baghouse: Pressure Drop >= 0.25 and <= 15.0 inches of water (Pressure Drop Range Limit), unless a new range is set pursuant to Minn. R. 7017.2025, subp. 3, as detailed below. If the recorded pressure drop is outside the required range, the emissions during that time shall be considered uncontrolled until the pressure drop is once again within the required range. The period of time for which the pressure drop is considered out of range shall be reported as a deviation. [Minn. R. 7017.2025, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000]
	5.9.8		AOS #1 - Controlled by Baghouse: The Permittee shall operate and maintain the fabric filter in accordance with the Operation and Maintenance (O & M) Plan. The Permittee shall keep copies of the O & M Plan available onsite for use by staff and MPCA staff. [Minn. R. 7007.0800, subp. 14]
	5.9.9		AOS #1 - Controlled by Baghouse: Daily Inspections: The Permittee shall do the following, once every 24 hours: 1). Read and record the pressure drop across the fabric filter. [40 CFR 64.3, Minn. R. 7017.0200, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000]
	5.9.10		AOS #1 - Controlled by Baghouse: Recordkeeping of Pressure Drop: The Permittee shall record the time and date of each pressure drop reading, and whether or not the observed pressure drop was within the range specified in this permit. Recorded values outside the range specified in this permit are considered Deviations as defined by Minn. R. 7007.0100, subp. 8a. [40 CFR 64.9(b), Minn. R. 7017.0200, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000]
	5.9.11		AOS #1 - Controlled by Baghouse: Pressure Drop Monitoring Equipment: The Permittee shall install and maintain the necessary monitoring equipment for measuring and recording pressure drop as required by this permit. The monitoring equipment must be installed, in use, and properly maintained when the monitored fabric filter is in operation. [40 CFR 64.7(b), Minn. R. 7017.0200]
	5.9.12		AOS #1 - Controlled by Baghouse: The Permittee shall calibrate the pressure gauge at least once every 12 months and shall maintain a written record of any action resulting from the calibration. [40 CFR 64.3, Minn. R. 7017.0200]
	5.9.13		AOS #1 - Controlled by Baghouse: Periodic Inspections: At least once per calendar quarter, or more frequently as required by the manufacturing specifications, the Permittee shall inspect the control equipment components. The Permittee shall maintain a written record of these inspections. [40 CFR 64.3, Minn. R.

			7017.0200]
	5.9.14		AOS #1 - Controlled by Baghouse: Documentation of Need for Improved Monitoring: If the Permittee fails to achieve compliance with an emission limitation or standard for which the monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing pressure drop range, the Permittee shall promptly notify the MPCA and, if necessary, submit a permit amendment application to address the necessary monitoring change. [40 CFR 64.7(e), Minn. R. 7017.0200]
	5.9.15		AOS #1 - Controlled by Baghouse: As required by 40 CFR Section 64.9(a)(2), for the Semi-Annual Deviations Report required by this permit and/or the Notification of Deviations Endangering Human Health and the Environment required by this permit, as applicable, the Permittee shall include the following related to the monitoring identified as required by 40 CFR pt. 64: 1) Summary information on the number, duration, and cause of excursions or exceedances, as applicable, and the corrective action taken; and 2) Summary information on the number, duration, and cause for monitor downtime incidents. [40 CFR 64.9(a)(2), Minn. R. 7017.0200]
	5.9.16		AOS #1 - Controlled by Baghouse: The Permittee shall maintain records of monitoring data, monitor performance data, corrective actions taken, and other supporting information required to be maintained. The Permittee may maintain records on alternative media, such as microfilm, computer files, magnetic tape disks, or microfiche, provided that the use of such alternative media allows for expeditious inspection and review, and does not conflict with other applicable recordkeeping requirements. [40 CFR 64.9(b), Minn. R. 7017.0200]
	5.9.17		AOS #1 - Controlled by Baghouse: Corrective Actions: The Permittee shall take corrective action as soon as possible if any of the following occur: - the recorded pressure drop is outside the required operating range; or - the fabric filter or any of its components are found during the inspections to need repair. Corrective actions shall return the pressure drop to within the permitted range, and/or include completion of necessary repairs identified during the inspection, as applicable. Corrective actions include, but are not limited to, those outlined in the O & M Plan for the fabric filter. The Permittee shall keep a record of the type and date of any corrective action taken for each filter. [40 CFR 64.7(d), Minn. R. 7017.0200]
	5.9.18		AOS #2 - Baghouse Bypass: The operation of TREA 1 is not necessary when EQUI 5, 6, 7, and 8 are only combusting natural gas or RFO in order for the process to meet applicable emissions limits. However,

			the Permittee wishes to take credit for its operation for the purposes of reporting actual emissions for emission inventory. Therefore, in order for the PM, PM10, and PM2.5 to be considered controlled for the purposes of emissions inventory, the baghouse (TREA 1) must comply with the requirements of AOS #1 during the time credit for control is taken. The PM, PM10, and PM2.5 emitted during that time shall be considered controlled at the efficiencies stated in AOS #1. [Minn. R. 7019.3020(H), Minn. Stat. 116.07, subd. 4a]
	5.9.19		Daily Recordkeeping: On each day of operation, the Permittee shall record and maintain for each boiler the fuel combusted, operating time, date, and whether AOS #1 or AOS #2 is used. [Minn. R. 7007.0800, subp. 11, Minn. R. 7007.0800, subps. 4-5]
TREA 2	CE006	Fabric Filter - High Temperature, i.e., T>250 Degrees F	
	5.10.1		The Permittee shall vent emissions from EQUI 2 to TREA 2 whenever EQUI 2 operates, and operate and maintain TREA 2 at all times that any emissions are vented to TREA 2. The Permittee shall document periods of non-operation of the control equipment TREA 2 whenever EQUI 2 is operating. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000]
	5.10.2		If the Permittee replaces TREA 2, the replacement control must meet or exceed the control efficiency requirements of TREA 2 as well as comply with all other requirements of TREA 2. Prior to making such a change, the Permittee shall apply for and obtain the appropriate permit amendment, as applicable. If no amendment is needed for the replacement, the Permittee shall submit an electronic notice to the Agency using Form CR-05. The notice must be received by the Agency seven working days prior to the commencement/start of replacement. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000]
	5.10.3		The Permittee shall operate and maintain control equipment such that it achieves a control efficiency for Particulate Matter >= 99.9 percent control efficiency. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000]
	5.10.4		The Permittee shall operate and maintain control equipment such that it achieves a control efficiency for PM < 10 micron >= 99.9 percent control efficiency. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000]
	5.10.5		The Permittee shall operate and maintain control equipment such that it achieves a control efficiency for PM < 2.5 micron >= 99.9

			percent control efficiency. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000]
	5.10.6		Pressure Drop >= 0.5 and <= 10.0 inches of mercury, unless a new range is set pursuant to Minn. R. 7017.2025, subp. 3 based on the values recorded during the most recent MPCA-approved performance test where compliance was demonstrated. The new range shall be implemented upon receipt of the Notice of Compliance letter granting preliminary approval. The range is final upon issuance of a permit amendment incorporating the change. If the recorded pressure drop is outside the required range, the emissions during that time shall be considered uncontrolled until the pressure drop is once again within the required range. The period of time for which the pressure drop is considered out of range shall be reported as a deviation. The Permittee shall record the pressure drop at least once every 24 hours when in operation. [Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000]
	5.10.7		Visible Emissions: The Permittee shall check the fabric filter stack STRU 12 for any visible emissions once each day of operation during daylight hours. During inclement weather, the Permittee shall read and record the pressure drop across the fabric filter, once each day of operation. [Minn. R. 7007.0800, subps. 4-5, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000]
	5.10.8		The Permittee shall operate and maintain the fabric filter in accordance with the Operation and Maintenance (O & M) Plan. The Permittee shall keep copies of the O & M Plan available onsite for use by staff and MPCA staff. [Minn. R. 7007.0800, subp. 14]
	5.10.9		Recordkeeping of Visible Emissions and Pressure Drop. The Permittee shall record the time and date of each visible emission inspection and pressure drop reading, and whether or not any visible emissions were observed, and whether or not the observed pressure drop was within the range specified in this permit. [Minn. R. 7007.0800, subps. 4-5, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000]
	5.10.10		Corrective Actions: The Permittee shall take corrective action as soon as possible if any of the following occur: - visible emissions are observed; - the recorded pressure drop is outside the required operating range; or - the fabric filter or any of its components are found during the inspections to need repair. Corrective actions shall return the pressure drop to within the permitted range, eliminate visible emissions, and/or include completion of necessary repairs identified during the inspection, as applicable. Corrective actions include, but are not limited to, those outlined in the O & M Plan for the fabric filter. The Permittee shall

			keep a record of the type and date of any corrective action taken for each filter. [Minn. R. 7007.0800, subp. 14, Minn. R. 7007.0800, subp. 2(A), Minn. R. 7007.0800, subp. 5]
	5.10.11		Monitoring Equipment: The Permittee shall install and maintain the necessary monitoring equipment for measuring and recording pressure drop as required by this permit. The monitoring equipment must be installed, in use, and properly maintained when the monitored fabric filter is in operation. [Minn. R. 7007.0800, subp. 4]
	5.10.12		Periodic Inspections: At least once per calendar quarter, or more frequently as required by the manufacturing specifications, the Permittee shall inspect the control equipment components. The Permittee shall maintain a written record of these inspections. [Minn. R. 7007.0800, subp. 14, Minn. R. 7007.0800, subp. 4, Minn. R. 7007.0800, subp. 5]

6. Submittal/action requirements

This section lists most of the submittals required by this permit. Please note that some submittal requirements may appear in the Limits and Other Requirements section, or, if applicable, within a Compliance Schedule section.

Subject Item	Sec.SI.Reqt	SI des:SI desc	Requirement & Citation
TFAC 1	13700022	Duluth Steam Plant 1	
	6.1.1		The Permittee shall submit an application for permit reissuance : Due 180 calendar days before Permit Expiration Date. [Minn. R. 7007.0400, subp. 2]
	6.1.2		The Permittee shall submit a semiannual deviations report : Due semiannually, by the 30th of January and July. The first semiannual report submitted by the Permittee shall cover the calendar half-year in which the permit is issued. The first report of each calendar year covers January 1 - June 30. The second report of each calendar year covers July 1 - December 31. Submit this on form DRF-2 (Deviation Reporting Form). If no deviations have occurred, submit the signed report certifying that there were no deviations. [Minn. R. 7007.0800, subp. 6(A)(2)]
	6.1.3		The Permittee shall submit a compliance certification : Due annually, by the 31st of January (for the previous calendar year). Submit this on form CR-04 (Annual Compliance Certification Report). This report covers all deviations experienced during the calendar year. If no deviations have occurred, submit the signed report certifying that there were no deviations. [Minn. R. 7007.0800, subp. 6(C)]

Subject Item	Sec.SI.Reqt	SI des:SI desc	Requirement & Citation
	6.1.4		The Permittee shall submit a quarterly report : Due quarterly within 30 days after end of each calendar quarter starting 08/04/2009. The report shall include the 12-month rolling sum of actual HCl emissions, in tons. [Minn. R. 7007.0800, subps. 4-5]
	6.1.5		The Permittee shall submit a notification of the actual date of initial startup: Due 15 calendar days after Initial Startup Date. Submit the name and number of the Subject Item and the date of startup. Startup is as defined in Minn. R. 7005.0100, subp. 42a. The notification shall be submitted electronically on Form CS-02. [Minn. R. 7007.0800, subp. 16(L)]
	6.1.6		The Permittee shall submit a notification of the date construction began: Due 30 calendar days after Date of Construction Start (or reconstruction). Submit the name and number of the Subject Item and the date construction began. The notification shall be submitted electronically on Form CS-02. [Minn. R. 7007.0800, subp. 16(L)]
COMG 1	GP001	Boilers	
	6.2.1		The Permittee shall submit a notification : Due 30 calendar days after Date of Achieving Normal Operation while combusting wood in any COMG 1 Boiler (EQUI 5 - EQUI 8). [Minn. R. 7007.0800, subp. 2]
EQUI 5	EU001	Boiler 1	
	6.3.1		Carbon Monoxide performance test : The Permittee shall conduct performance test : Due every 48 months starting 05/16/2011 to measure CO emissions from Boiler No. 1. The performance test shall be conducted while burning subbituminous coal at 80% capacity using EPA Method 10 or other method approved by MPCA in the performance test plan approval. During each test, a second boiler should be operating to satisfy the residual load demand at the time of the test. The coal CO emission factor developed from this performance tests will be used to calculate wood CO emission factor using Equation 1 in Appendix D of the permit. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the

Subject Item	Sec.SI.Reqt	SI des:SI desc	Requirement & Citation
			performance test due date satisfies this test due date requirement and will reset the performance test due date. [Minn. R. 4410.4300, subp. 15(A), Minn. R. 7017.2020, subp. 1]
	6.3.2		Carbon Monoxide initial performance test for Biomass Subcategory : The Permittee shall conduct initial performance test : Due 1460 calendar days after Date of Achieving Normal Operation of boilers after changing to the Biomass Subcategory, as defined in 40 CFR Section 63.11237, to measure CO emissions from Boiler No. 1. The performance test shall be conducted while co-firing wood and subbituminous coal at 80% capacity using EPA Method 10 or other method approved by MPCA in the performance test plan approval. The amount of wood burned during the performance test shall be 20% of the heat input. If the Permittee is unable to achieve the 20% heat input threshold for wood, the performance test shall be conducted while burning wood at a level consistent with normal operating conditions as approved by MPCA in the performance test plan approval. During each test, a second boiler should be operating to satisfy the residual load demand at the time of the test. The co-firing CO emission factor developed from this performance tests will be used to calculate wood CO emissions using Equation 1 in Appendix D of the permit. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [Minn. R. 4410.4300, subp. 15(A), Minn. R. 7017.2020, subp. 1]
	6.3.3		Carbon Monoxide performance test for Biomass Subcategory : The Permittee shall conduct performance test : Due after Initial Performance Test Date every 48 months. The Permittee shall test CO emissions from Boiler No. 1 before the end of each 48 month period after conducting the initial performance test for the Biomass Subcategory, as defined in 40 CFR Section 63.11237. The performance test shall be conducted while co-firing wood and subbituminous coal at 80% capacity using EPA Method 10 or other method approved by MPCA in the performance test plan approval. The amount of wood burned during the performance test shall be 20% of the heat input. If the Permittee is unable to achieve the 20% heat input threshold for wood, the performance test shall be conducted while burning wood at a level consistent with normal operating conditions as approved by MPCA in the performance test plan approval. During each test, a second

Subject Item	Sec.SI.Reqt	SI des:SI desc	Requirement & Citation
			boiler should be operating to satisfy the residual load demand at the time of the test. The co-firing CO emission factor developed from this performance tests will be used to calculate wood CO emissions using Equation 1 in Appendix D of the permit. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [Minn. R. 4410.4300, subp. 15(A), Minn. R. 7017.2020, subp. 1]
	6.3.4		Total Particulate Matter : The Permittee shall conduct performance test : Due every 48 months starting 05/16/2011 to measure PM emissions from Boiler No. 1. The performance test shall be conducted while while burning subbituminous coal at full capacity using EPA Method 5 or other method approved by MPCA in the performance test plan approval. During each test, a second boiler should be operating to satisfy the residual load demand at the time of the test. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [Minn. R. 7017.2020, subp. 1]
	6.3.5		Sulfur Dioxide : The Permittee shall conduct performance test : Due every 48 months starting 05/16/2011 to measure SO2 emissions from Boiler No. 1. The performance test shall be conducted while burning subbituminous coal at full capacity using EPA Method 6C or other method approved by MPCA in the performance test plan approval. During each test, a second boiler should be operating to satisfy the residual load demand at the time of the test. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the

Subject Item	Sec.SI.Reqt	SI des:SI desc	Requirement & Citation
			performance test due date satisfies this test due date requirement and will reset the performance test due date. [Minn. R. 7017.2020, subp. 1]
	6.3.6		Opacity : The Permittee shall conduct performance test : Due every 48 months starting 05/16/2011 to measure Opacity emissions from Boiler No. 1. The performance test shall be conducted while burning subbituminous coal at full capacity using EPA Method 9 or other method approved by MPCA in the performance test plan approval. During each test, a second boiler should be operating to satisfy the residual load demand at the time of the test. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [Minn. R. 7017.2020, subp. 1]
	6.3.7		PM < 10 micron: The Permittee shall conduct an initial performance test due 180 calendar days after Initial Startup Date and at a minimum every 60 months thereafter to measure PM10 emissions. The Commissioner will set the subsequent test frequency as stated in a Notice of Compliance (NOC) or Notice of Verification (NOV) letter with review of the initial performance test. Subsequent tests shall be completed no less than every 60-months by the due date (month and day) based on the initial test date or more frequently as stated in the NOC/NOV letter. If the Commissioner sets a test frequency at less than every 60 months, the Permittee must apply for an administrative amendment to incorporate the prescribed test frequency into the permit. A major amendment is required to reduce the test frequency once set in the permit. The performance test shall be conducted at worst-case conditions defined at Minn. R. 7017.2005, subp. 8 or at the operating conditions described at Minn. R. 7017.2025, subp. 2, using EPA Reference Methods 201A and 202, or other method approved by MPCA in the performance test plan approval. During the performance testing, the Permittee must: 1. Combust RFO with natural gas in EQUI 5 and 7 (Boilers 1 and 4).

Subject Item	Sec.SI.Reqt	SI des:SI desc	Requirement & Citation
			2. Bypass the baghouse (TREA 1) and vent emissions to STRU 8 uncontrolled. 3. If boilers are tested individually, operate a second boiler to satisfy the residual load demand at the time of the test. Results from the individual boilers should be summed to determine compliance with the group PM10 limit. Testing conducted during the 60 days prior to a performance test due date will not reset the due date for future testing. Testing conducted more than 60 days prior to the specified due date satisfies this test due date requirement but will reset future performance test due dates based on the most recent performance test date. [Minn. R. 7017.2020, subp. 1]
EQUI 6	EU003	Boiler 3	
	6.4.1		Carbon Monoxide performance test : The Permittee shall conduct performance test : Due every 48 months starting 05/16/2013 to test CO emissions from Boiler No. 3. The performance test shall be conducted while burning subbituminous coal at 80% capacity using EPA Method 10 or other method approved by MPCA in the performance test plan approval. During each test, a second boiler should be operating to satisfy the residual load demand at the time of the test. The coal CO emission factor developed from this performance tests will be used to calculate wood CO emission factor using Equation 1 in Appendix D of the permit. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [Minn. R. 4410.4300, subp. 15(A), Minn. R. 7017.2020, subp. 1]
	6.4.2		Carbon Monoxide initial performance test for Biomass Subcategory : The Permittee shall conduct initial performance test : Due 1460 calendar days after Date of Achieving Normal Operation of boilers after changing to the Biomass Subcategory, as defined in 40 CFR Section 63.11237, to measure CO emissions from Boiler No. 3. The performance test shall be conducted while co-firing wood and subbituminous coal at 80% capacity using EPA Method 10 or other method approved by MPCA in the performance test plan approval. The amount of wood burned

Subject Item	Sec.SI.Reqt	SI des:SI desc	Requirement & Citation
			during the performance test shall be 20% of the heat input. If the Permittee is unable to achieve the 20% heat input threshold for wood, the performance test shall be conducted while burning wood at a level consistent with normal operating conditions as approved by MPCA in the performance test plan approval. During each test, a second boiler should be operating to satisfy the residual load demand at the time of the test. The co-firing CO emission factor developed from this performance tests will be used to calculate wood CO emissions using Equation 1 in Appendix D of the permit. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [Minn. R. 4410.4300, subp. 15(A), Minn. R. 7017.2020, subp. 1]
	6.4.3		Carbon Monoxide performance test for Biomass Subcategory : The Permittee shall conduct performance test : Due after Initial Performance Test Date. The Permittee shall test CO emissions from Boiler No. 3 before the end of each 48 month period after conducting the initial performance test for the Biomass Subcategory, as defined in 40 CFR Section 63.11237. The performance test shall be conducted while co-firing wood and subbituminous coal at 80% capacity using EPA Method 10 or other method approved by MPCA in the performance test plan approval. The amount of wood burned during the performance test shall be 20% of the heat input. If the Permittee is unable to achieve the 20% heat input threshold for wood, the performance test shall be conducted while burning wood at a level consistent with normal operating conditions as approved by MPCA in the performance test plan approval. During each test, a second boiler should be operating to satisfy the residual load demand at the time of the test. The co-firing CO emission factor developed from this performance tests will be used to calculate wood CO emissions using Equation 1 in Appendix D of the permit. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter.

Subject Item	Sec.SI.Reqt	SI des:SI desc	Requirement & Citation
			Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [Minn. R. 4410.4300, subp. 15(A), Minn. R. 7017.2020, subp. 1]
	6.4.4		Total Particulate Matter : The Permittee shall conduct performance test : Due every 48 months starting 05/16/2013 to test PM emissions from Boiler No. 3. The performance test shall be conducted while burning subbituminous coal at full capacity using EPA Method 5 or other method approved by MPCA in the performance test plan approval. During each test, a second boiler should be operating to satisfy the residual load demand at the time of the test. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [Minn. R. 7017.2020, subp. 1]
	6.4.5		Sulfur Dioxide : The Permittee shall conduct performance test : Due every 48 months starting 05/16/2013 to test SO2 emissions from Boiler No. 3. The performance test shall be conducted while burning subbituminous coal at full capacity using EPA Method 6C or other method approved by MPCA in the performance test plan approval. During each test, a second boiler should be operating to satisfy the residual load demand at the time of the test. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [Minn. R. 7017.2020, subp. 1]
	6.4.6		Opacity : The Permittee shall conduct performance test : Due every 48 months starting 05/16/2013 to measure Opacity emissions from Boiler No. 3. The performance test shall be conducted while burning subbituminous coal at full capacity using EPA Method 9 or other method approved by MPCA in the performance test plan approval. During each test, a second boiler should be operating to satisfy the residual load demand at

Subject Item	Sec.SI.Reqt	SI des:SI desc	Requirement & Citation
			the time of the test. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [Minn. R. 7017.2020, subp. 1]
	6.4.7		PM < 10 micron: The Permittee shall conduct an initial performance test due 180 calendar days after Initial Startup Date and at a minimum every 60 months thereafter to measure PM10 emissions. The Commissioner will set the subsequent test frequency as stated in a Notice of Compliance (NOC) or Notice of Verification (NOV) letter with review of the initial performance test. Subsequent tests shall be completed no less than every 60-months by the due date (month and day) based on the initial test date or more frequently as stated in the NOC/NOV letter. If the Commissioner sets a test frequency at less than every 60 months, the Permittee must apply for an administrative amendment to incorporate the prescribed test frequency into the permit. A major amendment is required to reduce the test frequency once set in the permit. The performance test shall be conducted at worst-case conditions defined at Minn. R. 7017.2005, subp. 8 or at the operating conditions described at Minn. R. 7017.2025, subp. 2, using EPA Reference Methods 201A and 202, or other method approved by MPCA in the performance test plan approval. During the performance testing, the Permittee must: 1. Combust subbituminous coal in EQUI 6 and 8 (Boilers 2 and 3). 2. Vent to STRU 8 with emissions controlled by the baghouse (TREA 1). 3. If boilers are tested individually, operate a second boiler to satisfy the residual load demand at the time of the test. Results from the individual boilers should be summed to determine compliance with the group PM10 limit. Testing conducted during the 60 days prior to a performance test due date will not reset the due date for future testing. Testing conducted more than 60 days prior to the specified due

Subject Item	Sec.SI.Reqt	SI des:SI desc	Requirement & Citation
			date satisfies this test due date requirement but will reset future performance test due dates based on the most recent performance test date. [Minn. R. 7017.2020, subp. 1]
EQUI 7	EU004	Boiler 4	
	6.5.1		Carbon Monoxide performance test : The Permittee shall conduct performance test : Due every 48 months starting 05/16/2014 to test CO emissions from Boiler No. 4. The performance test shall be conducted while burning subbituminous coal at 80% capacity using EPA Method 10 or other method approved by MPCA in the performance test plan approval. During each test, a second boiler should be operating to satisfy the residual load demand at the time of the test. The coal CO emission factor developed from this performance tests will be used to calculate wood CO emission factor using Equation 1 in Appendix D of the permit. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [Minn. R. 4410.4300, subp. 15(A), Minn. R. 7017.2020, subp. 1]
	6.5.2		Carbon Monoxide initial performance test for Biomass Subcategory : The Permittee shall conduct initial performance test : Due 1460 calendar days after Date of Achieving Normal Operation after changing to the Biomass Subcategory, as defined in 40 CFR Section 63.11237, to measure CO emissions from Boiler No. 4. The performance test shall be conducted while co-firing wood and subbituminous coal at 80% capacity using EPA Method 10 or other method approved by MPCA in the performance test plan approval. The amount of wood burned during the performance test shall be 20% of the heat input. If the Permittee is unable to achieve the 20% heat input threshold for wood, the performance test shall be conducted while burning wood at a level consistent with normal operating conditions as approved by MPCA in the performance test plan approval. During each test, a second boiler should be operating to satisfy the residual load demand at the time of the test. The co-firing CO emission factor developed from this performance tests will be used to calculate wood CO emissions using Equation 1 in Appendix D of the permit. [Minn. R.

Subject Item	Sec.SI.Reqt	SI des:SI desc	Requirement & Citation
			4410.4300, subp. 15(A), Minn. R. 7017.2020, subp. 1]
	6.5.3		Carbon Monoxide performance test for Biomass Subcategory : The Permittee shall conduct performance test : Due after Date of Achieving Normal Operation every 48 months. The Permittee shall test CO emissions from Boiler No. 4 before the end of each 48 month period after conducting the initial performance test for the Biomass Subcategory, as defined in 40 CFR Section 63.11237. The performance test shall be conducted while co-firing wood and subbituminous coal at 80% capacity using EPA Method 10 or other method approved by MPCA in the performance test plan approval. The amount of wood burned during the performance test shall be 20% of the heat input. If the Permittee is unable to achieve the 20% heat input threshold for wood, the performance test shall be conducted while burning wood at a level consistent with normal operating conditions as approved by MPCA in the performance test plan approval. During each test, a second boiler should be operating to satisfy the residual load demand at the time of the test. The co-firing CO emission factor developed from this performance tests will be used to calculate wood CO emissions using Equation 1 in Appendix D of the permit. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [Minn. R. 4410.4300, subp. 15(A), Minn. R. 7017.2020, subp. 1]
	6.5.4		Total Particulate Matter : The Permittee shall conduct performance test : Due every 48 months starting 05/16/2010 to test PM emissions from Boiler No. 4. The performance test shall be conducted while burning subbituminous coal at full capacity using EPA Method 5 or other method approved by MPCA in the performance test plan approval. During each test, a second boiler should be operating to satisfy the residual load demand at the time of the test. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date

Subject Item	Sec.SI.Reqt	SI des:SI desc	Requirement & Citation
			requirement and will reset the performance test due date. [Minn. R. 7017.2020, subp. 1]
	6.5.5		Sulfur Dioxide : The Permittee shall conduct performance test : Due every 48 months starting 05/16/2010 to test SO2 emissions from Boiler No. 4. The performance test shall be conducted while burning subbituminous coal at full capacity using EPA Method 6C or other method approved by MPCA in the performance test plan approval. During each test, a second boiler should be operating to satisfy the residual load demand at the time of the test. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [Minn. R. 7017.2020, subp. 1]
	6.5.6		Opacity : The Permittee shall conduct performance test : Due every 48 months starting 05/16/2010 to test Opacity emissions from Boiler No. 4. The performance test shall be conducted while burning subbituminous coal at full capacity using EPA Method 9 or other method approved by MPCA in the performance test plan approval. During each test, a second boiler should be operating to satisfy the residual load demand at the time of the test. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [Minn. R. 7017.2020, subp. 1]
	6.5.7		PM < 10 micron: The Permittee shall conduct an initial performance test due 180 calendar days after Initial Startup Date and at a minimum every 60 months thereafter to measure PM10 emissions. The Commissioner will set the subsequent test frequency as stated in a Notice of Compliance (NOC) or Notice of Verification (NOV) letter with review of the initial performance test. Subsequent tests shall be completed no less than every 60-

Subject Item	Sec.SI.Reqt	SI des:SI desc	Requirement & Citation
			months by the due date (month and day) based on the initial test date or more frequently as stated in the NOC/NOV letter. If the Commissioner sets a test frequency at less than every 60 months, the Permittee must apply for an administrative amendment to incorporate the prescribed test frequency into the permit. A major amendment is required to reduce the test frequency once set in the permit. The performance test shall be conducted at worst-case conditions defined at Minn. R. 7017.2005, subp. 8 or at the operating conditions described at Minn. R. 7017.2025, subp. 2, using EPA Reference Methods 201A and 202, or other method approved by MPCA in the performance test plan approval. During the performance testing, the Permittee must: 1. Combust RFO with natural gas in EQUI 5 and 7 (Boilers 1 and 4). 2. Bypass the baghouse (TREA 1) and vent emissions to STRU 8 uncontrolled. 3. If boilers are tested individually, operate a second boiler to satisfy the residual load demand at the time of the test. Results from the individual boilers should be summed to determine compliance with the group PM10 limit. Testing conducted during the 60 days prior to a performance test due date will not reset the due date for future testing. Testing conducted more than 60 days prior to the specified due date satisfies this test due date requirement but will reset future performance test due dates based on the most recent performance test date. [Minn. R. 7017.2020, subp. 1]
EQUI 8	EU002	Boiler 2	
	6.6.1		Carbon Monoxide performance test : The Permittee shall conduct performance test : Due every 48 months starting 05/16/2012 to test CO emissions from Boiler No. 2. The performance test shall be conducted while burning subbituminous coal at 80% capacity using EPA Method 10 or other method approved by MPCA in the performance test plan approval. During each test, a second boiler should be operating to satisfy the residual load demand at the time of the test. The coal CO emission factor developed from this performance tests will be used to calculate wood CO emission factor using Equation 1 in Appendix D of the permit.

Subject Item	Sec.SI.Reqt	SI des:SI desc	Requirement & Citation
			Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [Minn. R. 4410.4300, subp. 15(A), Minn. R. 7017.2020, subp. 1]
	6.6.2		Carbon Monoxide initial performance test for Biomass Subcategory : The Permittee shall conduct initial performance test : Due 1460 calendar days after Date of Achieving Normal Operation of boilers after changing to the Biomass Subcategory, as defined in 40 CFR Section 63.11237, to measure CO emissions from Boiler No. 2. The performance test shall be conducted while co-firing wood and subbituminous coal at 80% capacity using EPA Method 10 or other method approved by MPCA in the performance test plan approval. The amount of wood burned during the performance test shall be 20% of the heat input. If the Permittee is unable to achieve the 20% heat input threshold for wood, the performance test shall be conducted while burning wood at a level consistent with normal operating conditions as approved by MPCA in the performance test plan approval. During each test, a second boiler should be operating to satisfy the residual load demand at the time of the test. The co-firing CO emission factor developed from this performance tests will be used to calculate wood CO emissions using Equation 1 in Appendix D of the permit. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [Minn. R. 4410.4300, subp. 15(A), Minn. R. 7017.2020, subp. 1]
	6.6.3		Carbon Monoxide performance test for Biomass Subcategory : The Permittee shall conduct performance test : Due after Initial Performance Test Date every 48 months. The Permittee shall test CO emissions from Boiler No. 1 before the end of each 48 month peiod after conducting the initial performance test for the Biomass Subcategory, as defined in 40 CFR Section 63.11237. The performance test shall be conducted while co-firing wood and subbituminous coal at 80% capacity using EPA Method 10 or other method approved by MPCA in the performance test plan

Subject Item	Sec.SI.Reqt	SI des:SI desc	Requirement & Citation
			approval. The amount of wood burned during the performance test shall be 20% of the heat input. If the Permittee is unable to achieve the 20% heat input threshold for wood, the performance test shall be conducted while burning wood at a level consistent with normal operating conditions as approved by MPCA in the performance test plan approval. During each test, a second boiler should be operating to satisfy the residual load demand at the time of the test. The co-firing CO emission factor developed from this performance tests will be used to calculate wood CO emissions using Equation 1 in Appendix D of the permit. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [Minn. R. 4410.4300, subp. 15(A), Minn. R. 7017.2020, subp. 1]
	6.6.4		Total Particulate Matter : The Permittee shall conduct performance test : Due every 48 months starting 05/16/2012 to test PM emissions from Boiler No. 2. The performance test shall be conducted while burning subbituminous coal at full capacity using EPA Method 10 or other method approved by MPCA in the performance test plan approval. During each test, a second boiler should be operating to satisfy the residual load demand at the time of the test. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [Minn. R. 7017.2020, subp. 1]
	6.6.5		Sulfur Dioxide : The Permittee shall conduct performance test : Due every 48 months starting 05/16/2012 to measure SO2 emissions from Boiler No. 2. The performance test shall be conducted while burning subbituminous coal at full capacity using EPA Method 6C or other method approved by MPCA in the performance test plan approval. During each test, a second boiler should be operating to satisfy the residual load demand at the time of the test.

Subject Item	Sec.SI.Reqt	SI des:SI desc	Requirement & Citation
			Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [Minn. R. 7017.2020, subp. 1]
	6.6.6		Opacity : The Permittee shall conduct performance test : Due every 48 months starting 05/16/2012 to test Opacity emissions from Boiler No. 2. The performance test shall be conducted while burning subbituminous coal at full capacity using EPA Method 9 or other method approved by MPCA in the performance test plan approval. During each test, a second boiler should be operating to satisfy the residual load demand at the time of the test. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date. [Minn. R. 7017.2020, subp. 1]
	6.6.7		PM < 10 micron: The Permittee shall conduct an initial performance test due 180 calendar days after Initial Startup Date and at a minimum every 60 months thereafter to measure PM10 emissions. The Commissioner will set the subsequent test frequency as stated in a Notice of Compliance (NOC) or Notice of Verification (NOV) letter with review of the initial performance test. Subsequent tests shall be completed no less than every 60-months by the due date (month and day) based on the initial test date or more frequently as stated in the NOC/NOV letter. If the Commissioner sets a test frequency at less than every 60 months, the Permittee must apply for an administrative amendment to incorporate the prescribed test frequency into the permit. A major amendment is required to reduce the test frequency once set in the permit. The performance test shall be conducted at worst-case conditions defined at Minn. R. 7017.2005, subp. 8 or at the

Subject Item	Sec.SI.Reqt	SI des:SI desc	Requirement & Citation
			operating conditions described at Minn. R. 7017.2025, subp. 2, using EPA Reference Methods 201A and 202, or other method approved by MPCA in the performance test plan approval. During the performance testing, the Permittee must: 1. Combust subbituminous coal in EQUI 6 and 8 (Boilers 2 and 3). 2. Vent to STRU 8 with emissions controlled by the baghouse (TREA 1). 3. If boilers are tested individually, operate a second boiler to satisfy the residual load demand at the time of the test. Results from the individual boilers should be summed to determine compliance with the group PM10 limit. Testing conducted during the 60 days prior to a performance test due date will not reset the due date for future testing. Testing conducted more than 60 days prior to the specified due date satisfies this test due date requirement but will reset future performance test due dates based on the most recent performance test date. [Minn. R. 7017.2020, subp. 1]

Appendix A. Insignificant Activities and General Applicable Requirements

The table below lists the insignificant activities that are currently at the Facility and their associated general applicable requirements.

Minn. R.	Rule description of the activity	General applicable requirement
Minn. R. 7007.1300, subp. 3(E)	Brazing, soldering or welding equipment *Welding Equipment (4 welders)*	PM, variable depending on airflow Opacity <= 20% (Minn. R. 7011.0715)
Minn. R. 7007.1300, subp. 3(F)	Individual units with potential emissions less than 2000 lb/year of certain pollutants *Facility-wide VOC usage is cleaning solvents and paint spray cans;* *40,000 gallon RFO fuel tank* *Fugitive dust paved road emissions from RFO delivery*	PM, variable depending on airflow Opacity ≤ 20% (Minn. R. 7011.0715) Prevent avoidable amounts of particulate matter from becoming airborne (Minn. R. 7011.0150)

Minn. R.	**Rule description of the activity**	**General applicable requirement**
Minn. R. 7007.1300, subp. 4	Individual units with potential or actual emissions meeting the criteria in Minn. R. 7007.1300, subp. 4(A)-(D) *Ash Silo Vent 1* *Ash Silo Vent 2* *Coal Truck Unloading* *Coal Transfer to Bunker* *Ash Truck Loading* *Fugitive dust emissions from paved entrance roads and parking lots.*	PM, variable depending on airflow Opacity ≤ 20% (Minn. R. 7011.0715) Prevent avoidable amounts of particulate matter from becoming airborne (Minn. R. 7011.0150)

Appendix B: Modeled Parameters Relied Upon to Comply with PM_{10}, SO_2 and NO_2 National Ambient Air Quality Standards

Modeled Parameters

Identification No.	Source Description	Location UTM NAD83		Base Elev. (m)	Stack Height (m)	Stack Temp. (K)	Stack Exit Vel. (m/s)	Stack Dia. (m)	Flow (acfm)
		X (m)	Y (m)						
STRU 8 (SV 001); EQUI 5 – EQUI 8 (EUs 001-004)	Boiler Nos. 1 to 4	568929	5181745	184	73.20	511	7.32	3.96	191,028
STRU 12 (SV006); EQUI 2 (EU 006)	Pneumatic Ash Handing System	568937	5181751	185	18.0	294	5.43	0.30	813
Vol 001: FS 001, 002, 003 and 005	Coal Truck Unloading, Coal Transfer to Bunker, Ash Truck Loading, Fugitive Dust from Paved Entrance Roads/Parking Lot	568957	5181727	184	Release Height: 1.52			Sigma Y: 3.85	

PM_{10} Modeled Parameters

Identification No.	Source Description	Emission Rate 24-hr		Emission Rate Annual	
		g/s	lb/hr	g/s	lb/hr
STRU 8 (SV 001); EQUI 5 – EQUI 8 (EUs 001-004)	Boiler Nos. 1 to 4	0.96	7.66	0.57	4.54
STRU 12 (SV006); EQUI 2 (EU 006)	Pneumatic Ash Handing System	0.12	0.95	0.06	0.48
Vol 001: FS 001, 002, 003 and 005	Coal Truck Unloading, Coal Transfer to Bunker, Ash Truck Loading	0.01	0.05	0.01	0.05

SO_2 Modeled Parameters

Identification No.	Source Description	Emission Rate 1-hr; 3-hr-, 24-hr		Emission Rate Annual	
		g/s	lb/hr	g/s	lb/hr
STRU 8 (SV 001); EQUI 5 – EQUI 8 (EUs 001-004)	Boiler Nos. 1 to 4	53.55	425	29.90	237.30

NO_2 Modeled Parameters

Identification No.	Source Description	Emission Rate Annual	
		g/s	lb/hr

STRU 8 (SV 001); EQUI 5 – EQUI 8 (EUs 001-004)	Boiler Nos. 1 to 4	12.80	101.59

Appendix C: Modeled Parameters Relied Upon to Comply with PM_{10}, SO_2 and NO_2 Equivalent or Better Dispersion Modeling Requirement

Modeled Stack Parameters

Identification No.	Source Description	Stack Temp (K)	Stack Exit Velocity (m/s)	Flow (acfm)
STRU 8 (SV 001); EQUI 5 – EQUI 8 (EUs 001-004)	Boiler Nos. 1 to 4	516	7.28	189,721

Stack location, height and diameter did not change.

PM_{10} Modeled Parameters

Identification No.	Operating Scenario	Emission Rate 24-hr		Emission Rate Annual	
		g/s	lb/hr	g/s	lb/hr
STRU 8 (SV 001); EQUI 5 – EQUI 8 (EUs 001-004)	Coal Only	0.96	7.66	0.57	4.54
	80% Coal/20% Wood	0.85	6.75	0.51	4.03

SO_2 Modeled Parameters

Identification No.	Operating Scenario	Emission Rate 1-hr; 3-hr-, 24-hr		Emission Rate Annual	
		g/s	lb/hr	g/s	lb/hr
STRU 8 (SV 001); EQUI 5 – EQUI 8 (EUs 001-004)	Coal Only	53.55	425	29.90	237.30
	80% Coal/20% Wood	68.74	546	24.03	191

NO_2 Modeled Parameters

Identification No.	Operating Scenario	Emission Rate Annual	
		g/s	lb/hr
STRU 8 (SV 001); EQUI 5 – EQUI 8 (EUs 001-004)	Coal Only	12.80	101.59
	80% Coal/20% Wood	11.05	87.7

EBD Modeling Results

Pollutant	Averaging Time	EBD Result
		$\mu g/m^3$
SO_2	1-hr	0.00
	3-hr	0.00
	24-hr	0.00
	Annual	0.00
NO_2	Annual	0.00
PM_{10}	24-hr	0.00

	Annual	0.00

Appendix D: Equations for Wood CO Emissions

The Permittee shall calculate the wood CO emission factor using the following equation:

$$EF_W = \frac{(C + W) \times EF_{CW} - C \times EF_C}{W} \quad \text{(Eq. 1)}$$

Where:

EF_W	=	CO emission factor for wood combustion, in lb CO/MMBtu;
C	=	Amount of coal combusted during wood/coal co-firing performance test specified in the permit, in ton coal;
W	=	Amount of wood combusted during wood/coal co-firing performance test specified in the permit, in ton wood;
EF_{CW}	=	CO emission factor for wood/coal combustion determined during most recently conducted co-firing performance test specified in the permit, in lb CO/MMBtu; and
EF_C	=	CO emission factor for coal combustion determined during most recently conducted coal only performance test specified in the permit, in lb CO/MMBtu.

The Permittee shall calculate the wood CO emissions using the following equation:

$$CO_W = \frac{EF_W \times HHV \times w}{2000\ {}^{lb\ CO}\!/_{ton\ CO}} \quad \text{(Eq. 2)}$$

Where:

CO_W	=	Wood CO emissions, in ton CO;
HHV	=	High heating value for wood fuel from the most recently conducted wood fuel analysis, in MMBtu/ton wood; and
w	=	Weight of wood fed to boiler from daily records, in ton wood.

Appendix E: 40 CFR pt. 63, subp. JJJJJJ Equations

40 CFR § 63.11224(d)(2): 30-day Rolling Average for CPMS Data:

$$30-Day\ Average=\frac{\sum_{i=n}^{n} Hpv_i}{n} \quad \text{(Eq. 1)}$$

Where:

Hpv_i	=	the hourly parameter value for hour *i*; and
n	=	the number of valid hourly parameter values collected over 30 boiler operating days.

40 CFR § 63.11211(c): 90th Percentile Confidence Level Fuel Mercury Concentration:

$$P_{90}=mean+(SD\times t) \quad \text{(Eq. 2)}$$

Where:

P_{90}	=	90th percentile confidence level mercury concentration, in lb/MMBtu;
mean	=	Arithmetic average of the fuel mercury concentration in the fuel samples analyzed according to 40 CFR Section 63.11213, in lb/MMBtu;
SD	=	Standard deviation of the mercury concentration in the fuel samples analyzed according to 40 CFR Section 63.11213, in lb/MMBtu; and
t	=	t distribution critical value for 90th percentile (0.1) probability for the appropriate degrees of freedom (number of samples minus one) as obtained from a Distribution Critical Value Table.

Appendix F: 40 CFR pt. 63, subp. ZZZZ Requirements

40 CFR Part 63, Subpart ZZZZ—National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

§63.6580 What is the purpose of subpart ZZZZ?

Subpart ZZZZ establishes national emission limitations and operating limitations for hazardous air pollutants (HAP) emitted from stationary reciprocating internal combustion engines (RICE) located at major and area sources of HAP emissions. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations and operating limitations.

§63.6585 Am I subject to this subpart?

You are subject to this subpart if you own or operate a stationary RICE at a major or area source of HAP emissions, except if the stationary RICE is being tested at a stationary RICE test cell/stand.

(a) A stationary RICE is any internal combustion engine which uses reciprocating motion to convert heat energy into mechanical work and which is not mobile. Stationary RICE differ from mobile RICE in that a stationary RICE is not a non-road engine as defined at 40 CFR 1068.30, and is not used to propel a motor vehicle or a vehicle used solely for competition.

(b) A major source of HAP emissions is a plant site that emits or has the potential to emit any single HAP at a rate of 10 tons (9.07 megagrams) or more per year or any combination of HAP at a rate of 25 tons (22.68 megagrams) or more per year, except that for oil and gas production facilities, a major source of HAP emissions is determined for each surface site.

(c) An area source of HAP emissions is a source that is not a major source.

(d) If you are an owner or operator of an area source subject to this subpart, your status as an entity subject to a standard or other requirements under this subpart does not subject you to the obligation to obtain a permit under 40 CFR part 70 or 71, provided you are not required to obtain a permit under 40 CFR 70.3(a) or 40 CFR 71.3(a) for a reason other than your status as an area source under this subpart. Notwithstanding the previous sentence, you must continue to comply with the provisions of this subpart as applicable.

(e) If you are an owner or operator of a stationary RICE used for national security purposes, you may be eligible to request an exemption from the requirements of this subpart as described in 40 CFR part 1068, subpart C.

(f) The emergency stationary RICE listed in paragraphs (f)(1) through (3) of this section are not subject to this subpart. The stationary RICE must meet the definition of an emergency stationary RICE in §63.6675, which includes operating according to the provisions specified in §63.6640(f).

(1) Existing residential emergency stationary RICE located at an area source of HAP emissions that do not operate or are not contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii) and that do not operate for the purpose specified in §63.6640(f)(4)(ii).

(2) Existing commercial emergency stationary RICE located at an area source of HAP emissions that do not operate or are not contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii) and that do not operate for the purpose specified in §63.6640(f)(4)(ii).

(3) Existing institutional emergency stationary RICE located at an area source of HAP emissions that do not operate or are not contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii) and that do not operate for the purpose specified in §63.6640(f)(4)(ii).

§63.6590 What parts of my plant does this subpart cover?

This subpart applies to each affected source.

(a) *Affected source.* An affected source is any existing, new, or reconstructed stationary RICE located at a major or area source of HAP emissions, excluding stationary RICE being tested at a stationary RICE test cell/stand.

(1) *Existing stationary RICE.*

(i) For stationary RICE with a site rating of more than 500 brake horsepower (HP) located at a major source of HAP emissions, a stationary RICE is existing if you commenced construction or reconstruction of the stationary RICE before December 19, 2002.

(ii) For stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions, a stationary RICE is existing if you commenced construction or reconstruction of the stationary RICE before June 12, 2006.

(iii) For stationary RICE located at an area source of HAP emissions, a stationary RICE is existing if you commenced construction or reconstruction of the stationary RICE before June 12, 2006.

(iv) A change in ownership of an existing stationary RICE does not make that stationary RICE a new or reconstructed stationary RICE.

(2) *New stationary RICE.*

(i) A stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions is new if you commenced construction of the stationary RICE on or after December 19, 2002.

(ii) A stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions is new if you commenced construction of the stationary RICE on or after June 12, 2006.

(iii) A stationary RICE located at an area source of HAP emissions is new if you commenced construction of the stationary RICE on or after June 12, 2006.

(3) *Reconstructed stationary RICE.*

(i) A stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions is reconstructed if you meet the definition of reconstruction in §63.2 and reconstruction is commenced on or after December 19, 2002.

(ii) A stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions is reconstructed if you meet the definition of reconstruction in §63.2 and reconstruction is commenced on or after June 12, 2006.

(iii) A stationary RICE located at an area source of HAP emissions is reconstructed if you meet the definition of reconstruction in §63.2 and reconstruction is commenced on or after June 12, 2006.

(b) *Stationary RICE subject to limited requirements.*

(1) An affected source which meets either of the criteria in paragraphs (b)(1)(i) through (ii) of this section does not have to meet the requirements of this subpart and of subpart A of this part except for the initial notification requirements of §63.6645(f).

(i) The stationary RICE is a new or reconstructed emergency stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions that does not operate or is not contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii).

(ii) The stationary RICE is a new or reconstructed limited use stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions.

(2) A new or reconstructed stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions which combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis must meet the initial notification requirements of §63.6645(f) and the requirements of §§63.6625(c), 63.6650(g), and 63.6655(c). These stationary RICE do not have to meet the emission limitations and operating limitations of this subpart.

(3) The following stationary RICE do not have to meet the requirements of this subpart and of subpart A of this part, including initial notification requirements:

(i) Existing spark ignition 2 stroke lean burn (2SLB) stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions;

(ii) Existing spark ignition 4 stroke lean burn (4SLB) stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions;

(iii) Existing emergency stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions that does not operate or is not contractually obligated to

be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii).

(iv) Existing limited use stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions;

(v) Existing stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions that combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis;

(c) *Stationary RICE subject to Regulations under 40 CFR Part 60.* An affected source that meets any of the criteria in paragraphs (c)(1) through (7) of this section must meet the requirements of this part by meeting the requirements of 40 CFR part 60 subpart IIII, for compression ignition engines or 40 CFR part 60 subpart JJJJ, for spark ignition engines. No further requirements apply for such engines under this part.

(1) A new or reconstructed stationary RICE located at an area source;

(2) A new or reconstructed 2SLB stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions;

(3) A new or reconstructed 4SLB stationary RICE with a site rating of less than 250 brake HP located at a major source of HAP emissions;

(4) A new or reconstructed spark ignition 4 stroke rich burn (4SRB) stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions;

(5) A new or reconstructed stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions which combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis;

(6) A new or reconstructed emergency or limited use stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions;

(7) A new or reconstructed compression ignition (CI) stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions.

§63.6595 When do I have to comply with this subpart?

(a) *Affected sources.*

(1) If you have an existing stationary RICE, excluding existing non-emergency CI stationary RICE, with a site rating of more than 500 brake HP located at a major source of HAP emissions, you must comply with the applicable emission limitations, operating limitations and other requirements no later than June 15, 2007. If you have an existing non-emergency CI stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, an existing stationary CI RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions, or an existing stationary CI RICE located at an area source of HAP emissions, you must comply with the applicable emission limitations, operating limitations, and other requirements no later than May

3, 2013. If you have an existing stationary SI RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions, or an existing stationary SI RICE located at an area source of HAP emissions, you must comply with the applicable emission limitations, operating limitations, and other requirements no later than October 19, 2013.

(2) If you start up your new or reconstructed stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions before August 16, 2004, you must comply with the applicable emission limitations and operating limitations in this subpart no later than August 16, 2004.

(3) If you start up your new or reconstructed stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions after August 16, 2004, you must comply with the applicable emission limitations and operating limitations in this subpart upon startup of your affected source.

(4) If you start up your new or reconstructed stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions before January 18, 2008, you must comply with the applicable emission limitations and operating limitations in this subpart no later than January 18, 2008.

(5) If you start up your new or reconstructed stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions after January 18, 2008, you must comply with the applicable emission limitations and operating limitations in this subpart upon startup of your affected source.

(6) If you start up your new or reconstructed stationary RICE located at an area source of HAP emissions before January 18, 2008, you must comply with the applicable emission limitations and operating limitations in this subpart no later than January 18, 2008.

(7) If you start up your new or reconstructed stationary RICE located at an area source of HAP emissions after January 18, 2008, you must comply with the applicable emission limitations and operating limitations in this subpart upon startup of your affected source.

(b) *Area sources that become major sources.* If you have an area source that increases its emissions or its potential to emit such that it becomes a major source of HAP, the compliance dates in paragraphs (b)(1) and (2) of this section apply to you.

(1) Any stationary RICE for which construction or reconstruction is commenced after the date when your area source becomes a major source of HAP must be in compliance with this subpart upon startup of your affected source.

(2) Any stationary RICE for which construction or reconstruction is commenced before your area source becomes a major source of HAP must be in compliance with the provisions of this subpart that are applicable to RICE located at major sources within 3 years after your area source becomes a major source of HAP.

(c) If you own or operate an affected source, you must meet the applicable notification requirements in §63.6645 and in 40 CFR part 63, subpart A.

EMISSION AND OPERATING LIMITATIONS

§63.6600 What emission limitations and operating limitations must I meet if I own or operate a stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions?

Compliance with the numerical emission limitations established in this subpart is based on the results of testing the average of three 1-hour runs using the testing requirements and procedures in §63.6620 and Table 4 to this subpart.

(a) If you own or operate an existing, new, or reconstructed spark ignition 4SRB stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you must comply with the emission limitations in Table 1a to this subpart and the operating limitations in Table 1b to this subpart which apply to you.

(b) If you own or operate a new or reconstructed 2SLB stationary RICE with a site rating of more than 500 brake HP located at major source of HAP emissions, a new or reconstructed 4SLB stationary RICE with a site rating of more than 500 brake HP located at major source of HAP emissions, or a new or reconstructed CI stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you must comply with the emission limitations in Table 2a to this subpart and the operating limitations in Table 2b to this subpart which apply to you.

(c) If you own or operate any of the following stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you do not need to comply with the emission limitations in Tables 1a, 2a, 2c, and 2d to this subpart or operating limitations in Tables 1b and 2b to this subpart: an existing 2SLB stationary RICE; an existing 4SLB stationary RICE; a stationary RICE that combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis; an emergency stationary RICE; or a limited use stationary RICE.

(d) If you own or operate an existing non-emergency stationary CI RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you must comply with the emission limitations in Table 2c to this subpart and the operating limitations in Table 2b to this subpart which apply to you.

§63.6601 What emission limitations must I meet if I own or operate a new or reconstructed 4SLB stationary RICE with a site rating of greater than or equal to 250 brake HP and less than or equal to 500 brake HP located at a major source of HAP emissions?

Compliance with the numerical emission limitations established in this subpart is based on the results of testing the average of three 1-hour runs using the testing requirements and procedures in §63.6620 and Table 4 to this subpart. If you own or operate a new or reconstructed 4SLB stationary RICE with a site rating of greater than or equal to 250 and less than or equal to 500 brake HP located at major source of HAP

emissions manufactured on or after January 1, 2008, you must comply with the emission limitations in Table 2a to this subpart and the operating limitations in Table 2b to this subpart which apply to you.

§63.6602 What emission limitations and other requirements must I meet if I own or operate an existing stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions?

If you own or operate an existing stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions, you must comply with the emission limitations and other requirements in Table 2c to this subpart which apply to you. Compliance with the numerical emission limitations established in this subpart is based on the results of testing the average of three 1-hour runs using the testing requirements and procedures in §63.6620 and Table 4 to this subpart.

§63.6603 What emission limitations, operating limitations, and other requirements must I meet if I own or operate an existing stationary RICE located at an area source of HAP emissions?

Compliance with the numerical emission limitations established in this subpart is based on the results of testing the average of three 1-hour runs using the testing requirements and procedures in §63.6620 and Table 4 to this subpart.

(a) If you own or operate an existing stationary RICE located at an area source of HAP emissions, you must comply with the requirements in Table 2d to this subpart and the operating limitations in Table 2b to this subpart that apply to you.

(b) If you own or operate an existing stationary non-emergency CI RICE with a site rating of more than 300 HP located at an area source of HAP that meets either paragraph (b)(1) or (2) of this section, you do not have to meet the numerical CO emission limitations specified in Table 2d of this subpart. Existing stationary non-emergency CI RICE with a site rating of more than 300 HP located at an area source of HAP that meet either paragraph (b)(1) or (2) of this section must meet the management practices that are shown for stationary non-emergency CI RICE with a site rating of less than or equal to 300 HP in Table 2d of this subpart.

(1) The area source is located in an area of Alaska that is not accessible by the Federal Aid Highway System (FAHS).

(2) The stationary RICE is located at an area source that meets paragraphs (b)(2)(i), (ii), and (iii) of this section.

(i) The only connection to the FAHS is through the Alaska Marine Highway System (AMHS), or the stationary RICE operation is within an isolated grid in Alaska that is not connected to the statewide electrical grid referred to as the Alaska Railbelt Grid.

(ii) At least 10 percent of the power generated by the stationary RICE on an annual basis is used for residential purposes.

(iii) The generating capacity of the area source is less than 12 megawatts, or the stationary RICE is used exclusively for backup power for renewable energy.

(c) If you own or operate an existing stationary non-emergency CI RICE with a site rating of more than 300 HP located on an offshore vessel that is an area source of HAP and is a nonroad vehicle that is an Outer Continental Shelf (OCS) source as defined in 40 CFR 55.2, you do not have to meet the numerical CO emission limitations specified in Table 2d of this subpart. You must meet all of the following management practices:

(1) Change oil every 1,000 hours of operation or annually, whichever comes first. Sources have the option to utilize an oil analysis program as described in §63.6625(i) in order to extend the specified oil change requirement.

(2) Inspect and clean air filters every 750 hours of operation or annually, whichever comes first, and replace as necessary.

(3) Inspect fuel filters and belts, if installed, every 750 hours of operation or annually, whichever comes first, and replace as necessary.

(4) Inspect all flexible hoses every 1,000 hours of operation or annually, whichever comes first, and replace as necessary.

(d) If you own or operate an existing non-emergency CI RICE with a site rating of more than 300 HP located at an area source of HAP emissions that is certified to the Tier 1 or Tier 2 emission standards in Table 1 of 40 CFR 89.112 and that is subject to an enforceable state or local standard that requires the engine to be replaced no later than June 1, 2018, you may until January 1, 2015, or 12 years after the installation date of the engine (whichever is later), but not later than June 1, 2018, choose to comply with the management practices that are shown for stationary non-emergency CI RICE with a site rating of less than or equal to 300 HP in Table 2d of this subpart instead of the applicable emission limitations in Table 2d, operating limitations in Table 2b, and crankcase ventilation system requirements in §63.6625(g). You must comply with the emission limitations in Table 2d and operating limitations in Table 2b that apply for non-emergency CI RICE with a site rating of more than 300 HP located at an area source of HAP emissions by January 1, 2015, or 12 years after the installation date of the engine (whichever is later), but not later than June 1, 2018. You must also comply with the crankcase ventilation system requirements in §63.6625(g) by January 1, 2015, or 12 years after the installation date of the engine (whichever is later), but not later than June 1, 2018.

(e) If you own or operate an existing non-emergency CI RICE with a site rating of more than 300 HP located at an area source of HAP emissions that is certified to the Tier 3 (Tier 2 for engines above 560 kilowatt (kW)) emission standards in Table 1 of 40 CFR 89.112, you may comply with the requirements under this part by meeting the requirements for Tier 3 engines (Tier 2 for engines above 560 kW) in 40 CFR part 60 subpart IIII instead of the emission limitations and other requirements that would otherwise apply under this part for existing non-emergency CI RICE with a site rating of more than 300 HP located at an area source of HAP emissions.

(f) An existing non-emergency SI 4SLB and 4SRB stationary RICE with a site rating of more than 500 HP located at area sources of HAP must meet the definition of remote stationary RICE in §63.6675 on the initial compliance date for the engine, October 19, 2013, in order to be considered a remote stationary

RICE under this subpart. Owners and operators of existing non-emergency SI 4SLB and 4SRB stationary RICE with a site rating of more than 500 HP located at area sources of HAP that meet the definition of remote stationary RICE in §63.6675 of this subpart as of October 19, 2013 must evaluate the status of their stationary RICE every 12 months. Owners and operators must keep records of the initial and annual evaluation of the status of the engine. If the evaluation indicates that the stationary RICE no longer meets the definition of remote stationary RICE in §63.6675 of this subpart, the owner or operator must comply with all of the requirements for existing non-emergency SI 4SLB and 4SRB stationary RICE with a site rating of more than 500 HP located at area sources of HAP that are not remote stationary RICE within 1 year of the evaluation.

§63.6604 What fuel requirements must I meet if I own or operate a stationary CI RICE?

(a) If you own or operate an existing non-emergency, non-black start CI stationary RICE with a site rating of more than 300 brake HP with a displacement of less than 30 liters per cylinder that uses diesel fuel, you must use diesel fuel that meets the requirements in 40 CFR 80.510(b) for nonroad diesel fuel.

(b) Beginning January 1, 2015, if you own or operate an existing emergency CI stationary RICE with a site rating of more than 100 brake HP and a displacement of less than 30 liters per cylinder that uses diesel fuel and operates or is contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii) or that operates for the purpose specified in §63.6640(f)(4)(ii), you must use diesel fuel that meets the requirements in 40 CFR 80.510(b) for nonroad diesel fuel, except that any existing diesel fuel purchased (or otherwise obtained) prior to January 1, 2015, may be used until depleted.

(c) Beginning January 1, 2015, if you own or operate a new emergency CI stationary RICE with a site rating of more than 500 brake HP and a displacement of less than 30 liters per cylinder located at a major source of HAP that uses diesel fuel and operates or is contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii), you must use diesel fuel that meets the requirements in 40 CFR 80.510(b) for nonroad diesel fuel, except that any existing diesel fuel purchased (or otherwise obtained) prior to January 1, 2015, may be used until depleted.

(d) Existing CI stationary RICE located in Guam, American Samoa, the Commonwealth of the Northern Mariana Islands, at area sources in areas of Alaska that meet either §63.6603(b)(1) or §63.6603(b)(2), or are on offshore vessels that meet §63.6603(c) are exempt from the requirements of this section.

GENERAL COMPLIANCE REQUIREMENTS

§63.6605 What are my general requirements for complying with this subpart?

(a) You must be in compliance with the emission limitations, operating limitations, and other requirements in this subpart that apply to you at all times.

(b) At all times you must operate and maintain any affected source, 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 you to make 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.

TESTING AND INITIAL COMPLIANCE REQUIREMENTS

§63.6610 By what date must I conduct the initial performance tests or other initial compliance demonstrations if I own or operate a stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions?

If you own or operate a stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions you are subject to the requirements of this section.

(a) You must conduct the initial performance test or other initial compliance demonstrations in Table 4 to this subpart that apply to you within 180 days after the compliance date that is specified for your stationary RICE in §63.6595 and according to the provisions in §63.7(a)(2).

(b) If you commenced construction or reconstruction between December 19, 2002 and June 15, 2004 and own or operate stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you must demonstrate initial compliance with either the proposed emission limitations or the promulgated emission limitations no later than February 10, 2005 or no later than 180 days after startup of the source, whichever is later, according to §63.7(a)(2)(ix).

(c) If you commenced construction or reconstruction between December 19, 2002 and June 15, 2004 and own or operate stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, and you chose to comply with the proposed emission limitations when demonstrating initial compliance, you must conduct a second performance test to demonstrate compliance with the promulgated emission limitations by December 13, 2007 or after startup of the source, whichever is later, according to §63.7(a)(2)(ix).

(d) An owner or operator is not required to conduct an initial performance test on units for which a performance test has been previously conducted, but the test must meet all of the conditions described in paragraphs (d)(1) through (5) of this section.

(1) The test must have been conducted using the same methods specified in this subpart, and these methods must have been followed correctly.

(2) The test must not be older than 2 years.

(3) The test must be reviewed and accepted by the Administrator.

(4) Either no process or equipment changes must have been made since the test was performed, or the owner or operator must be able to demonstrate that the results of the performance test, with or without adjustments, reliably demonstrate compliance despite process or equipment changes.

(5) The test must be conducted at any load condition within plus or minus 10 percent of 100 percent load.

§63.6611 By what date must I conduct the initial performance tests or other initial compliance demonstrations if I own or operate a new or reconstructed 4SLB SI stationary RICE with a site rating of greater than or equal to 250 and less than or equal to 500 brake HP located at a major source of HAP emissions?

If you own or operate a new or reconstructed 4SLB stationary RICE with a site rating of greater than or equal to 250 and less than or equal to 500 brake HP located at a major source of HAP emissions, you must conduct an initial performance test within 240 days after the compliance date that is specified for your stationary RICE in §63.6595 and according to the provisions specified in Table 4 to this subpart, as appropriate.

§63.6612 By what date must I conduct the initial performance tests or other initial compliance demonstrations if I own or operate an existing stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions or an existing stationary RICE located at an area source of HAP emissions?

If you own or operate an existing stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions or an existing stationary RICE located at an area source of HAP emissions you are subject to the requirements of this section.

(a) You must conduct any initial performance test or other initial compliance demonstration according to Tables 4 and 5 to this subpart that apply to you within 180 days after the compliance date that is specified for your stationary RICE in §63.6595 and according to the provisions in §63.7(a)(2).

(b) An owner or operator is not required to conduct an initial performance test on a unit for which a performance test has been previously conducted, but the test must meet all of the conditions described in paragraphs (b)(1) through (4) of this section.

(1) The test must have been conducted using the same methods specified in this subpart, and these methods must have been followed correctly.

(2) The test must not be older than 2 years.

(3) The test must be reviewed and accepted by the Administrator.

(4) Either no process or equipment changes must have been made since the test was performed, or the owner or operator must be able to demonstrate that the results of the performance test, with or without adjustments, reliably demonstrate compliance despite process or equipment changes.

§63.6615 When must I conduct subsequent performance tests?

If you must comply with the emission limitations and operating limitations, you must conduct subsequent performance tests as specified in Table 3 of this subpart.

§63.6620 What performance tests and other procedures must I use?

(a) You must conduct each performance test in Tables 3 and 4 of this subpart that applies to you.

(b) Each performance test must be conducted according to the requirements that this subpart specifies in Table 4 to this subpart. If you own or operate a non-operational stationary RICE that is subject to performance testing, you do not need to start up the engine solely to conduct the performance test. Owners and operators of a non-operational engine can conduct the performance test when the engine is started up again. The test must be conducted at any load condition within plus or minus 10 percent of 100 percent load for the stationary RICE listed in paragraphs (b)(1) through (4) of this section.

(1) Non-emergency 4SRB stationary RICE with a site rating of greater than 500 brake HP located at a major source of HAP emissions.

(2) New non-emergency 4SLB stationary RICE with a site rating of greater than or equal to 250 brake HP located at a major source of HAP emissions.

(3) New non-emergency 2SLB stationary RICE with a site rating of greater than 500 brake HP located at a major source of HAP emissions.

(4) New non-emergency CI stationary RICE with a site rating of greater than 500 brake HP located at a major source of HAP emissions.

(c) [Reserved]

(d) You must conduct three separate test runs for each performance test required in this section, as specified in §63.7(e)(3). Each test run must last at least 1 hour, unless otherwise specified in this subpart.

(e)(1) You must use Equation 1 of this section to determine compliance with the percent reduction requirement:

$$\frac{C_i - C_o}{C_i} \times 100 = R \quad (Eq.\ 1)$$

Where:

C_i = concentration of carbon monoxide (CO), total hydrocarbons (THC), or formaldehyde at the control device inlet,

C_o = concentration of CO, THC, or formaldehyde at the control device outlet, and

R = percent reduction of CO, THC, or formaldehyde emissions.

(2) You must normalize the CO, THC, or formaldehyde concentrations at the inlet and outlet of the control device to a dry basis and to 15 percent oxygen, or an equivalent percent carbon dioxide (CO_2). If pollutant concentrations are to be corrected to 15 percent oxygen and CO_2 concentration is

measured in lieu of oxygen concentration measurement, a CO_2 correction factor is needed. Calculate the CO_2 correction factor as described in paragraphs (e)(2)(i) through (iii) of this section.

(i) Calculate the fuel-specific F_o value for the fuel burned during the test using values obtained from Method 19, Section 5.2, and the following equation:

$$F_o = \frac{0.209\ F_d}{F_c} \quad (Eq.\ 2)$$

Where:

F_o = Fuel factor based on the ratio of oxygen volume to the ultimate CO_2 volume produced by the fuel at zero percent excess air.

0.209 = Fraction of air that is oxygen, percent/100.

F_d = Ratio of the volume of dry effluent gas to the gross calorific value of the fuel from Method 19, dsm^3/J ($dscf/10^6$ Btu).

F_c = Ratio of the volume of CO_2 produced to the gross calorific value of the fuel from Method 19, dsm^3/J ($dscf/10^6$ Btu)

(ii) Calculate the CO_2 correction factor for correcting measurement data to 15 percent O_2, as follows:

$$X_{CO2} = \frac{5.9}{F_o} \quad (Eq.\ 3)$$

Where:

X_{CO2} = CO_2 correction factor, percent.

5.9 = 20.9 percent O_2—15 percent O_2, the defined O_2 correction value, percent.

(iii) Calculate the CO, THC, and formaldehyde gas concentrations adjusted to 15 percent O_2 using CO_2 as follows:

$$C_{adj} = C_d \frac{X_{CO2}}{\%CO_2} \quad (Eq.\ 4)$$

Where:

C_{adj} = Calculated concentration of CO, THC, or formaldehyde adjusted to 15 percent O_2.

C_d = Measured concentration of CO, THC, or formaldehyde, uncorrected.

X_{CO2} = CO_2 correction factor, percent.

$\%CO_2$ = Measured CO_2 concentration measured, dry basis, percent.

(f) If you comply with the emission limitation to reduce CO and you are not using an oxidation catalyst, if you comply with the emission limitation to reduce formaldehyde and you are not using NSCR, or if you comply with the emission limitation to limit the concentration of formaldehyde in the stationary RICE exhaust and you are not using an oxidation catalyst or NSCR, you must petition the Administrator for operating limitations to be established during the initial performance test and continuously

monitored thereafter; or for approval of no operating limitations. You must not conduct the initial performance test until after the petition has been approved by the Administrator.

(g) If you petition the Administrator for approval of operating limitations, your petition must include the information described in paragraphs (g)(1) through (5) of this section.

(1) Identification of the specific parameters you propose to use as operating limitations;

(2) A discussion of the relationship between these parameters and HAP emissions, identifying how HAP emissions change with changes in these parameters, and how limitations on these parameters will serve to limit HAP emissions;

(3) A discussion of how you will establish the upper and/or lower values for these parameters which will establish the limits on these parameters in the operating limitations;

(4) A discussion identifying the methods you will use to measure and the instruments you will use to monitor these parameters, as well as the relative accuracy and precision of these methods and instruments; and

(5) A discussion identifying the frequency and methods for recalibrating the instruments you will use for monitoring these parameters.

(h) If you petition the Administrator for approval of no operating limitations, your petition must include the information described in paragraphs (h)(1) through (7) of this section.

(1) Identification of the parameters associated with operation of the stationary RICE and any emission control device which could change intentionally (*e.g.,* operator adjustment, automatic controller adjustment, etc.) or unintentionally (*e.g.,* wear and tear, error, etc.) on a routine basis or over time;

(2) A discussion of the relationship, if any, between changes in the parameters and changes in HAP emissions;

(3) For the parameters which could change in such a way as to increase HAP emissions, a discussion of whether establishing limitations on the parameters would serve to limit HAP emissions;

(4) For the parameters which could change in such a way as to increase HAP emissions, a discussion of how you could establish upper and/or lower values for the parameters which would establish limits on the parameters in operating limitations;

(5) For the parameters, a discussion identifying the methods you could use to measure them and the instruments you could use to monitor them, as well as the relative accuracy and precision of the methods and instruments;

(6) For the parameters, a discussion identifying the frequency and methods for recalibrating the instruments you could use to monitor them; and

(7) A discussion of why, from your point of view, it is infeasible or unreasonable to adopt the parameters as operating limitations.

(i) The engine percent load during a performance test must be determined by documenting the calculations, assumptions, and measurement devices used to measure or estimate the percent load in a specific application. A written report of the average percent load determination must be included in the notification of compliance status. The following information must be included in the written report: the engine model number, the engine manufacturer, the year of purchase, the manufacturer's site-rated brake horsepower, the ambient temperature, pressure, and humidity during the performance test, and all assumptions that were made to estimate or calculate percent load during the performance test must be clearly explained. If measurement devices such as flow meters, kilowatt meters, beta analyzers, stain gauges, etc. are used, the model number of the measurement device, and an estimate of its accurate in percentage of true value must be provided.

§63.6625 What are my monitoring, installation, collection, operation, and maintenance requirements?

(a) If you elect to install a CEMS as specified in Table 5 of this subpart, you must install, operate, and maintain a CEMS to monitor CO and either O_2 or CO_2 according to the requirements in paragraphs (a)(1) through (4) of this section. If you are meeting a requirement to reduce CO emissions, the CEMS must be installed at both the inlet and outlet of the control device. If you are meeting a requirement to limit the concentration of CO, the CEMS must be installed at the outlet of the control device.

(1) Each CEMS must be installed, operated, and maintained according to the applicable performance specifications of 40 CFR part 60, appendix B.

(2) You must conduct an initial performance evaluation and an annual relative accuracy test audit (RATA) of each CEMS according to the requirements in §63.8 and according to the applicable performance specifications of 40 CFR part 60, appendix B as well as daily and periodic data quality checks in accordance with 40 CFR part 60, appendix F, procedure 1.

(3) As specified in §63.8(c)(4)(ii), each CEMS must complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period. You must have at least two data points, with each representing a different 15-minute period, to have a valid hour of data.

(4) The CEMS data must be reduced as specified in §63.8(g)(2) and recorded in parts per million or parts per billion (as appropriate for the applicable limitation) at 15 percent oxygen or the equivalent CO_2 concentration.

(b) If you are required to install a continuous parameter monitoring system (CPMS) as specified in Table 5 of this subpart, you must install, operate, and maintain each CPMS according to the requirements in paragraphs (b)(1) through (6) of this section. For an affected source that is complying with the emission limitations and operating limitations on March 9, 2011, the requirements in paragraph (b) of this section are applicable September 6, 2011.

(1) You must prepare a site-specific monitoring plan that addresses the monitoring system design, data collection, and the quality assurance and quality control elements outlined in paragraphs (b)(1)(i) through (v) of this section and in §63.8(d). As specified in §63.8(f)(4), you may request

approval of monitoring system quality assurance and quality control procedures alternative to those specified in paragraphs (b)(1) through (5) of this section in your site-specific monitoring plan.

(i) The performance criteria and design specifications for the monitoring system equipment, including the sample interface, detector signal analyzer, and data acquisition and calculations;

(ii) Sampling interface (*e.g.,* thermocouple) location such that the monitoring system will provide representative measurements;

(iii) Equipment performance evaluations, system accuracy audits, or other audit procedures;

(iv) Ongoing operation and maintenance procedures in accordance with provisions in §63.8(c)(1)(ii) and (c)(3); and

(v) Ongoing reporting and recordkeeping procedures in accordance with provisions in §63.10(c), (e)(1), and (e)(2)(i).

(2) You must install, operate, and maintain each CPMS in continuous operation according to the procedures in your site-specific monitoring plan.

(3) The CPMS must collect data at least once every 15 minutes (see also §63.6635).

(4) For a CPMS for measuring temperature range, the temperature sensor must have a minimum tolerance of 2.8 degrees Celsius (5 degrees Fahrenheit) or 1 percent of the measurement range, whichever is larger.

(5) You must conduct the CPMS equipment performance evaluation, system accuracy audits, or other audit procedures specified in your site-specific monitoring plan at least annually.

(6) You must conduct a performance evaluation of each CPMS in accordance with your site-specific monitoring plan.

(c) If you are operating a new or reconstructed stationary RICE which fires landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, you must monitor and record your fuel usage daily with separate fuel meters to measure the volumetric flow rate of each fuel. In addition, you must operate your stationary RICE in a manner which reasonably minimizes HAP emissions.

(d) If you are operating a new or reconstructed emergency 4SLB stationary RICE with a site rating of greater than or equal to 250 and less than or equal to 500 brake HP located at a major source of HAP emissions, you must install a non-resettable hour meter prior to the startup of the engine.

(e) If you own or operate any of the following stationary RICE, you must operate and maintain the stationary RICE and after-treatment control device (if any) according to the manufacturer's emission-related written instructions or develop your own maintenance plan 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:

(1) An existing stationary RICE with a site rating of less than 100 HP located at a major source of HAP emissions;

(2) An existing emergency or black start stationary RICE with a site rating of less than or equal to 500 HP located at a major source of HAP emissions;

(3) An existing emergency or black start stationary RICE located at an area source of HAP emissions;

(4) An existing non-emergency, non-black start stationary CI RICE with a site rating less than or equal to 300 HP located at an area source of HAP emissions;

(5) An existing non-emergency, non-black start 2SLB stationary RICE located at an area source of HAP emissions;

(6) An existing non-emergency, non-black start stationary RICE located at an area source of HAP emissions which combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis.

(7) An existing non-emergency, non-black start 4SLB stationary RICE with a site rating less than or equal to 500 HP located at an area source of HAP emissions;

(8) An existing non-emergency, non-black start 4SRB stationary RICE with a site rating less than or equal to 500 HP located at an area source of HAP emissions;

(9) An existing, non-emergency, non-black start 4SLB stationary RICE with a site rating greater than 500 HP located at an area source of HAP emissions that is operated 24 hours or less per calendar year; and

(10) An existing, non-emergency, non-black start 4SRB stationary RICE with a site rating greater than 500 HP located at an area source of HAP emissions that is operated 24 hours or less per calendar year.

(f) If you own or operate an existing emergency stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions or an existing emergency stationary RICE located at an area source of HAP emissions, you must install a non-resettable hour meter if one is not already installed.

(g) If you own or operate an existing non-emergency, non-black start CI engine greater than or equal to 300 HP that is not equipped with a closed crankcase ventilation system, you must comply with either paragraph (g)(1) or paragraph (2) of this section. Owners and operators must follow the manufacturer's specified maintenance requirements for operating and maintaining the open or closed crankcase ventilation systems and replacing the crankcase filters, or can request the Administrator to approve different maintenance requirements that are as protective as manufacturer requirements. Existing CI engines located at area sources in areas of Alaska that meet either §63.6603(b)(1) or §63.6603(b)(2) do not have to meet the requirements of this paragraph (g). Existing CI engines located on offshore vessels that meet §63.6603(c) do not have to meet the requirements of this paragraph (g).

(1) Install a closed crankcase ventilation system that prevents crankcase emissions from being emitted to the atmosphere, or

(2) Install an open crankcase filtration emission control system that reduces emissions from the crankcase by filtering the exhaust stream to remove oil mist, particulates and metals.

(h) If you operate a new, reconstructed, or existing stationary engine, you must minimize the engine's time spent at idle during startup and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the emission standards applicable to all times other than startup in Tables 1a, 2a, 2c, and 2d to this subpart apply.

(i) If you own or operate a stationary CI engine that is subject to the work, operation or management practices in items 1 or 2 of Table 2c to this subpart or in items 1 or 4 of Table 2d to this subpart, you have the option of utilizing an oil analysis program in order to extend the specified oil change requirement in Tables 2c and 2d to this subpart. The oil analysis must be performed at the same frequency specified for changing the oil in Table 2c or 2d to this subpart. The analysis program must at a minimum analyze the following three parameters: Total Base Number, viscosity, and percent water content. The condemning limits for these parameters are as follows: Total Base Number is less than 30 percent of the Total Base Number of the oil when new; viscosity of the oil has changed by more than 20 percent from the viscosity of the oil when new; or percent water content (by volume) is greater than 0.5. If all of these condemning limits are not exceeded, the engine owner or operator is not required to change the oil. If any of the limits are exceeded, the engine owner or operator must change the oil within 2 business days of receiving the results of the analysis; if the engine is not in operation when the results of the analysis are received, the engine owner or operator must change the oil within 2 business days or before commencing operation, whichever is later. The owner or operator must keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for the engine. The analysis program must be part of the maintenance plan for the engine.

(j) If you own or operate a stationary SI engine that is subject to the work, operation or management practices in items 6, 7, or 8 of Table 2c to this subpart or in items 5, 6, 7, 9, or 11 of Table 2d to this subpart, you have the option of utilizing an oil analysis program in order to extend the specified oil change requirement in Tables 2c and 2d to this subpart. The oil analysis must be performed at the same frequency specified for changing the oil in Table 2c or 2d to this subpart. The analysis program must at a minimum analyze the following three parameters: Total Acid Number, viscosity, and percent water content. The condemning limits for these parameters are as follows: Total Acid Number increases by more than 3.0 milligrams of potassium hydroxide (KOH) per gram from Total Acid Number of the oil when new; viscosity of the oil has changed by more than 20 percent from the viscosity of the oil when new; or percent water content (by volume) is greater than 0.5. If all of these condemning limits are not exceeded, the engine owner or operator is not required to change the oil. If any of the limits are exceeded, the engine owner or operator must change the oil within 2 business days of receiving the results of the analysis; if the engine is not in operation when the results of the analysis are received, the engine owner or operator must change the oil within 2 business days or before commencing operation, whichever is later. The owner or operator must keep records of the

parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for the engine. The analysis program must be part of the maintenance plan for the engine.

§63.6630 How do I demonstrate initial compliance with the emission limitations, operating limitations, and other requirements?

(a) You must demonstrate initial compliance with each emission limitation, operating limitation, and other requirement that applies to you according to Table 5 of this subpart.

(b) During the initial performance test, you must establish each operating limitation in Tables 1b and 2b of this subpart that applies to you.

(c) You must submit the Notification of Compliance Status containing the results of the initial compliance demonstration according to the requirements in §63.6645.

(d) Non-emergency 4SRB stationary RICE complying with the requirement to reduce formaldehyde emissions by 76 percent or more can demonstrate initial compliance with the formaldehyde emission limit by testing for THC instead of formaldehyde. The testing must be conducted according to the requirements in Table 4 of this subpart. The average reduction of emissions of THC determined from the performance test must be equal to or greater than 30 percent.

(e) The initial compliance demonstration required for existing non-emergency 4SLB and 4SRB stationary RICE with a site rating of more than 500 HP located at an area source of HAP that are not remote stationary RICE and that are operated more than 24 hours per calendar year must be conducted according to the following requirements:

(1) The compliance demonstration must consist of at least three test runs.

(2) Each test run must be of at least 15 minute duration, except that each test conducted using the method in appendix A to this subpart must consist of at least one measurement cycle and include at least 2 minutes of test data phase measurement.

(3) If you are demonstrating compliance with the CO concentration or CO percent reduction requirement, you must measure CO emissions using one of the CO measurement methods specified in Table 4 of this subpart, or using appendix A to this subpart.

(4) If you are demonstrating compliance with the THC percent reduction requirement, you must measure THC emissions using Method 25A, reported as propane, of 40 CFR part 60, appendix A.

(5) You must measure O_2 using one of the O_2 measurement methods specified in Table 4 of this subpart. Measurements to determine O_2 concentration must be made at the same time as the measurements for CO or THC concentration.

(6) If you are demonstrating compliance with the CO or THC percent reduction requirement, you must measure CO or THC emissions and O_2 emissions simultaneously at the inlet and outlet of the control device.

CONTINUOUS COMPLIANCE REQUIREMENTS

§63.6635 How do I monitor and collect data to demonstrate continuous compliance?

(a) If you must comply with emission and operating limitations, you must monitor and collect data according to this section.

(b) Except for monitor malfunctions, associated repairs, required performance evaluations, and required quality assurance or control activities, you must monitor continuously at all times that the stationary RICE is operating. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions.

(c) You may not use data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities in data averages and calculations used to report emission or operating levels. You must, however, use all the valid data collected during all other periods.

§63.6640 How do I demonstrate continuous compliance with the emission limitations, operating limitations, and other requirements?

(a) You must demonstrate continuous compliance with each emission limitation, operating limitation, and other requirements in Tables 1a and 1b, Tables 2a and 2b, Table 2c, and Table 2d to this subpart that apply to you according to methods specified in Table 6 to this subpart.

(b) You must report each instance in which you did not meet each emission limitation or operating limitation in Tables 1a and 1b, Tables 2a and 2b, Table 2c, and Table 2d to this subpart that apply to you. These instances are deviations from the emission and operating limitations in this subpart. These deviations must be reported according to the requirements in §63.6650. If you change your catalyst, you must reestablish the values of the operating parameters measured during the initial performance test. When you reestablish the values of your operating parameters, you must also conduct a performance test to demonstrate that you are meeting the required emission limitation applicable to your stationary RICE.

(c) The annual compliance demonstration required for existing non-emergency 4SLB and 4SRB stationary RICE with a site rating of more than 500 HP located at an area source of HAP that are not remote stationary RICE and that are operated more than 24 hours per calendar year must be conducted according to the following requirements:

(1) The compliance demonstration must consist of at least one test run.

(2) Each test run must be of at least 15 minute duration, except that each test conducted using the method in appendix A to this subpart must consist of at least one measurement cycle and include at least 2 minutes of test data phase measurement.

(3) If you are demonstrating compliance with the CO concentration or CO percent reduction requirement, you must measure CO emissions using one of the CO measurement methods specified in Table 4 of this subpart, or using appendix A to this subpart.

(4) If you are demonstrating compliance with the THC percent reduction requirement, you must measure THC emissions using Method 25A, reported as propane, of 40 CFR part 60, appendix A.

(5) You must measure O_2 using one of the O_2 measurement methods specified in Table 4 of this subpart. Measurements to determine O_2 concentration must be made at the same time as the measurements for CO or THC concentration.

(6) If you are demonstrating compliance with the CO or THC percent reduction requirement, you must measure CO or THC emissions and O_2 emissions simultaneously at the inlet and outlet of the control device.

(7) If the results of the annual compliance demonstration show that the emissions exceed the levels specified in Table 6 of this subpart, the stationary RICE must be shut down as soon as safely possible, and appropriate corrective action must be taken (e.g., repairs, catalyst cleaning, catalyst replacement). The stationary RICE must be retested within 7 days of being restarted and the emissions must meet the levels specified in Table 6 of this subpart. If the retest shows that the emissions continue to exceed the specified levels, the stationary RICE must again be shut down as soon as safely possible, and the stationary RICE may not operate, except for purposes of startup and testing, until the owner/operator demonstrates through testing that the emissions do not exceed the levels specified in Table 6 of this subpart.

(d) For new, reconstructed, and rebuilt stationary RICE, deviations from the emission or operating limitations that occur during the first 200 hours of operation from engine startup (engine burn-in period) are not violations. Rebuilt stationary RICE means a stationary RICE that has been rebuilt as that term is defined in 40 CFR 94.11(a).

(e) You must also report each instance in which you did not meet the requirements in Table 8 to this subpart that apply to you. If you own or operate a new or reconstructed stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions (except new or reconstructed 4SLB engines greater than or equal to 250 and less than or equal to 500 brake HP), a new or reconstructed stationary RICE located at an area source of HAP emissions, or any of the following RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you do not need to comply with the requirements in Table 8 to this subpart: An existing 2SLB stationary RICE, an existing 4SLB stationary RICE, an existing emergency stationary RICE, an existing limited use stationary RICE, or an existing stationary RICE which fires landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis. If you own or operate any of the following RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you do not need to comply with the requirements in Table 8 to this subpart, except for the initial notification requirements: a new or reconstructed stationary RICE that combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, a new or reconstructed emergency stationary RICE, or a new or reconstructed limited use stationary RICE.

(f) If you own or operate an emergency stationary RICE, you must operate the emergency stationary RICE according to the requirements in paragraphs (f)(1) through (4) of this section. 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 paragraphs (f)(1) through (4) of this section, is prohibited. If you do not operate the engine according to the requirements in paragraphs (f)(1) through (4) of this section, the engine will not be considered an emergency engine under this subpart and must meet all requirements for non-emergency engines.

(1) There is no time limit on the use of emergency stationary RICE in emergency situations.

(2) You may operate your emergency stationary RICE for any combination of the purposes specified in paragraphs (f)(2)(i) through (iii) of this section for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by paragraphs (f)(3) and (4) of this section counts as part of the 100 hours per calendar year allowed by this paragraph (f)(2).

(i) Emergency stationary RICE may be operated for maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that federal, state, or local standards require maintenance and testing of emergency RICE beyond 100 hours per calendar year.

~~(ii) Emergency stationary RICE may be operated for emergency demand response for periods in which the Reliability Coordinator under the North American Electric Reliability Corporation (NERC) Reliability Standard EOP-002-3, Capacity and Energy Emergencies (incorporated by reference, see §63.14), or other authorized entity as determined by the Reliability Coordinator, has declared an Energy Emergency Alert Level 2 as defined in the NERC Reliability Standard EOP-002-3.~~ [vacated by May 4, 2016 court mandate]

~~(iii) Emergency stationary RICE may be operated for periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency~~. [vacated by May 4, 2016 court mandate]

(3) Emergency stationary RICE located at major sources of HAP may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response provided in paragraph (f)(2) of this section. The 50 hours per 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.

(4) Emergency stationary RICE located at area sources of HAP may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and

emergency demand response provided in paragraph (f)(2) of this section. Except as provided in paragraphs (f)(4)(i) and (ii) of this section, the 50 hours per year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

(i) Prior to May 3, 2014, the 50 hours per year for non-emergency situations can be used for peak shaving or non-emergency demand response to generate income for a facility, or to otherwise supply power as part of a financial arrangement with another entity if the engine is operated as part of a peak shaving (load management program) with the local distribution system operator and the power is provided only to the facility itself or to support the local distribution system.

(ii) The 50 hours per year for non-emergency situations can be used to supply power as part of a financial arrangement with another entity if all of the following conditions are met:

(A) The engine is dispatched by the local balancing authority or local transmission and distribution system operator.

(B) The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region.

(C) The dispatch follows reliability, emergency operation or similar protocols that follow specific NERC, regional, state, public utility commission or local standards or guidelines.

(D) The power is provided only to the facility itself or to support the local transmission and distribution system.

(E) The owner or operator identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching the engine. The local balancing authority or local transmission and distribution system operator may keep these records on behalf of the engine owner or operator.

NOTIFICATIONS, REPORTS, AND RECORDS

§63.6645 What notifications must I submit and when?

(a) You must submit all of the notifications in §§63.7(b) and (c), 63.8(e), (f)(4) and (f)(6), 63.9(b) through (e), and (g) and (h) that apply to you by the dates specified if you own or operate any of the following;

(1) An existing stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions.

(2) An existing stationary RICE located at an area source of HAP emissions.

(3) A stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions.

(4) A new or reconstructed 4SLB stationary RICE with a site rating of greater than or equal to 250 HP located at a major source of HAP emissions.

(5) This requirement does not apply if you own or operate an existing stationary RICE less than 100 HP, an existing stationary emergency RICE, or an existing stationary RICE that is not subject to any numerical emission standards.

(b) As specified in §63.9(b)(2), if you start up your stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions before the effective date of this subpart, you must submit an Initial Notification not later than December 13, 2004.

(c) If you start up your new or reconstructed stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions on or after August 16, 2004, you must submit an Initial Notification not later than 120 days after you become subject to this subpart.

(d) As specified in §63.9(b)(2), if you start up your stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions before the effective date of this subpart and you are required to submit an initial notification, you must submit an Initial Notification not later than July 16, 2008.

(e) If you start up your new or reconstructed stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions on or after March 18, 2008 and you are required to submit an initial notification, you must submit an Initial Notification not later than 120 days after you become subject to this subpart.

(f) If you are required to submit an Initial Notification but are otherwise not affected by the requirements of this subpart, in accordance with §63.6590(b), your notification should include the information in §63.9(b)(2)(i) through (v), and a statement that your stationary RICE has no additional requirements and explain the basis of the exclusion (for example, that it operates exclusively as an emergency stationary RICE if it has a site rating of more than 500 brake HP located at a major source of HAP emissions).

(g) If you are required to conduct a performance test, you must submit a Notification of Intent to conduct a performance test at least 60 days before the performance test is scheduled to begin as required in §63.7(b)(1).

(h) If you are required to conduct a performance test or other initial compliance demonstration as specified in Tables 4 and 5 to this subpart, you must submit a Notification of Compliance Status according to §63.9(h)(2)(ii).

(1) For each initial compliance demonstration required in Table 5 to this subpart that does not include a performance test, you must submit the Notification of Compliance Status before the close of business on the 30th day following the completion of the initial compliance demonstration.

(2) For each initial compliance demonstration required in Table 5 to this subpart that includes a performance test conducted according to the requirements in Table 3 to this subpart, you must submit the Notification of Compliance Status, including the performance test results, before the close of business on the 60th day following the completion of the performance test according to §63.10(d)(2).

(i) If you own or operate an existing non-emergency CI RICE with a site rating of more than 300 HP located at an area source of HAP emissions that is certified to the Tier 1 or Tier 2 emission standards in Table 1 of 40 CFR 89.112 and subject to an enforceable state or local standard requiring engine replacement and you intend to meet management practices rather than emission limits, as specified in §63.6603(d), you must submit a notification by March 3, 2013, stating that you intend to use the provision in §63.6603(d) and identifying the state or local regulation that the engine is subject to.

§63.6650 What reports must I submit and when?

(a) You must submit each report in Table 7 of this subpart that applies to you.

(b) Unless the Administrator has approved a different schedule for submission of reports under §63.10(a), you must submit each report by the date in Table 7 of this subpart and according to the requirements in paragraphs (b)(1) through (b)(9) of this section.

(1) For semiannual Compliance reports, the first Compliance report must cover the period beginning on the compliance date that is specified for your affected source in §63.6595 and ending on June 30 or December 31, whichever date is the first date following the end of the first calendar half after the compliance date that is specified for your source in §63.6595.

(2) For semiannual Compliance reports, the first Compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date follows the end of the first calendar half after the compliance date that is specified for your affected source in §63.6595.

(3) For semiannual Compliance reports, each subsequent Compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31.

(4) For semiannual Compliance reports, each subsequent Compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date is the first date following the end of the semiannual reporting period.

(5) For each stationary RICE that is subject to permitting regulations pursuant to 40 CFR part 70 or 71, and if the permitting authority has established dates for submitting semiannual reports pursuant to 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6 (a)(3)(iii)(A), you may submit the first and subsequent Compliance reports according to the dates the permitting authority has established instead of according to the dates in paragraphs (b)(1) through (b)(4) of this section.

(6) For annual Compliance reports, the first Compliance report must cover the period beginning on the compliance date that is specified for your affected source in §63.6595 and ending on December 31.

(7) For annual Compliance reports, the first Compliance report must be postmarked or delivered no later than January 31 following the end of the first calendar year after the compliance date that is specified for your affected source in §63.6595.

(8) For annual Compliance reports, each subsequent Compliance report must cover the annual reporting period from January 1 through December 31.

(9) For annual Compliance reports, each subsequent Compliance report must be postmarked or delivered no later than January 31.

(c) The Compliance report must contain the information in paragraphs (c)(1) through (6) of this section.

(1) Company name and address.

(2) Statement by a responsible official, with that official's name, title, and signature, certifying the accuracy of the content of the report.

(3) Date of report and beginning and ending dates of the reporting period.

(4) If you had a malfunction during the reporting period, the compliance report must include the number, duration, and a brief description for each type of malfunction which occurred during the reporting period and which caused or may have caused any applicable emission limitation to be exceeded. The report must also include a description of actions taken by an owner or operator during a malfunction of an affected source to minimize emissions in accordance with §63.6605(b), including actions taken to correct a malfunction.

(5) If there are no deviations from any emission or operating limitations that apply to you, a statement that there were no deviations from the emission or operating limitations during the reporting period.

(6) If there were no periods during which the continuous monitoring system (CMS), including CEMS and CPMS, was out-of-control, as specified in §63.8(c)(7), a statement that there were no periods during which the CMS was out-of-control during the reporting period.

(d) For each deviation from an emission or operating limitation that occurs for a stationary RICE where you are not using a CMS to comply with the emission or operating limitations in this subpart, the Compliance report must contain the information in paragraphs (c)(1) through (4) of this section and the information in paragraphs (d)(1) and (2) of this section.

(1) The total operating time of the stationary RICE at which the deviation occurred during the reporting period.

(2) Information on the number, duration, and cause of deviations (including unknown cause, if applicable), as applicable, and the corrective action taken.

(e) For each deviation from an emission or operating limitation occurring for a stationary RICE where you are using a CMS to comply with the emission and operating limitations in this subpart, you must include information in paragraphs (c)(1) through (4) and (e)(1) through (12) of this section.

(1) The date and time that each malfunction started and stopped.

(2) The date, time, and duration that each CMS was inoperative, except for zero (low-level) and high-level checks.

(3) The date, time, and duration that each CMS was out-of-control, including the information in §63.8(c)(8).

(4) The date and time that each deviation started and stopped, and whether each deviation occurred during a period of malfunction or during another period.

(5) A summary of the total duration of the deviation during the reporting period, and the total duration as a percent of the total source operating time during that reporting period.

(6) A breakdown of the total duration of the deviations during the reporting period into those that are due to control equipment problems, process problems, other known causes, and other unknown causes.

(7) A summary of the total duration of CMS downtime during the reporting period, and the total duration of CMS downtime as a percent of the total operating time of the stationary RICE at which the CMS downtime occurred during that reporting period.

(8) An identification of each parameter and pollutant (CO or formaldehyde) that was monitored at the stationary RICE.

(9) A brief description of the stationary RICE.

(10) A brief description of the CMS.

(11) The date of the latest CMS certification or audit.

(12) A description of any changes in CMS, processes, or controls since the last reporting period.

(f) Each affected source that has obtained a title V operating permit pursuant to 40 CFR part 70 or 71 must report all deviations as defined in this subpart in the semiannual monitoring report required by 40 CFR 70.6 (a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A). If an affected source submits a Compliance report pursuant to Table 7 of this subpart along with, or as part of, the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A), and the Compliance report includes all required information concerning deviations from any emission or operating limitation in this subpart, submission of the Compliance report shall be deemed to satisfy any obligation to report the same deviations in the semiannual monitoring report. However, submission of a Compliance report shall not otherwise affect any obligation the affected source may have to report deviations from permit requirements to the permit authority.

(g) If you are operating as a new or reconstructed stationary RICE which fires landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, you must submit an annual report according to Table 7 of this subpart by the date specified unless the Administrator has approved a different schedule, according to the information described in paragraphs (b)(1) through (b)(5) of this section. You must report the data specified in (g)(1) through (g)(3) of this section.

(1) Fuel flow rate of each fuel and the heating values that were used in your calculations. You must also demonstrate that the percentage of heat input provided by landfill gas or digester gas is equivalent to 10 percent or more of the total fuel consumption on an annual basis.

(2) The operating limits provided in your federally enforceable permit, and any deviations from these limits.

(3) Any problems or errors suspected with the meters.

(h) If you own or operate an emergency stationary RICE with a site rating of more than 100 brake HP that operates or is contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii) or that operates for the purpose specified in §63.6640(f)(4)(ii), you must submit an annual report according to the requirements in paragraphs (h)(1) through (3) of this section.

(1) The report must contain the following information:

(i) Company name and address where the engine is located.

(ii) Date of the report and beginning and ending dates of the reporting period.

(iii) Engine site rating and model year.

(iv) Latitude and longitude of the engine in decimal degrees reported to the fifth decimal place.

(v) Hours operated for the purposes specified in §63.6640(f)(2)(ii) and (iii), including the date, start time, and end time for engine operation for the purposes specified in §63.6640(f)(2)(ii) and (iii).

(vi) Number of hours the engine is contractually obligated to be available for the purposes specified in §63.6640(f)(2)(ii) and (iii).

(vii) Hours spent for operation for the purpose specified in §63.6640(f)(4)(ii), including the date, start time, and end time for engine operation for the purposes specified in §63.6640(f)(4)(ii). The report must also identify the entity that dispatched the engine and the situation that necessitated the dispatch of the engine.

(viii) If there were no deviations from the fuel requirements in §63.6604 that apply to the engine (if any), a statement that there were no deviations from the fuel requirements during the reporting period.

(ix) If there were deviations from the fuel requirements in §63.6604 that apply to the engine (if any), information on the number, duration, and cause of deviations, and the corrective action taken.

(2) The first annual report must cover the calendar year 2015 and must be submitted no later than March 31, 2016. Subsequent annual reports for each calendar year must be submitted no later than March 31 of the following calendar year.

(3) The annual report must be submitted electronically using the subpart specific reporting form in the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX) (*www.epa.gov/cdx*). However, if the reporting form specific to this subpart is not available in CEDRI at the time that the report is due, the written report must be submitted to the Administrator at the appropriate address listed in §63.13.

§63.6655 What records must I keep?

(a) If you must comply with the emission and operating limitations, you must keep the records described in paragraphs (a)(1) through (a)(5), (b)(1) through (b)(3) and (c) of this section.

(1) A copy of each notification and report that you submitted to comply with this subpart, including all documentation supporting any Initial Notification or Notification of Compliance Status that you submitted, according to the requirement in §63.10(b)(2)(xiv).

(2) Records of the occurrence and duration of each malfunction of operation (*i.e.,* process equipment) or the air pollution control and monitoring equipment.

(3) Records of performance tests and performance evaluations as required in §63.10(b)(2)(viii).

(4) Records of all required maintenance performed on the air pollution control and monitoring equipment.

(5) Records of actions taken during periods of malfunction to minimize emissions in accordance with §63.6605(b), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation.

(b) For each CEMS or CPMS, you must keep the records listed in paragraphs (b)(1) through (3) of this section.

(1) Records described in §63.10(b)(2)(vi) through (xi).

(2) Previous (*i.e.,* superseded) versions of the performance evaluation plan as required in §63.8(d)(3).

(3) Requests for alternatives to the relative accuracy test for CEMS or CPMS as required in §63.8(f)(6)(i), if applicable.

(c) If you are operating a new or reconstructed stationary RICE which fires landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, you must keep the records of your daily fuel usage monitors.

(d) You must keep the records required in Table 6 of this subpart to show continuous compliance with each emission or operating limitation that applies to you.

(e) You must keep records of the maintenance conducted on the stationary RICE in order to demonstrate that you operated and maintained the stationary RICE and after-treatment control device (if any) according to your own maintenance plan if you own or operate any of the following stationary RICE;

(1) An existing stationary RICE with a site rating of less than 100 brake HP located at a major source of HAP emissions.

(2) An existing stationary emergency RICE.

(3) An existing stationary RICE located at an area source of HAP emissions subject to management practices as shown in Table 2d to this subpart.

(f) If you own or operate any of the stationary RICE in paragraphs (f)(1) through (2) of this section, you must keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. The owner or operator must 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 §63.6640(f)(2)(ii) or (iii) or §63.6640(f)(4)(ii), the owner or operator must keep records of the notification of the emergency situation, and the date, start time, and end time of engine operation for these purposes.

(1) An existing emergency stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions that does not meet the standards applicable to non-emergency engines.

(2) An existing emergency stationary RICE located at an area source of HAP emissions that does not meet the standards applicable to non-emergency engines.

§63.6660 In what form and how long must I keep my records?

(a) Your records must be in a form suitable and readily available for expeditious review according to §63.10(b)(1).

(b) As specified in §63.10(b)(1), you must keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.

(c) You must keep each record readily accessible in hard copy or electronic form for at least 5 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to §63.10(b)(1).

OTHER REQUIREMENTS AND INFORMATION

§63.6665 What parts of the General Provisions apply to me?

Table 8 to this subpart shows which parts of the General Provisions in §§63.1 through 63.15 apply to you. If you own or operate a new or reconstructed stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions (except new or reconstructed 4SLB engines greater than or equal to 250 and less than or equal to 500 brake HP), a new or reconstructed stationary RICE located at an area source of HAP emissions, or any of the following RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you do not need to comply with any of the requirements of the General Provisions specified in Table 8: An existing 2SLB stationary RICE, an existing

4SLB stationary RICE, an existing stationary RICE that combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, an existing emergency stationary RICE, or an existing limited use stationary RICE. If you own or operate any of the following RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you do not need to comply with the requirements in the General Provisions specified in Table 8 except for the initial notification requirements: A new stationary RICE that combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, a new emergency stationary RICE, or a new limited use stationary RICE.

§63.6670 Who implements and enforces this subpart?

(a) This subpart is implemented and enforced by the U.S. EPA, or a delegated authority such as your State, local, or tribal agency. If the U.S. EPA Administrator has delegated authority to your State, local, or tribal agency, then that agency (as well as the U.S. EPA) has the authority to implement and enforce this subpart. You should contact your U.S. EPA Regional Office to find out whether this subpart is delegated to your State, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under 40 CFR part 63, subpart E, the authorities contained in paragraph (c) of this section are retained by the Administrator of the U.S. EPA and are not transferred to the State, local, or tribal agency.

(c) The authorities that will not be delegated to State, local, or tribal agencies are:

(1) Approval of alternatives to the non-opacity emission limitations and operating limitations in §63.6600 under §63.6(g).

(2) Approval of major alternatives to test methods under §63.7(e)(2)(ii) and (f) and as defined in §63.90.

(3) Approval of major alternatives to monitoring under §63.8(f) and as defined in §63.90.

(4) Approval of major alternatives to recordkeeping and reporting under §63.10(f) and as defined in §63.90.

(5) Approval of a performance test which was conducted prior to the effective date of the rule, as specified in §63.6610(b).

§63.6675 What definitions apply to this subpart?

Terms used in this subpart are defined in the Clean Air Act (CAA); in 40 CFR 63.2, the General Provisions of this part; and in this section as follows:

Alaska Railbelt Grid means the service areas of the six regulated public utilities that extend from Fairbanks to Anchorage and the Kenai Peninsula. These utilities are Golden Valley Electric Association; Chugach Electric Association; Matanuska Electric Association; Homer Electric Association; Anchorage Municipal Light & Power; and the City of Seward Electric System.

Area source means any stationary source of HAP that is not a major source as defined in part 63.

Associated equipment as used in this subpart and as referred to in section 112(n)(4) of the CAA, means equipment associated with an oil or natural gas exploration or production well, and includes all equipment from the well bore to the point of custody transfer, except glycol dehydration units, storage vessels with potential for flash emissions, combustion turbines, and stationary RICE.

Backup power for renewable energy means an engine that provides backup power to a facility that generates electricity from renewable energy resources, as that term is defined in Alaska Statute 42.45.045(l)(5) (incorporated by reference, see §63.14).

Black start engine means an engine whose only purpose is to start up a combustion turbine.

CAA means the Clean Air Act (42 U.S.C. 7401 *et seq.,* as amended by Public Law 101-549, 104 Stat. 2399).

Commercial emergency stationary RICE means an emergency stationary RICE used in commercial establishments such as office buildings, hotels, stores, telecommunications facilities, restaurants, financial institutions such as banks, doctor's offices, and sports and performing arts facilities.

Compression ignition means relating to a type of stationary internal combustion engine that is not a spark ignition engine.

Custody transfer means the transfer of hydrocarbon liquids or natural gas: After processing and/or treatment in the producing operations, or from storage vessels or automatic transfer facilities or other such equipment, including product loading racks, to pipelines or any other forms of transportation. For the purposes of this subpart, the point at which such liquids or natural gas enters a natural gas processing plant is a point of custody transfer.

Deviation means any instance in which an affected source subject to this subpart, or an owner or operator of such a source:

(1) Fails to meet any requirement or obligation established by this subpart, including but not limited to any emission limitation or operating limitation;

(2) Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the operating permit for any affected source required to obtain such a permit; or

(3) Fails to meet any emission limitation or operating limitation in this subpart during malfunction, regardless or whether or not such failure is permitted by this subpart.

(4) Fails to satisfy the general duty to minimize emissions established by §63.6(e)(1)(i).

Diesel engine means any stationary RICE in which a high boiling point liquid fuel injected into the combustion chamber ignites when the air charge has been compressed to a temperature sufficiently high for auto-ignition. This process is also known as compression ignition.

Diesel fuel means any liquid obtained from the distillation of petroleum with a boiling point of approximately 150 to 360 degrees Celsius. One commonly used form is fuel oil number 2. Diesel fuel also includes any non-distillate fuel with comparable physical and chemical properties (*e.g.* biodiesel) that is suitable for use in compression ignition engines.

Digester gas means any gaseous by-product of wastewater treatment typically formed through the anaerobic decomposition of organic waste materials and composed principally of methane and CO_2.

Dual-fuel engine means any stationary RICE in which a liquid fuel (typically diesel fuel) is used for compression ignition and gaseous fuel (typically natural gas) is used as the primary fuel.

Emergency stationary RICE means any stationary reciprocating internal combustion engine that meets all of the criteria in paragraphs (1) through (3) of this definition. All emergency stationary RICE must comply with the requirements specified in §63.6640(f) in order to be considered emergency stationary RICE. If the engine does not comply with the requirements specified in §63.6640(f), then it is not considered to be an emergency stationary RICE under this subpart.

(1) The stationary RICE is operated to provide electrical power or mechanical work during an emergency situation. Examples include stationary RICE used to produce power for critical networks or equipment (including power supplied to portions of a facility) when electric power from the local utility (or the normal power source, if the facility runs on its own power production) is interrupted, or stationary RICE used to pump water in the case of fire or flood, etc.

(2) The stationary RICE is operated under limited circumstances for situations not included in paragraph (1) of this definition, as specified in §63.6640(f).

(3) The stationary RICE operates as part of a financial arrangement with another entity in situations not included in paragraph (1) of this definition only as allowed in §63.6640(f)(2)(ii) or (iii) and §63.6640(f)(4)(i) or (ii).

Engine startup means the time from initial start until applied load and engine and associated equipment reaches steady state or normal operation. For stationary engine with catalytic controls, engine startup means the time from initial start until applied load and engine and associated equipment, including the catalyst, reaches steady state or normal operation.

Four-stroke engine means any type of engine which completes the power cycle in two crankshaft revolutions, with intake and compression strokes in the first revolution and power and exhaust strokes in the second revolution.

Gaseous fuel means a material used for combustion which is in the gaseous state at standard atmospheric temperature and pressure conditions.

Gasoline means any fuel sold in any State for use in motor vehicles and motor vehicle engines, or nonroad or stationary engines, and commonly or commercially known or sold as gasoline.

Glycol dehydration unit means a device in which a liquid glycol (including, but not limited to, ethylene glycol, diethylene glycol, or triethylene glycol) absorbent directly contacts a natural gas stream and absorbs water in a contact tower or absorption column (absorber). The glycol contacts and absorbs water vapor and other gas stream constituents from the natural gas and becomes “rich” glycol. This glycol is then regenerated in the glycol dehydration unit reboiler. The “lean” glycol is then recycled.

Hazardous air pollutants (HAP) means any air pollutants listed in or pursuant to section 112(b) of the CAA.

Institutional emergency stationary RICE means an emergency stationary RICE used in institutional establishments such as medical centers, nursing homes, research centers, institutions of higher education, correctional facilities, elementary and secondary schools, libraries, religious establishments, police stations, and fire stations.

ISO standard day conditions means 288 degrees Kelvin (15 degrees Celsius), 60 percent relative humidity and 101.3 kilopascals pressure.

Landfill gas means a gaseous by-product of the land application of municipal refuse typically formed through the anaerobic decomposition of waste materials and composed principally of methane and CO_2.

Lean burn engine means any two-stroke or four-stroke spark ignited engine that does not meet the definition of a rich burn engine.

Limited use stationary RICE means any stationary RICE that operates less than 100 hours per year.

Liquefied petroleum gas means any liquefied hydrocarbon gas obtained as a by-product in petroleum refining of natural gas production.

Liquid fuel means any fuel in liquid form at standard temperature and pressure, including but not limited to diesel, residual/crude oil, kerosene/naphtha (jet fuel), and gasoline.

Major Source, as used in this subpart, shall have the same meaning as in §63.2, except that:

(1) Emissions from any oil or gas exploration or production well (with its associated equipment (as defined in this section)) and emissions from any pipeline compressor station or pump station shall not be aggregated with emissions from other similar units, to determine whether such emission points or stations are major sources, even when emission points are in a contiguous area or under common control;

(2) For oil and gas production facilities, emissions from processes, operations, or equipment that are not part of the same oil and gas production facility, as defined in §63.1271 of subpart HHH of this part, shall not be aggregated;

(3) For production field facilities, only HAP emissions from glycol dehydration units, storage vessel with the potential for flash emissions, combustion turbines and reciprocating internal combustion engines shall be aggregated for a major source determination; and

(4) Emissions from processes, operations, and equipment that are not part of the same natural gas transmission and storage facility, as defined in §63.1271 of subpart HHH of this part, shall not be aggregated.

Malfunction means any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner which causes, or has the potential to cause, the emission limitations in an applicable standard to be exceeded. Failures that are caused in part by poor maintenance or careless operation are not malfunctions.

Natural gas means a naturally occurring mixture of hydrocarbon and non-hydrocarbon gases found in geologic formations beneath the Earth's surface, of which the principal constituent is methane. Natural gas may be field or pipeline quality.

Non-selective catalytic reduction (NSCR) means an add-on catalytic nitrogen oxides (NO_X) control device for rich burn engines that, in a two-step reaction, promotes the conversion of excess oxygen, NO_X, CO, and volatile organic compounds (VOC) into CO_2, nitrogen, and water.

Oil and gas production facility as used in this subpart means any grouping of equipment where hydrocarbon liquids are processed, upgraded (*i.e.,* remove impurities or other constituents to meet contract specifications), or stored prior to the point of custody transfer; or where natural gas is processed, upgraded, or stored prior to entering the natural gas transmission and storage source category. For purposes of a major source determination, facility (including a building, structure, or installation) means oil and natural gas production and processing equipment that is located within the boundaries of an individual surface site as defined in this section. Equipment that is part of a facility will typically be located within close proximity to other equipment located at the same facility. Pieces of production equipment or groupings of equipment located on different oil and gas leases, mineral fee tracts, lease tracts, subsurface or surface unit areas, surface fee tracts, surface lease tracts, or separate surface sites, whether or not connected by a road, waterway, power line or pipeline, shall not be considered part of the same facility. Examples of facilities in the oil and natural gas production source category include, but are not limited to, well sites, satellite tank batteries, central tank batteries, a compressor station that transports natural gas to a natural gas processing plant, and natural gas processing plants.

Oxidation catalyst means an add-on catalytic control device that controls CO and VOC by oxidation.

Peaking unit or engine means any standby engine intended for use during periods of high demand that are not emergencies.

Percent load means the fractional power of an engine compared to its maximum manufacturer's design capacity at engine site conditions. Percent load may range between 0 percent to above 100 percent.

Potential to emit means the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the stationary source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable. For oil and natural gas production facilities subject to subpart HH of this part, the potential to emit provisions in §63.760(a) may be used. For natural gas transmission and storage facilities subject to subpart HHH of this part, the maximum annual facility gas throughput for storage facilities may be determined according to §63.1270(a)(1) and the maximum annual throughput for transmission facilities may be determined according to §63.1270(a)(2).

Production field facility means those oil and gas production facilities located prior to the point of custody transfer.

Production well means any hole drilled in the earth from which crude oil, condensate, or field natural gas is extracted.

Propane means a colorless gas derived from petroleum and natural gas, with the molecular structure C_3H_8.

Remote stationary RICE means stationary RICE meeting any of the following criteria:

(1) Stationary RICE located in an offshore area that is beyond the line of ordinary low water along that portion of the coast of the United States that is in direct contact with the open seas and beyond the line marking the seaward limit of inland waters.

(2) Stationary RICE located on a pipeline segment that meets both of the criteria in paragraphs (2)(i) and (ii) of this definition.

(i) A pipeline segment with 10 or fewer buildings intended for human occupancy and no buildings with four or more stories within 220 yards (200 meters) on either side of the centerline of any continuous 1-mile (1.6 kilometers) length of pipeline. Each separate dwelling unit in a multiple dwelling unit building is counted as a separate building intended for human occupancy.

(ii) The pipeline segment does not lie within 100 yards (91 meters) of either a building or a small, well-defined outside area (such as a playground, recreation area, outdoor theater, or other place of public assembly) that is occupied by 20 or more persons on at least 5 days a week for 10 weeks in any 12-month period. The days and weeks need not be consecutive. The building or area is considered occupied for a full day if it is occupied for any portion of the day.

(iii) For purposes of this paragraph (2), the term pipeline segment means all parts of those physical facilities through which gas moves in transportation, including but not limited to pipe, valves, and other appurtenance attached to pipe, compressor units, metering stations, regulator stations, delivery stations, holders, and fabricated assemblies. Stationary RICE located within 50 yards (46 meters) of the pipeline segment providing power for equipment on a pipeline segment are part of the pipeline segment. Transportation of gas means the gathering, transmission, or distribution of gas by pipeline, or the storage of gas. A building is intended for human occupancy if its primary use is for a purpose involving the presence of humans.

(3) Stationary RICE that are not located on gas pipelines and that have 5 or fewer buildings intended for human occupancy and no buildings with four or more stories within a 0.25 mile radius around the engine. A building is intended for human occupancy if its primary use is for a purpose involving the presence of humans.

Residential emergency stationary RICE means an emergency stationary RICE used in residential establishments such as homes or apartment buildings.

Responsible official means responsible official as defined in 40 CFR 70.2.

Rich burn engine means any four-stroke spark ignited engine where the manufacturer's recommended operating air/fuel ratio divided by the stoichiometric air/fuel ratio at full load conditions is less than or equal to 1.1. Engines originally manufactured as rich burn engines, but modified prior to December 19, 2002 with passive emission control technology for NO_X (such as pre-combustion chambers) will be considered lean burn engines. Also, existing engines where there are no manufacturer's recommendations regarding air/fuel ratio will be considered a rich burn engine if the excess oxygen content of the exhaust at full load conditions is less than or equal to 2 percent.

Site-rated HP means the maximum manufacturer's design capacity at engine site conditions.

Spark ignition means relating to either: A gasoline-fueled engine; or any other type of engine with a spark plug (or other sparking device) and with operating characteristics significantly similar to the theoretical Otto combustion cycle. Spark ignition engines usually use a throttle to regulate intake air flow to control power during normal operation. Dual-fuel engines in which a liquid fuel (typically diesel fuel) is used for CI and gaseous fuel (typically natural gas) is used as the primary fuel at an annual average ratio of less than 2 parts diesel fuel to 100 parts total fuel on an energy equivalent basis are spark ignition engines.

Stationary reciprocating internal combustion engine (RICE) means any reciprocating internal combustion engine which uses reciprocating motion to convert heat energy into mechanical work and which is not mobile. Stationary RICE differ from mobile RICE in that a stationary RICE is not a non-road engine as defined at 40 CFR 1068.30, and is not used to propel a motor vehicle or a vehicle used solely for competition.

Stationary RICE test cell/stand means an engine test cell/stand, as defined in subpart PPPPP of this part, that tests stationary RICE.

Stoichiometric means the theoretical air-to-fuel ratio required for complete combustion.

Storage vessel with the potential for flash emissions means any storage vessel that contains a hydrocarbon liquid with a stock tank gas-to-oil ratio equal to or greater than 0.31 cubic meters per liter and an American Petroleum Institute gravity equal to or greater than 40 degrees and an actual annual average hydrocarbon liquid throughput equal to or greater than 79,500 liters per day. Flash emissions occur when dissolved hydrocarbons in the fluid evolve from solution when the fluid pressure is reduced.

Subpart means 40 CFR part 63, subpart ZZZZ.

Surface site means any combination of one or more graded pad sites, gravel pad sites, foundations, platforms, or the immediate physical location upon which equipment is physically affixed.

Two-stroke engine means a type of engine which completes the power cycle in single crankshaft revolution by combining the intake and compression operations into one stroke and the power and exhaust operations into a second stroke. This system requires auxiliary scavenging and inherently runs lean of stoichiometric.

Table 1a to Subpart ZZZZ of Part 63—Emission Limitations for Existing, New, and Reconstructed Spark Ignition, 4SRB Stationary RICE >500 HP Located at a Major Source of HAP Emissions

As stated in §§63.6600 and 63.6640, you must comply with the following emission limitations at 100 percent load plus or minus 10 percent for existing, new and reconstructed 4SRB stationary RICE >500 HP located at a major source of HAP emissions:

For each . . .	You must meet the following emission limitation, except during periods of startup . . .	During periods of startup you must . . .
1. 4SRB stationary RICE	a. Reduce formaldehyde emissions by 76 percent or more. If you commenced construction or reconstruction between December 19, 2002 and June 15, 2004, you may reduce formaldehyde emissions by 75 percent or more until June 15, 2007 or	Minimize the engine's time spent at idle and minimize the engine's startup time at startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitations apply.[1]
	b. Limit the concentration of formaldehyde in the stationary RICE exhaust to 350 ppbvd or less at 15 percent O_2	

[1] Sources can petition the Administrator pursuant to the requirements of 40 CFR 63.6(g) for alternative work practices.

Table 1b to Subpart ZZZZ of Part 63—Operating Limitations for Existing, New, and Reconstructed SI 4SRB Stationary RICE >500 HP Located at a Major Source of HAP Emissions

As stated in §§63.6600, 63.6603, 63.6630 and 63.6640, you must comply with the following operating limitations for existing, new and reconstructed 4SRB stationary RICE >500 HP located at a major source of HAP emissions:

For each . . .	You must meet the following operating limitation, except during periods of startup . . .
1. existing, new and reconstructed 4SRB stationary RICE >500 HP located at a major source of HAP emissions complying with the requirement to reduce formaldehyde emissions by 76 percent or more (or by 75 percent or more, if applicable) and using NSCR; or existing, new and reconstructed 4SRB stationary RICE >500 HP located at a major source of HAP emissions complying with the requirement to limit the concentration of formaldehyde in the stationary RICE exhaust to 350 ppbvd or less at 15 percent O_2 and using NSCR;	a. maintain your catalyst so that the pressure drop across the catalyst does not change by more than 2 inches of water at 100 percent load plus or minus 10 percent from the pressure drop across the catalyst measured during the initial performance test; and b. maintain the temperature of your stationary RICE exhaust so that the catalyst inlet temperature is greater than or equal to 750 °F and less than or equal to 1250 °F.[1]
2. existing, new and reconstructed 4SRB stationary RICE >500 HP located at a major source of HAP emissions complying with the requirement to reduce formaldehyde emissions by 76 percent or	Comply with any operating limitations approved by the Administrator.

more (or by 75 percent or more, if applicable) and not using NSCR; or	
existing, new and reconstructed 4SRB stationary RICE >500 HP located at a major source of HAP emissions complying with the requirement to limit the concentration of formaldehyde in the stationary RICE exhaust to 350 ppbvd or less at 15 percent O_2 and not using NSCR.	

[1]Sources can petition the Administrator pursuant to the requirements of 40 CFR 63.8(f) for a different temperature range.

Table 2a to Subpart ZZZZ of Part 63—Emission Limitations for New and Reconstructed 2SLB and Compression Ignition Stationary RICE >500 HP and New and Reconstructed 4SLB Stationary RICE ≥250 HP Located at a Major Source of HAP Emissions

As stated in §§63.6600 and 63.6640, you must comply with the following emission limitations for new and reconstructed lean burn and new and reconstructed compression ignition stationary RICE at 100 percent load plus or minus 10 percent:

For each . . .	**You must meet the following emission limitation, except during periods of startup . . .**	**During periods of startup you must . . .**
1. 2SLB stationary RICE	a. Reduce CO emissions by 58 percent or more; or b. Limit concentration of formaldehyde in the stationary RICE exhaust to 12 ppmvd or less at 15 percent O_2. If you commenced construction or reconstruction between December 19, 2002 and June 15, 2004, you may limit concentration of formaldehyde to 17 ppmvd or less at 15 percent O_2 until June 15, 2007	Minimize the engine's time spent at idle and minimize the engine's startup time at startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitations apply.[1]
2. 4SLB stationary RICE	a. Reduce CO emissions by 93 percent or more; or	
	b. Limit concentration of formaldehyde in the stationary RICE exhaust to 14 ppmvd or less at 15 percent O_2	
3. CI stationary RICE	a. Reduce CO emissions by 70 percent or more; or	
	b. Limit concentration of formaldehyde in the stationary RICE exhaust to 580 ppbvd or less at 15 percent O_2	

[1]Sources can petition the Administrator pursuant to the requirements of 40 CFR 63.6(g) for alternative work practices.

Table 2b to Subpart ZZZZ of Part 63—Operating Limitations for New and Reconstructed 2SLB and CI Stationary RICE >500 HP Located at a Major Source of HAP Emissions, New and Reconstructed 4SLB Stationary RICE ≥250 HP Located at a Major Source of HAP Emissions, Existing CI Stationary RICE >500 HP

As stated in §§63.6600, 63.6601, 63.6603, 63.6630, and 63.6640, you must comply with the following operating limitations for new and reconstructed 2SLB and CI stationary RICE >500 HP located at a major source of HAP emissions; new and reconstructed 4SLB stationary RICE ≥250 HP located at a major source of HAP emissions; and existing CI stationary RICE >500 HP:

For each . . .	**You must meet the following operating limitation, except during periods of startup . . .**
1. New and reconstructed 2SLB and CI stationary RICE >500 HP located at a major source of HAP emissions and new and reconstructed 4SLB stationary RICE ≥250 HP located at a major source of HAP emissions complying with the requirement to reduce CO emissions and using an oxidation catalyst; and New and reconstructed 2SLB and CI stationary RICE >500 HP located at a major source of HAP emissions and new and reconstructed 4SLB stationary RICE ≥250 HP located at a major source of HAP emissions complying with the requirement to limit the concentration of formaldehyde in the stationary RICE exhaust and using an oxidation catalyst.	a. maintain your catalyst so that the pressure drop across the catalyst does not change by more than 2 inches of water at 100 percent load plus or minus 10 percent from the pressure drop across the catalyst that was measured during the initial performance test; and b. maintain the temperature of your stationary RICE exhaust so that the catalyst inlet temperature is greater than or equal to 450 °F and less than or equal to 1350 °F.[1]
2. Existing CI stationary RICE >500 HP complying with the requirement to limit or reduce the concentration of CO in the stationary RICE exhaust and using an oxidation catalyst	a. maintain your catalyst so that the pressure drop across the catalyst does not change by more than 2 inches of water from the pressure drop across the catalyst that was measured during the initial performance test; and
	b. maintain the temperature of your stationary RICE exhaust so that the catalyst inlet temperature is greater than or equal to 450 °F and less than or equal to 1350 °F.[1]
3. New and reconstructed 2SLB and CI stationary RICE >500 HP located at a major source of HAP emissions and new and reconstructed 4SLB stationary RICE ≥250 HP located at a major source of HAP emissions complying with the requirement to reduce CO emissions and not using an oxidation catalyst; and	Comply with any operating limitations approved by the Administrator.
New and reconstructed 2SLB and CI stationary RICE >500 HP located at a major source of HAP emissions and new and reconstructed 4SLB stationary RICE ≥250 HP located at a major source of HAP emissions complying with the requirement to limit the concentration of formaldehyde in the stationary RICE exhaust and not using an oxidation catalyst; and	

For each . . .	You must meet the following operating limitation, except during periods of startup . . .
existing CI stationary RICE >500 HP complying with the requirement to limit or reduce the concentration of CO in the stationary RICE exhaust and not using an oxidation catalyst.	

[1]Sources can petition the Administrator pursuant to the requirements of 40 CFR 63.8(f) for a different temperature range.

Table 2c to Subpart ZZZZ of Part 63—Requirements for Existing Compression Ignition Stationary RICE Located at a Major Source of HAP Emissions and Existing Spark Ignition Stationary RICE ≤500 HP Located at a Major Source of HAP Emissions

As stated in §§63.6600, 63.6602, and 63.6640, you must comply with the following requirements for existing compression ignition stationary RICE located at a major source of HAP emissions and existing spark ignition stationary RICE ≤500 HP located at a major source of HAP emissions:

For each . . .	You must meet the following requirement, except during periods of startup . . .	During periods of startup you must . . .
1. Emergency stationary CI RICE and black start stationary CI RICE[1]	a. Change oil and filter every 500 hours of operation or annually, whichever comes first.[2] b. Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first, and replace as necessary; c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.[3]	Minimize the engine's time spent at idle and minimize the engine's startup time at startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitations apply.[3]
2. Non-Emergency, non-black start stationary CI RICE <100 HP	a. Change oil and filter every 1,000 hours of operation or annually, whichever comes first.[2] b. Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first, and replace as necessary; c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.[3]	

For each . . .	You must meet the following requirement, except during periods of startup . . .	During periods of startup you must . . .
3. Non-Emergency, non-black start CI stationary RICE 100≤HP≤300 HP	Limit concentration of CO in the stationary RICE exhaust to 230 ppmvd or less at 15 percent O_2.	
4. Non-Emergency, non-black start CI stationary RICE 300<HP≤500	a. Limit concentration of CO in the stationary RICE exhaust to 49 ppmvd or less at 15 percent O_2; or b. Reduce CO emissions by 70 percent or more.	
5. Non-Emergency, non-black start stationary CI RICE >500 HP	a. Limit concentration of CO in the stationary RICE exhaust to 23 ppmvd or less at 15 percent O_2; or b. Reduce CO emissions by 70 percent or more.	
6. Emergency stationary SI RICE and black start stationary SI RICE.[1]	a. Change oil and filter every 500 hours of operation or annually, whichever comes first;[2] b. Inspect spark plugs every 1,000 hours of operation or annually, whichever comes first, and replace as necessary; c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.[3]	
7. Non-Emergency, non-black start stationary SI RICE <100 HP that are not 2SLB stationary RICE	a. Change oil and filter every 1,440 hours of operation or annually, whichever comes first;[2] b. Inspect spark plugs every 1,440 hours of operation or annually, whichever comes first, and replace as necessary;	
	c. Inspect all hoses and belts every 1,440 hours of operation or annually, whichever comes first, and replace as necessary.[3]	
8. Non-Emergency, non-black start 2SLB stationary SI RICE <100 HP	a. Change oil and filter every 4,320 hours of operation or annually, whichever comes first;[2]	

For each . . .	You must meet the following requirement, except during periods of startup . . .	During periods of startup you must . . .
	b. Inspect spark plugs every 4,320 hours of operation or annually, whichever comes first, and replace as necessary;	
	c. Inspect all hoses and belts every 4,320 hours of operation or annually, whichever comes first, and replace as necessary.[3]	
9. Non-emergency, non-black start 2SLB stationary RICE 100≤HP≤500	Limit concentration of CO in the stationary RICE exhaust to 225 ppmvd or less at 15 percent O_2.	
10. Non-emergency, non-black start 4SLB stationary RICE 100≤HP≤500	Limit concentration of CO in the stationary RICE exhaust to 47 ppmvd or less at 15 percent O_2.	
11. Non-emergency, non-black start 4SRB stationary RICE 100≤HP≤500	Limit concentration of formaldehyde in the stationary RICE exhaust to 10.3 ppmvd or less at 15 percent O_2.	
12. Non-emergency, non-black start stationary RICE 100≤HP≤500 which combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis	Limit concentration of CO in the stationary RICE exhaust to 177 ppmvd or less at 15 percent O_2.	

[1]If an emergency engine is operating during an emergency and it is not possible to shut down the engine in order to perform the work practice requirements on the schedule required in Table 2c of this subpart, or if performing the work practice on the required schedule would otherwise pose an unacceptable risk under federal, state, or local law, the work practice can be delayed until the emergency is over or the unacceptable risk under federal, state, or local law has abated. The work 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. Sources must report any failure to perform the work practice on the schedule required and the federal, state or local law under which the risk was deemed unacceptable.

[2]Sources have the option to utilize an oil analysis program as described in §63.6625(i) or (j) in order to extend the specified oil change requirement in Table 2c of this subpart.

[3]Sources can petition the Administrator pursuant to the requirements of 40 CFR 63.6(g) for alternative work practices.

Table 2d **to Subpart ZZZZ of Part 63—Requirements for Existing Stationary RICE Located at Area Sources of HAP Emissions**

As stated in §§63.6603 and 63.6640, you must comply with the following requirements for existing stationary RICE located at area sources of HAP emissions:

For each . . .	**You must meet the following requirement, except during periods of startup . . .**	**During periods of startup you must . . .**
1. Non-Emergency, non-black start CI stationary RICE ≤300 HP	a. Change oil and filter every 1,000 hours of operation or annually, whichever comes first;[1] b. Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first, and replace as necessary; c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.	Minimize the engine's time spent at idle and minimize the engine's startup time at startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitations apply.
2. Non-Emergency, non-black start CI stationary RICE 300<HP≤500	a. Limit concentration of CO in the stationary RICE exhaust to 49 ppmvd at 15 percent O_2; or	
	b. Reduce CO emissions by 70 percent or more.	
3. Non-Emergency, non-black start CI stationary RICE >500 HP	a. Limit concentration of CO in the stationary RICE exhaust to 23 ppmvd at 15 percent O_2; or	
	b. Reduce CO emissions by 70 percent or more.	
4. Emergency stationary CI RICE and black start stationary CI RICE.[2]	a. Change oil and filter every 500 hours of operation or annually, whichever comes first;[1]	
	b. Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first, and	

For each . . .	You must meet the following requirement, except during periods of startup . . .	During periods of startup you must . . .
	replace as necessary; and	
	c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.	
5. Emergency stationary SI RICE; black start stationary SI RICE; non-emergency, non-black start 4SLB stationary RICE >500 HP that operate 24 hours or less per calendar year; non-emergency, non-black start 4SRB stationary RICE >500 HP that operate 24 hours or less per calendar year.[2]	a. Change oil and filter every 500 hours of operation or annually, whichever comes first;[1]; b. Inspect spark plugs 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.	
6. Non-emergency, non-black start 2SLB stationary RICE	a. Change oil and filter every 4,320 hours of operation or annually, whichever comes first;[1]	
	b. Inspect spark plugs every 4,320 hours of operation or annually, whichever comes first, and replace as necessary; and	
	c. Inspect all hoses and belts every 4,320 hours of operation or annually, whichever comes first, and replace as necessary.	
7. Non-emergency, non-black start 4SLB stationary RICE ≤500 HP	a. Change oil and filter every 1,440 hours of operation or annually, whichever comes first;[1]	
	b. Inspect spark plugs every 1,440 hours of operation or annually, whichever comes first, and replace as necessary; and	
	c. Inspect all hoses and belts every 1,440 hours of operation	

For each . . .	You must meet the following requirement, except during periods of startup . . .	During periods of startup you must . . .
	or annually, whichever comes first, and replace as necessary.	
8. Non-emergency, non-black start 4SLB remote stationary RICE >500 HP	a. Change oil and filter every 2,160 hours of operation or annually, whichever comes first;[1]	
	b. Inspect spark plugs every 2,160 hours of operation or annually, whichever comes first, and replace as necessary; and	
	c. Inspect all hoses and belts every 2,160 hours of operation or annually, whichever comes first, and replace as necessary.	
9. Non-emergency, non-black start 4SLB stationary RICE >500 HP that are not remote stationary RICE and that operate more than 24 hours per calendar year	Install an oxidation catalyst to reduce HAP emissions from the stationary RICE.	
10. Non-emergency, non-black start 4SRB stationary RICE ≤500 HP	a. Change oil and filter every 1,440 hours of operation or annually, whichever comes first;[1]	
	b. Inspect spark plugs every 1,440 hours of operation or annually, whichever comes first, and replace as necessary; and	
	c. Inspect all hoses and belts every 1,440 hours of operation or annually, whichever comes first, and replace as necessary.	
11. Non-emergency, non-black start 4SRB remote stationary RICE >500 HP	a. Change oil and filter every 2,160 hours of operation or annually, whichever comes first;[1]	
	b. Inspect spark plugs every 2,160 hours of operation or annually, whichever comes first,	

For each . . .	You must meet the following requirement, except during periods of startup . . .	During periods of startup you must . . .
	and replace as necessary; and	
	c. Inspect all hoses and belts every 2,160 hours of operation or annually, whichever comes first, and replace as necessary.	
12. Non-emergency, non-black start 4SRB stationary RICE >500 HP that are not remote stationary RICE and that operate more than 24 hours per calendar year	Install NSCR to reduce HAP emissions from the stationary RICE.	
13. Non-emergency, non-black start stationary RICE which combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis	a. Change oil and filter every 1,440 hours of operation or annually, whichever comes first;[1] b. Inspect spark plugs every 1,440 hours of operation or annually, whichever comes first, and replace as necessary; and	
	c. Inspect all hoses and belts every 1,440 hours of operation or annually, whichever comes first, and replace as necessary.	

[1]Sources have the option to utilize an oil analysis program as described in §63.6625(i) or (j) in order to extend the specified oil change requirement in Table 2d of this subpart.

[2]If an emergency engine 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 in Table 2d of this subpart, 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. Sources must report any failure to perform the management practice on the schedule required and the federal, state or local law under which the risk was deemed unacceptable.

Table 3 to Subpart ZZZZ of Part 63—Subsequent Performance Tests

As stated in §§63.6615 and 63.6620, you must comply with the following subsequent performance test requirements:

For each . . .	Complying with the requirement to . . .	You must . . .
1. New or reconstructed 2SLB stationary RICE >500 HP located at major sources; new or reconstructed 4SLB stationary RICE ≥250 HP located at major sources; and new or reconstructed CI stationary RICE >500 HP located at major sources	Reduce CO emissions and not using a CEMS	Conduct subsequent performance tests semiannually.[1]
2. 4SRB stationary RICE ≥5,000 HP located at major sources	Reduce formaldehyde emissions	Conduct subsequent performance tests semiannually.[1]
3. Stationary RICE >500 HP located at major sources and new or reconstructed 4SLB stationary RICE 250≤HP≤500 located at major sources	Limit the concentration of formaldehyde in the stationary RICE exhaust	Conduct subsequent performance tests semiannually.[1]
4. Existing non-emergency, non-black start CI stationary RICE >500 HP that are not limited use stationary RICE	Limit or reduce CO emissions and not using a CEMS	Conduct subsequent performance tests every 8,760 hours or 3 years, whichever comes first.
5. Existing non-emergency, non-black start CI stationary RICE >500 HP that are limited use stationary RICE	Limit or reduce CO emissions and not using a CEMS	Conduct subsequent performance tests every 8,760 hours or 5 years, whichever comes first.

[1]After you have demonstrated compliance for two consecutive tests, you may reduce the frequency of subsequent performance tests to annually. If the results of any subsequent annual performance test indicate the stationary RICE is not in compliance with the CO or formaldehyde emission limitation, or you deviate from any of your operating limitations, you must resume semiannual performance tests.

Table 4 to Subpart ZZZZ of Part 63—Requirements for Performance Tests

As stated in §§63.6610, 63.6611, 63.6620, and 63.6640, you must comply with the following requirements for performance tests for stationary RICE:

For each . . .	Complying with the requirement to . . .	You must . . .	Using . . .	According to the following requirements . . .
1. 2SLB, 4SLB, and CI stationary RICE	a. reduce CO emissions	i. Select the sampling port location and the number/location of traverse points at the inlet and outlet of the		(a) For CO and O_2 measurement, ducts ≤6 inches in diameter may be sampled at a single point located at the duct centroid and ducts >6 and ≤12 inches in diameter may be sampled at 3 traverse points

For each . . .	Complying with the requirement to . . .	You must . . .	Using . . .	According to the following requirements . . .
		control device; and		located at 16.7, 50.0, and 83.3% of the measurement line (`3-point long line'). If the duct is >12 inches in diameter *and* the sampling port location meets the two and half-diameter criterion of Section 11.1.1 of Method 1 of 40 CFR part 60, appendix A-1, the duct may be sampled at `3-point long line'; otherwise, conduct the stratification testing and select sampling points according to Section 8.1.2 of Method 7E of 40 CFR part 60, appendix A-4.
		ii. Measure the O_2 at the inlet and outlet of the control device; and	(1) Method 3 or 3A or 3B of 40 CFR part 60, appendix A-2, or ASTM Method D6522-00 (Reapproved 2005)[ac] (heated probe not necessary)	(b) Measurements to determine O_2 must be made at the same time as the measurements for CO concentration.
		iii. Measure the CO at the inlet and the outlet of the control device	(1) ASTM D6522-00 (Reapproved 2005)[abc] (heated probe not necessary) or Method 10 of 40 CFR part 60, appendix A-4	(c) The CO concentration must be at 15 percent O_2, dry basis.
2. 4SRB stationary RICE	a. reduce formaldehyde emissions	i. Select the sampling port location and the number/location of traverse points at the inlet and outlet of the control device; and		(a) For formaldehyde, O_2, and moisture measurement, ducts ≤6 inches in diameter may be sampled at a single point located at the duct centroid and ducts >6 and ≤12 inches in diameter may be sampled at 3 traverse points located at 16.7, 50.0, and 83.3% of the measurement line (`3-point long line'). If the duct is >12 inches in diameter *and* the sampling port location meets the two and half-diameter criterion of Section 11.1.1 of Method 1 of 40 CFR part 60, appendix A, the duct may be sampled at `3-point long line'; otherwise, conduct the stratification testing and select sampling points according to Section 8.1.2 of Method 7E of 40 CFR part 60, appendix A.
		ii. Measure O_2 at the	(1) Method 3 or 3A or 3B of	(a) Measurements to determine O_2

For each . . .	Complying with the requirement to . . .	You must . . .	Using . . .	According to the following requirements . . .
		inlet and outlet of the control device; and	40 CFR part 60, appendix A-2, or ASTM Method D6522-00 (Reapproved 2005)[a] (heated probe not necessary)	concentration must be made at the same time as the measurements for formaldehyde or THC concentration.
		iii. Measure moisture content at the inlet and outlet of the control device; and	(1) Method 4 of 40 CFR part 60, appendix A-3, or Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348-03[a]	(a) Measurements to determine moisture content must be made at the same time and location as the measurements for formaldehyde or THC concentration.
		iv. If demonstrating compliance with the formaldehyde percent reduction requirement, measure formalde-hyde at the inlet and the outlet of the control device	(1) Method 320 or 323 of 40 CFR part 63, appendix A; or ASTM D6348-03[a], provided in ASTM D6348-03 Annex A5 (Analyte Spiking Technique), the percent R must be greater than or equal to 70 and less than or equal to 130	(a) Formaldehyde concentration must be at 15 percent O_2, dry basis. Results of this test consist of the average of the three 1-hour or longer runs.
		v. If demonstrating compliance with the THC percent reduction requirement, measure THC at the inlet and the outlet of the control device	(1) Method 25A, reported as propane, of 40 CFR part 60, appendix A-7	(a) THC concentration must be at 15 percent O_2, dry basis. Results of this test consist of the average of the three 1-hour or longer runs.
3. Stationary RICE	a. limit the concentra-tion of formalde-hyde or CO in the stationary RICE exhaust	i. Select the sampling port location and the number/location of traverse points at the exhaust of the stationary RICE; and		(a) For formaldehyde, CO, O_2, and moisture measurement, ducts ≤6 inches in diameter may be sampled at a single point located at the duct centroid and ducts >6 and ≤12 inches in diameter may be sampled at 3 traverse points located at 16.7, 50.0, and 83.3% of the measurement line (`3-point long line'). If the duct is >12 inches in diameter *and* the sampling port location meets the two and half-diameter criterion of Section 11.1.1 of Method 1 of 40 CFR part 60, appendix A, the duct may be sampled at `3-point long line'; otherwise, conduct the stratification testing and select sampling points

For each . . .	Complying with the requirement to . . .	You must . . .	Using . . .	According to the following requirements . . .
				according to Section 8.1.2 of Method 7E of 40 CFR part 60, appendix A. If using a control device, the sampling site must be located at the outlet of the control device.
		ii. Determine the O_2 concentration of the stationary RICE exhaust at the sampling port location; and	(1) Method 3 or 3A or 3B of 40 CFR part 60, appendix A-2, or ASTM Method D6522-00 (Reapproved 2005)[a] (heated probe not necessary)	(a) Measurements to determine O_2 concentration must be made at the same time and location as the measurements for formaldehyde or CO concentration.
		iii. Measure moisture content of the station-ary RICE exhaust at the sampling port location; and	(1) Method 4 of 40 CFR part 60, appendix A-3, or Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348-03[a]	(a) Measurements to determine moisture content must be made at the same time and location as the measurements for formaldehyde or CO concentration.
		iv. Measure formalde-hyde at the exhaust of the station-ary RICE; or	(1) Method 320 or 323 of 40 CFR part 63, appendix A; or ASTM D6348-03[a], provided in ASTM D6348-03 Annex A5 (Analyte Spiking Technique), the percent R must be greater than or equal to 70 and less than or equal to 130	(a) Formaldehyde concentration must be at 15 percent O_2, dry basis. Results of this test consist of the average of the three 1-hour or longer runs.
		v. measure CO at the exhaust of the station-ary RICE	(1) Method 10 of 40 CFR part 60, appendix A-4, ASTM Method D6522-00 (2005)[ac], Method 320 of 40 CFR part 63, appendix A, or ASTM D6348-03[a]	(a) CO concentration must be at 15 percent O_2, dry basis. Results of this test consist of the average of the three 1-hour or longer runs.

[a]You may also use Methods 3A and 10 as options to ASTM-D6522-00 (2005). You may obtain a copy of ASTM-D6522-00 (2005) from at least one of the following addresses: American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, or University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106.

[b]You may obtain a copy of ASTM-D6348-03 from at least one of the following addresses: American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, or University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106.

Table 5 to Subpart ZZZZ of Part 63—Initial Compliance With Emission Limitations, Operating Limitations, and Other Requirements

As stated in §§63.6612, 63.6625 and 63.6630, you must initially comply with the emission and operating limitations as required by the following:

For each . . .	Complying with the requirement to . . .	You have demonstrated initial compliance if . . .
1. New or reconstructed non-emergency 2SLB stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE ≥250 HP located at a major source of HAP, non-emergency stationary CI RICE >500 HP located at a major source of HAP, and existing non-emergency stationary CI RICE >500 HP located at an area source of HAP	a. Reduce CO emissions and using oxidation catalyst, and using a CPMS	i. The average reduction of emissions of CO determined from the initial performance test achieves the required CO percent reduction; and ii. You have installed a CPMS to continuously monitor catalyst inlet temperature according to the requirements in §63.6625(b); and iii. You have recorded the catalyst pressure drop and catalyst inlet temperature during the initial performance test.
2. Non-emergency stationary CI RICE >500 HP located at a major source of HAP, and existing non-emergency stationary CI RICE >500 HP located at an area source of HAP	a. Limit the concentration of CO, using oxidation catalyst, and using a CPMS	i. The average CO concentration determined from the initial performance test is less than or equal to the CO emission limitation; and
		ii. You have installed a CPMS to continuously monitor catalyst inlet temperature according to the requirements in §63.6625(b); and
		iii. You have recorded the catalyst pressure drop and catalyst inlet temperature during the initial performance test.
3. New or reconstructed non-emergency 2SLB stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE ≥250 HP located at a major source of HAP, non-emergency stationary CI RICE >500 HP located at a major source of HAP, and existing non-emergency stationary CI RICE >500 HP located at an area source of HAP	a. Reduce CO emissions and not using oxidation catalyst	i. The average reduction of emissions of CO determined from the initial performance test achieves the required CO percent reduction; and ii. You have installed a CPMS to continuously monitor operating parameters approved by the Administrator (if any) according to the requirements in §63.6625(b); and iii. You have recorded the approved operating parameters (if any) during the initial performance test.
4. Non-emergency stationary CI RICE >500 HP located at a major source of HAP, and existing non-emergency stationary CI RICE >500 HP located at an area source of HAP	a. Limit the concentration of CO, and not using oxidation catalyst	i. The average CO concentration determined from the initial performance test is less than or equal to the CO emission limitation; and ii. You have installed a CPMS to continuously monitor operating parameters approved by the

For each . . .	Complying with the requirement to . . .	You have demonstrated initial compliance if . . .
		Administrator (if any) according to the requirements in §63.6625(b); and
		iii. You have recorded the approved operating parameters (if any) during the initial performance test.
5. New or reconstructed non-emergency 2SLB stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE ≥250 HP located at a major source of HAP, non-emergency stationary CI RICE >500 HP located at a major source of HAP, and existing non-emergency stationary CI RICE >500 HP located at an area source of HAP	a. Reduce CO emissions, and using a CEMS	i. You have installed a CEMS to continuously monitor CO and either O_2 or CO_2 at both the inlet and outlet of the oxidation catalyst according to the requirements in §63.6625(a); and ii. You have conducted a performance evaluation of your CEMS using PS 3 and 4A of 40 CFR part 60, appendix B; and
		iii. The average reduction of CO calculated using §63.6620 equals or exceeds the required percent reduction. The initial test comprises the first 4-hour period after successful validation of the CEMS. Compliance is based on the average percent reduction achieved during the 4-hour period.
6. Non-emergency stationary CI RICE >500 HP located at a major source of HAP, and existing non-emergency stationary CI RICE >500 HP located at an area source of HAP	a. Limit the concentration of CO, and using a CEMS	i. You have installed a CEMS to continuously monitor CO and either O_2 or CO_2 at the outlet of the oxidation catalyst according to the requirements in §63.6625(a); and
		ii. You have conducted a performance evaluation of your CEMS using PS 3 and 4A of 40 CFR part 60, appendix B; and
		iii. The average concentration of CO calculated using §63.6620 is less than or equal to the CO emission limitation. The initial test comprises the first 4-hour period after successful validation of the CEMS. Compliance is based on the average concentration measured during the 4-hour period.
7. Non-emergency 4SRB stationary RICE >500 HP located at a major source of HAP	a. Reduce formaldehyde emissions and using NSCR	i. The average reduction of emissions of formaldehyde determined from the initial performance test is equal to or greater than the required formaldehyde percent reduction, or

For each . . .	Complying with the requirement to . . .	You have demonstrated initial compliance if . . .
		the average reduction of emissions of THC determined from the initial performance test is equal to or greater than 30 percent; and
		ii. You have installed a CPMS to continuously monitor catalyst inlet temperature according to the requirements in §63.6625(b); and
		iii. You have recorded the catalyst pressure drop and catalyst inlet temperature during the initial performance test.
8. Non-emergency 4SRB stationary RICE >500 HP located at a major source of HAP	a. Reduce formaldehyde emissions and not using NSCR	i. The average reduction of emissions of formaldehyde determined from the initial performance test is equal to or greater than the required formaldehyde percent reduction or the average reduction of emissions of THC determined from the initial performance test is equal to or greater than 30 percent; and
		ii. You have installed a CPMS to continuously monitor operating parameters approved by the Administrator (if any) according to the requirements in §63.6625(b); and
		iii. You have recorded the approved operating parameters (if any) during the initial performance test.
9. New or reconstructed non-emergency stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE 250≤HP≤500 located at a major source of HAP, and existing non-emergency 4SRB stationary RICE >500 HP located at a major source of HAP	a. Limit the concentration of formaldehyde in the stationary RICE exhaust and using oxidation catalyst or NSCR	i. The average formaldehyde concentration, corrected to 15 percent O_2, dry basis, from the three test runs is less than or equal to the formaldehyde emission limitation; and ii. You have installed a CPMS to continuously monitor catalyst inlet temperature according to the requirements in §63.6625(b); and
		iii. You have recorded the catalyst pressure drop and catalyst inlet temperature during the initial performance test.
10. New or reconstructed non-emergency stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE 250≤HP≤500 located at a major source of HAP, and	a. Limit the concentration of formaldehyde in the stationary RICE exhaust	i. The average formaldehyde concentration, corrected to 15 percent O_2, dry basis, from the three test runs is less than or equal to the formaldehyde emission limitation; and

For each . . .	Complying with the requirement to . . .	You have demonstrated initial compliance if . . .
existing non-emergency 4SRB stationary RICE >500 HP located at a major source of HAP	and not using oxidation catalyst or NSCR	ii. You have installed a CPMS to continuously monitor operating parameters approved by the Administrator (if any) according to the requirements in §63.6625(b); and
		iii. You have recorded the approved operating parameters (if any) during the initial performance test.
11. Existing non-emergency stationary RICE 100≤HP≤500 located at a major source of HAP, and existing non-emergency stationary CI RICE 300<HP≤500 located at an area source of HAP	a. Reduce CO emissions	i. The average reduction of emissions of CO or formaldehyde, as applicable determined from the initial performance test is equal to or greater than the required CO or formaldehyde, as applicable, percent reduction.
12. Existing non-emergency stationary RICE 100≤HP≤500 located at a major source of HAP, and existing non-emergency stationary CI RICE 300<HP≤500 located at an area source of HAP	a. Limit the concentration of formaldehyde or CO in the stationary RICE exhaust	i. The average formaldehyde or CO concentration, as applicable, corrected to 15 percent O_2, dry basis, from the three test runs is less than or equal to the formaldehyde or CO emission limitation, as applicable.
13. Existing non-emergency 4SLB stationary RICE >500 HP located at an area source of HAP that are not remote stationary RICE and that are operated more than 24 hours per calendar year	a. Install an oxidation catalyst	i. You have conducted an initial compliance demonstration as specified in §63.6630(e) to show that the average reduction of emissions of CO is 93 percent or more, or the average CO concentration is less than or equal to 47 ppmvd at 15 percent O_2;
		ii. You have installed a CPMS to continuously monitor catalyst inlet temperature according to the requirements in §63.6625(b), or you have installed equipment to automatically shut down the engine if the catalyst inlet temperature exceeds 1350 °F.
14. Existing non-emergency 4SRB stationary RICE >500 HP located at an area source of HAP that are not remote stationary RICE and that are operated more than 24 hours per calendar year	a. Install NSCR	i. You have conducted an initial compliance demonstration as specified in §63.6630(e) to show that the average reduction of emissions of CO is 75 percent or more, the average CO concentration is less than or equal to 270 ppmvd at 15 percent O_2, or the average reduction of emissions of THC is 30 percent or more;
		ii. You have installed a CPMS to continuously monitor catalyst inlet temperature according to

For each . . .	Complying with the requirement to . . .	You have demonstrated initial compliance if . . .
		the requirements in §63.6625(b), or you have installed equipment to automatically shut down the engine if the catalyst inlet temperature exceeds 1250 °F.

Table 6 to Subpart ZZZZ of Part 63—Continuous Compliance With Emission Limitations, and Other Requirements

As stated in §63.6640, you must continuously comply with the emissions and operating limitations and work or management practices as required by the following:

For each . . .	Complying with the requirement to . . .	You must demonstrate continuous compliance by . . .
1. New or reconstructed non-emergency 2SLB stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE ≥250 HP located at a major source of HAP, and new or reconstructed non-emergency CI stationary RICE >500 HP located at a major source of HAP	a. Reduce CO emissions and using an oxidation catalyst, and using a CPMS	i. Conducting semiannual performance tests for CO to demonstrate that the required CO percent reduction is achieved[a]; and ii. Collecting the catalyst inlet temperature data according to §63.6625(b); and iii. Reducing these data to 4-hour rolling averages; and
		iv. Maintaining the 4-hour rolling averages within the operating limitations for the catalyst inlet temperature; and
		v. Measuring the pressure drop across the catalyst once per month and demonstrating that the pressure drop across the catalyst is within the operating limitation established during the performance test.
2. New or reconstructed non-emergency 2SLB stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE ≥250 HP located at a major source of HAP, and new or reconstructed non-emergency CI stationary RICE >500 HP located at a major source of HAP	a. Reduce CO emissions and not using an oxidation catalyst, and using a CPMS	i. Conducting semiannual performance tests for CO to demonstrate that the required CO percent reduction is achieved[a]; and ii. Collecting the approved operating parameter (if any) data according to §63.6625(b); and iii. Reducing these data to 4-hour rolling averages; and
		iv. Maintaining the 4-hour rolling averages within

For each . . .	Complying with the requirement to . . .	You must demonstrate continuous compliance by . . .
		the operating limitations for the operating parameters established during the performance test.
3. New or reconstructed non-emergency 2SLB stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE ≥250 HP located at a major source of HAP, new or reconstructed non-emergency stationary CI RICE >500 HP located at a major source of HAP, and existing non-emergency stationary CI RICE >500 HP	a. Reduce CO emissions or limit the concentration of CO in the stationary RICE exhaust, and using a CEMS	i. Collecting the monitoring data according to §63.6625(a), reducing the measurements to 1-hour averages, calculating the percent reduction or concentration of CO emissions according to §63.6620; and ii. Demonstrating that the catalyst achieves the required percent reduction of CO emissions over the 4-hour averaging period, or that the emission remain at or below the CO concentration limit; and
		iii. Conducting an annual RATA of your CEMS using PS 3 and 4A of 40 CFR part 60, appendix B, as well as daily and periodic data quality checks in accordance with 40 CFR part 60, appendix F, procedure 1.
4. Non-emergency 4SRB stationary RICE >500 HP located at a major source of HAP	a. Reduce formaldehyde emissions and using NSCR	i. Collecting the catalyst inlet temperature data according to §63.6625(b); and
		ii. Reducing these data to 4-hour rolling averages; and
		iii. Maintaining the 4-hour rolling averages within the operating limitations for the catalyst inlet temperature; and
		iv. Measuring the pressure drop across the catalyst once per month and demonstrating that the pressure drop across the catalyst is within the operating limitation established during the performance test.
5. Non-emergency 4SRB stationary RICE >500 HP located at a major source of HAP	a. Reduce formaldehyde emissions and not using NSCR	i. Collecting the approved operating parameter (if any) data according to §63.6625(b); and
		ii. Reducing these data to 4-hour rolling averages; and
		iii. Maintaining the 4-hour rolling averages within the operating limitations for the operating parameters established during the performance

For each . . .	Complying with the requirement to . . .	You must demonstrate continuous compliance by . . .
		test.
6. Non-emergency 4SRB stationary RICE with a brake HP ≥5,000 located at a major source of HAP	a. Reduce formaldehyde emissions	Conducting semiannual performance tests for formaldehyde to demonstrate that the required formaldehyde percent reduction is achieved, or to demonstrate that the average reduction of emissions of THC determined from the performance test is equal to or greater than 30 percent.[a]
7. New or reconstructed non-emergency stationary RICE >500 HP located at a major source of HAP and new or reconstructed non-emergency 4SLB stationary RICE 250≤HP≤500 located at a major source of HAP	a. Limit the concentration of formaldehyde in the stationary RICE exhaust and using oxidation catalyst or NSCR	i. Conducting semiannual performance tests for formaldehyde to demonstrate that your emissions remain at or below the formaldehyde concentration limit[a]; and ii. Collecting the catalyst inlet temperature data according to §63.6625(b); and
		iii. Reducing these data to 4-hour rolling averages; and
		iv. Maintaining the 4-hour rolling averages within the operating limitations for the catalyst inlet temperature; and
		v. Measuring the pressure drop across the catalyst once per month and demonstrating that the pressure drop across the catalyst is within the operating limitation established during the performance test.
8. New or reconstructed non-emergency stationary RICE >500 HP located at a major source of HAP and new or reconstructed non-emergency 4SLB stationary RICE 250≤HP≤500 located at a major source of HAP	a. Limit the concentration of formaldehyde in the stationary RICE exhaust and not using oxidation catalyst or NSCR	i. Conducting semiannual performance tests for formaldehyde to demonstrate that your emissions remain at or below the formaldehyde concentration limit[a]; and ii. Collecting the approved operating parameter (if any) data according to §63.6625(b); and
		iii. Reducing these data to 4-hour rolling averages; and
		iv. Maintaining the 4-hour rolling averages within the operating limitations for the operating parameters established during the performance test.

For each . . .	Complying with the requirement to . . .	You must demonstrate continuous compliance by . . .
9. Existing emergency and black start stationary RICE ≤500 HP located at a major source of HAP, existing non-emergency stationary RICE <100 HP located at a major source of HAP, existing emergency and black start stationary RICE located at an area source of HAP, existing non-emergency stationary CI RICE ≤300 HP located at an area source of HAP, existing non-emergency 2SLB stationary RICE located at an area source of HAP, existing non-emergency stationary SI RICE located at an area source of HAP which combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, existing non-emergency 4SLB and 4SRB stationary RICE ≤500 HP located at an area source of HAP, existing non-emergency 4SLB and 4SRB stationary RICE >500 HP located at an area source of HAP that operate 24 hours or less per calendar year, and existing non-emergency 4SLB and 4SRB stationary RICE >500 HP located at an area source of HAP that are remote stationary RICE	a. Work or Management practices	i. Operating and maintaining the stationary RICE according to the manufacturer's emission-related operation and maintenance instructions; or ii. Develop and follow your own maintenance plan 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.
10. Existing stationary CI RICE >500 HP that are not limited use stationary RICE	a. Reduce CO emissions, or limit the concentration of CO in the stationary RICE exhaust, and using oxidation catalyst	i. Conducting performance tests every 8,760 hours or 3 years, whichever comes first, for CO or formaldehyde, as appropriate, to demonstrate that the required CO or formaldehyde, as appropriate, percent reduction is achieved or that your emissions remain at or below the CO or formaldehyde concentration limit; and
		ii. Collecting the catalyst inlet temperature data according to §63.6625(b); and
		iii. Reducing these data to 4-hour rolling averages; and
		iv. Maintaining the 4-hour rolling averages within the operating limitations for the catalyst inlet temperature; and
		v. Measuring the pressure drop across the catalyst once per month and demonstrating that the

For each . . .	Complying with the requirement to . . .	You must demonstrate continuous compliance by . . .
		pressure drop across the catalyst is within the operating limitation established during the performance test.
11. Existing stationary CI RICE >500 HP that are not limited use stationary RICE	a. Reduce CO emissions, or limit the concentration of CO in the stationary RICE exhaust, and not using oxidation catalyst	i. Conducting performance tests every 8,760 hours or 3 years, whichever comes first, for CO or formaldehyde, as appropriate, to demonstrate that the required CO or formaldehyde, as appropriate, percent reduction is achieved or that your emissions remain at or below the CO or formaldehyde concentration limit; and
		ii. Collecting the approved operating parameter (if any) data according to §63.6625(b); and
		iii. Reducing these data to 4-hour rolling averages; and
		iv. Maintaining the 4-hour rolling averages within the operating limitations for the operating parameters established during the performance test.
12. Existing limited use CI stationary RICE >500 HP	a. Reduce CO emissions or limit the concentration of CO in the stationary RICE exhaust, and using an oxidation catalyst	i. Conducting performance tests every 8,760 hours or 5 years, whichever comes first, for CO or formaldehyde, as appropriate, to demonstrate that the required CO or formaldehyde, as appropriate, percent reduction is achieved or that your emissions remain at or below the CO or formaldehyde concentration limit; and
		ii. Collecting the catalyst inlet temperature data according to §63.6625(b); and
		iii. Reducing these data to 4-hour rolling averages; and
		iv. Maintaining the 4-hour rolling averages within the operating limitations for the catalyst inlet temperature; and
		v. Measuring the pressure drop across the catalyst once per month and demonstrating that the pressure drop across the catalyst is within the operating limitation established during the

For each . . .	Complying with the requirement to . . .	You must demonstrate continuous compliance by . . .
		performance test.
13. Existing limited use CI stationary RICE >500 HP	a. Reduce CO emissions or limit the concentration of CO in the stationary RICE exhaust, and not using an oxidation catalyst	i. Conducting performance tests every 8,760 hours or 5 years, whichever comes first, for CO or formaldehyde, as appropriate, to demonstrate that the required CO or formaldehyde, as appropriate, percent reduction is achieved or that your emissions remain at or below the CO or formaldehyde concentration limit; and
		ii. Collecting the approved operating parameter (if any) data according to §63.6625(b); and
		iii. Reducing these data to 4-hour rolling averages; and
		iv. Maintaining the 4-hour rolling averages within the operating limitations for the operating parameters established during the performance test.
14. Existing non-emergency 4SLB stationary RICE >500 HP located at an area source of HAP that are not remote stationary RICE and that are operated more than 24 hours per calendar year	a. Install an oxidation catalyst	i. Conducting annual compliance demonstrations as specified in §63.6640(c) to show that the average reduction of emissions of CO is 93 percent or more, or the average CO concentration is less than or equal to 47 ppmvd at 15 percent O_2; and either ii. Collecting the catalyst inlet temperature data according to §63.6625(b), reducing these data to 4-hour rolling averages; and maintaining the 4-hour rolling averages within the limitation of greater than 450 °F and less than or equal to 1350 °F for the catalyst inlet temperature; or iii. Immediately shutting down the engine if the catalyst inlet temperature exceeds 1350 °F.
15. Existing non-emergency 4SRB stationary RICE >500 HP located at an area source of HAP that are not remote stationary RICE and that are operated more than 24 hours per calendar year	a. Install NSCR	i. Conducting annual compliance demonstrations as specified in §63.6640(c) to show that the average reduction of emissions of CO is 75 percent or more, the average CO concentration is less than or equal to 270 ppmvd at 15 percent O_2, or the average reduction of emissions of THC is 30 percent or more; and either ii. Collecting the catalyst inlet temperature data according to §63.6625(b), reducing these data to 4-hour rolling averages; and maintaining the 4-hour

For each . . .	Complying with the requirement to . . .	You must demonstrate continuous compliance by . . .
		rolling averages within the limitation of greater than or equal to 750 °F and less than or equal to 1250 °F for the catalyst inlet temperature; or iii. Immediately shutting down the engine if the catalyst inlet temperature exceeds 1250 °F.

[a]After you have demonstrated compliance for two consecutive tests, you may reduce the frequency of subsequent performance tests to annually. If the results of any subsequent annual performance test indicate the stationary RICE is not in compliance with the CO or formaldehyde emission limitation, or you deviate from any of your operating limitations, you must resume semiannual performance tests.

Table 7 to Subpart ZZZZ of Part 63—Requirements for Reports

As stated in §63.6650, you must comply with the following requirements for reports:

For each . . .	You must submit a . . .	The report must contain . . .	You must submit the report . . .
1. Existing non-emergency, non-black start stationary RICE 100≤HP≤500 located at a major source of HAP; existing non-emergency, non-black start stationary CI RICE >500 HP located at a major source of HAP; existing non-emergency 4SRB stationary RICE >500 HP located at a major source of HAP; existing non-emergency, non-black start stationary CI RICE >300 HP located at an area source of HAP; new or reconstructed non-emergency stationary RICE >500 HP located at a major source of HAP; and new or reconstructed non-emergency 4SLB stationary RICE 250≤HP≤500 located at a major source of HAP	Compliance report	a. If there are no deviations from any emission limitations or operating limitations that apply to you, a statement that there were no deviations from the emission limitations or operating limitations during the reporting period. If there were no periods during which the CMS, including CEMS and CPMS, was out-of-control, as specified in §63.8(c)(7), a statement that there were not periods during which the CMS was out-of-control during the reporting period; or	i. Semiannually according to the requirements in §63.6650(b)(1)-(5) for engines that are not limited use stationary RICE subject to numerical emission limitations; and ii. Annually according to the requirements in §63.6650(b)(6)-(9) for engines that are limited use stationary RICE subject to numerical emission limitations.
		b. If you had a deviation from any emission limitation or operating limitation during the reporting period, the information in §63.6650(d). If there were periods during which the CMS, including CEMS and CPMS, was out-of-control, as specified in §63.8(c)(7), the information in §63.6650(e);	i. Semiannually according to the requirements in §63.6650(b).

For each . . .	You must submit a . . .	The report must contain . . .	You must submit the report . . .
		or	
		c. If you had a malfunction during the reporting period, the information in §63.6650(c)(4).	i. Semiannually according to the requirements in §63.6650(b).
2. New or reconstructed non-emergency stationary RICE that combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis	Report	a. The fuel flow rate of each fuel and the heating values that were used in your calculations, and you must demonstrate that the percentage of heat input provided by landfill gas or digester gas, is equivalent to 10 percent or more of the gross heat input on an annual basis; and	i. Annually, according to the requirements in §63.6650.
		b. The operating limits provided in your federally enforceable permit, and any deviations from these limits; and	i. See item 2.a.i.
		c. Any problems or errors suspected with the meters.	i. See item 2.a.i.
3. Existing non-emergency, non-black start 4SLB and 4SRB stationary RICE >500 HP located at an area source of HAP that are not remote stationary RICE and that operate more than 24 hours per calendar year	Compliance report	a. The results of the annual compliance demonstration, if conducted during the reporting period.	i. Semiannually according to the requirements in §63.6650(b)(1)-(5).
4. Emergency stationary RICE that operate or are contractually obligated to be available for more than 15 hours per year for the purposes specified in §63.6640(f)(2)(ii) and (iii) or that operate for the purposes specified in §63.6640(f)(4)(ii)	Report	a. The information in §63.6650(h)(1)	i. annually according to the requirements in §63.6650(h)(2)-(3).

Table 8 to Subpart ZZZZ of Part 63—Applicability of General Provisions to Subpart ZZZZ.

As stated in §63.6665, you must comply with the following applicable general provisions.

General provisions citation	Subject of citation	Applies to subpart	Explanation
§63.1	General applicability of the General	Yes.	

General provisions citation	Subject of citation	Applies to subpart	Explanation
	Provisions		
§63.2	Definitions	Yes	Additional terms defined in §63.6675.
§63.3	Units and abbreviations	Yes.	
§63.4	Prohibited activities and circumvention	Yes.	
§63.5	Construction and reconstruction	Yes.	
§63.6(a)	Applicability	Yes.	
§63.6(b)(1)-(4)	Compliance dates for new and reconstructed sources	Yes.	
§63.6(b)(5)	Notification	Yes.	
§63.6(b)(6)	[Reserved]		
§63.6(b)(7)	Compliance dates for new and reconstructed area sources that become major sources	Yes.	
§63.6(c)(1)-(2)	Compliance dates for existing sources	Yes.	
§63.6(c)(3)-(4)	[Reserved]		
§63.6(c)(5)	Compliance dates for existing area sources that become major sources	Yes.	
§63.6(d)	[Reserved]		
§63.6(e)	Operation and maintenance	No.	
§63.6(f)(1)	Applicability of standards	No.	
§63.6(f)(2)	Methods for determining compliance	Yes.	
§63.6(f)(3)	Finding of compliance	Yes.	
§63.6(g)(1)-(3)	Use of alternate standard	Yes.	
§63.6(h)	Opacity and visible emission standards	No	Subpart ZZZZ does not contain opacity or

General provisions citation	Subject of citation	Applies to subpart	Explanation
			visible emission standards.
§63.6(i)	Compliance extension procedures and criteria	Yes.	
§63.6(j)	Presidential compliance exemption	Yes.	
§63.7(a)(1)-(2)	Performance test dates	Yes	Subpart ZZZZ contains performance test dates at §§63.6610, 63.6611, and 63.6612.
§63.7(a)(3)	CAA section 114 authority	Yes.	
§63.7(b)(1)	Notification of performance test	Yes	Except that §63.7(b)(1) only applies as specified in §63.6645.
§63.7(b)(2)	Notification of rescheduling	Yes	Except that §63.7(b)(2) only applies as specified in §63.6645.
§63.7(c)	Quality assurance/test plan	Yes	Except that §63.7(c) only applies as specified in §63.6645.
§63.7(d)	Testing facilities	Yes.	
§63.7(e)(1)	Conditions for conducting performance tests	No.	Subpart ZZZZ specifies conditions for conducting performance tests at §63.6620.
§63.7(e)(2)	Conduct of performance tests and reduction of data	Yes	Subpart ZZZZ specifies test methods at §63.6620.
§63.7(e)(3)	Test run duration	Yes.	
§63.7(e)(4)	Administrator may require other testing under section 114 of the CAA	Yes.	
§63.7(f)	Alternative test method provisions	Yes.	
§63.7(g)	Performance test data analysis, recordkeeping, and reporting	Yes.	
§63.7(h)	Waiver of tests	Yes.	
§63.8(a)(1)	Applicability of monitoring requirements	Yes	Subpart ZZZZ contains specific requirements for monitoring at §63.6625.

General provisions citation	Subject of citation	Applies to subpart	Explanation
§63.8(a)(2)	Performance specifications	Yes.	
§63.8(a)(3)	[Reserved]		
§63.8(a)(4)	Monitoring for control devices	No.	
§63.8(b)(1)	Monitoring	Yes.	
§63.8(b)(2)-(3)	Multiple effluents and multiple monitoring systems	Yes.	
§63.8(c)(1)	Monitoring system operation and maintenance	Yes.	
§63.8(c)(1)(i)	Routine and predictable SSM	No	
§63.8(c)(1)(ii)	SSM not in Startup Shutdown Malfunction Plan	Yes.	
§63.8(c)(1)(iii)	Compliance with operation and maintenance requirements	No	
§63.8(c)(2)-(3)	Monitoring system installation	Yes.	
§63.8(c)(4)	Continuous monitoring system (CMS) requirements	Yes	Except that subpart ZZZZ does not require Continuous Opacity Monitoring System (COMS).
§63.8(c)(5)	COMS minimum procedures	No	Subpart ZZZZ does not require COMS.
§63.8(c)(6)-(8)	CMS requirements	Yes	Except that subpart ZZZZ does not require COMS.
§63.8(d)	CMS quality control	Yes.	
§63.8(e)	CMS performance evaluation	Yes	Except for §63.8(e)(5)(ii), which applies to COMS.
		Except that §63.8(e) only applies as specified in §63.6645.	
§63.8(f)(1)-(5)	Alternative monitoring method	Yes	Except that §63.8(f)(4) only applies as

General provisions citation	Subject of citation	Applies to subpart	Explanation
			specified in §63.6645.
§63.8(f)(6)	Alternative to relative accuracy test	Yes	Except that §63.8(f)(6) only applies as specified in §63.6645.
§63.8(g)	Data reduction	Yes	Except that provisions for COMS are not applicable. Averaging periods for demonstrating compliance are specified at §§63.6635 and 63.6640.
§63.9(a)	Applicability and State delegation of notification requirements	Yes.	
§63.9(b)(1)-(5)	Initial notifications	Yes	Except that §63.9(b)(3) is reserved.
		Except that §63.9(b) only applies as specified in §63.6645.	
§63.9(c)	Request for compliance extension	Yes	Except that §63.9(c) only applies as specified in §63.6645.
§63.9(d)	Notification of special compliance requirements for new sources	Yes	Except that §63.9(d) only applies as specified in §63.6645.
§63.9(e)	Notification of performance test	Yes	Except that §63.9(e) only applies as specified in §63.6645.
§63.9(f)	Notification of visible emission (VE)/opacity test	No	Subpart ZZZZ does not contain opacity or VE standards.
§63.9(g)(1)	Notification of performance evaluation	Yes	Except that §63.9(g) only applies as specified in §63.6645.
§63.9(g)(2)	Notification of use of COMS data	No	Subpart ZZZZ does not contain opacity or VE standards.
§63.9(g)(3)	Notification that criterion for alternative to RATA is exceeded	Yes	If alternative is in use.
		Except that §63.9(g) only applies as specified in §63.6645.	

General provisions citation	Subject of citation	Applies to subpart	Explanation
§63.9(h)(1)-(6)	Notification of compliance status	Yes	Except that notifications for sources using a CEMS are due 30 days after completion of performance evaluations. §63.9(h)(4) is reserved.
			Except that §63.9(h) only applies as specified in §63.6645.
§63.9(i)	Adjustment of submittal deadlines	Yes.	
§63.9(j)	Change in previous information	Yes.	
§63.10(a)	Administrative provisions for recordkeeping/reporting	Yes.	
§63.10(b)(1)	Record retention	Yes	Except that the most recent 2 years of data do not have to be retained on site.
§63.10(b)(2)(i)-(v)	Records related to SSM	No.	
§63.10(b)(2)(vi)-(xi)	Records	Yes.	
§63.10(b)(2)(xii)	Record when under waiver	Yes.	
§63.10(b)(2)(xiii)	Records when using alternative to RATA	Yes	For CO standard if using RATA alternative.
§63.10(b)(2)(xiv)	Records of supporting documentation	Yes.	
§63.10(b)(3)	Records of applicability determination	Yes.	
§63.10(c)	Additional records for sources using CEMS	Yes	Except that §63.10(c)(2)-(4) and (9) are reserved.
§63.10(d)(1)	General reporting requirements	Yes.	
§63.10(d)(2)	Report of performance test results	Yes.	
§63.10(d)(3)	Reporting opacity or VE observations	No	Subpart ZZZZ does not contain opacity or VE standards.
§63.10(d)(4)	Progress reports	Yes.	

General provisions citation	Subject of citation	Applies to subpart	Explanation
§63.10(d)(5)	Startup, shutdown, and malfunction reports	No.	
§63.10(e)(1) and (2)(i)	Additional CMS Reports	Yes.	
§63.10(e)(2)(ii)	COMS-related report	No	Subpart ZZZZ does not require COMS.
§63.10(e)(3)	Excess emission and parameter exceedances reports	Yes.	Except that §63.10(e)(3)(i) (C) is reserved.
§63.10(e)(4)	Reporting COMS data	No	Subpart ZZZZ does not require COMS.
§63.10(f)	Waiver for recordkeeping/reporting	Yes.	
§63.11	Flares	No.	
§63.12	State authority and delegations	Yes.	
§63.13	Addresses	Yes.	
§63.14	Incorporation by reference	Yes.	
§63.15	Availability of information	Yes.	

Appendix A to Subpart ZZZZ of Part 63—Protocol for Using an Electrochemical Analyzer to Determine Oxygen and Carbon Monoxide Concentrations From Certain Engines

1.0 Scope and Application. What is this Protocol?

This protocol is a procedure for using portable electrochemical (EC) cells for measuring carbon monoxide (CO) and oxygen (O_2) concentrations in controlled and uncontrolled emissions from existing stationary 4-stroke lean burn and 4-stroke rich burn reciprocating internal combustion engines as specified in the applicable rule.

1.1 Analytes. What does this protocol determine?

This protocol measures the engine exhaust gas concentrations of carbon monoxide (CO) and oxygen (O_2).

Analyte	CAS No.	Sensitivity

Carbon monoxide (CO)	630-08-0	Minimum detectable limit should be 2 percent of the nominal range or 1 ppm, whichever is less restrictive.
Oxygen (O_2)	*7782-44-7*	

1.2 Applicability. When is this protocol acceptable?

This protocol is applicable to 40 CFR part 63, subpart ZZZZ. Because of inherent cross sensitivities of EC cells, you must not apply this protocol to other emissions sources without specific instruction to that effect.

1.3 Data Quality Objectives. How good must my collected data be?

Refer to Section 13 to verify and document acceptable analyzer performance.

1.4 Range. What is the targeted analytical range for this protocol?

The measurement system and EC cell design(s) conforming to this protocol will determine the analytical range for each gas component. The nominal ranges are defined by choosing up-scale calibration gas concentrations near the maximum anticipated flue gas concentrations for CO and O_2, or no more than twice the permitted CO level.

1.5 Sensitivity. What minimum detectable limit will this protocol yield for a particular gas component?

The minimum detectable limit depends on the nominal range and resolution of the specific EC cell used, and the signal to noise ratio of the measurement system. The minimum detectable limit should be 2 percent of the nominal range or 1 ppm, whichever is less restrictive.

2.0 SUMMARY OF PROTOCOL

In this protocol, a gas sample is extracted from an engine exhaust system and then conveyed to a portable EC analyzer for measurement of CO and O_2 gas concentrations. This method provides measurement system performance specifications and sampling protocols to ensure reliable data. You may use additions to, or modifications of vendor supplied measurement systems (e.g., heated or unheated sample lines, thermocouples, flow meters, selective gas scrubbers, etc.) to meet the design specifications of this protocol. Do not make changes to the measurement system from the as-verified configuration (Section 3.12).

3.0 DEFINITIONS

3.1 Measurement System. The total equipment required for the measurement of CO and O_2 concentrations. The measurement system consists of the following major subsystems:

3.1.1 Data Recorder. A strip chart recorder, computer or digital recorder for logging measurement data from the analyzer output. You may record measurement data from the digital data display manually or electronically.

3.1.2 Electrochemical (EC) Cell. A device, similar to a fuel cell, used to sense the presence of a specific analyte and generate an electrical current output proportional to the analyte concentration.

3.1.3 Interference Gas Scrubber. A device used to remove or neutralize chemical compounds that may interfere with the selective operation of an EC cell.

3.1.4 Moisture Removal System. Any device used to reduce the concentration of moisture in the sample stream so as to protect the EC cells from the damaging effects of condensation and to minimize errors in measurements caused by the scrubbing of soluble gases.

3.1.5 Sample Interface. The portion of the system used for one or more of the following: sample acquisition; sample transport; sample conditioning or protection of the EC cell from any degrading effects of the engine exhaust effluent; removal of particulate matter and condensed moisture.

3.2 Nominal Range*.* The range of analyte concentrations over which each EC cell is operated (normally 25 percent to 150 percent of up-scale calibration gas value). Several nominal ranges can be used for any given cell so long as the calibration and repeatability checks for that range remain within specifications.

3.3 Calibration Gas*.* A vendor certified concentration of a specific analyte in an appropriate balance gas.

3.4 Zero Calibration Error*.* The analyte concentration output exhibited by the EC cell in response to zero-level calibration gas.

3.5 Up-Scale Calibration Error*.* The mean of the difference between the analyte concentration exhibited by the EC cell and the certified concentration of the up-scale calibration gas.

3.6 Interference Check*.* A procedure for quantifying analytical interference from components in the engine exhaust gas other than the targeted analytes.

3.7 Repeatability Check*.* A protocol for demonstrating that an EC cell operated over a given nominal analyte concentration range provides a stable and consistent response and is not significantly affected by repeated exposure to that gas.

3.8 Sample Flow Rate*.* The flow rate of the gas sample as it passes through the EC cell. In some situations, EC cells can experience drift with changes in flow rate. The flow rate must be monitored and documented during all phases of a sampling run.

3.9 Sampling Run*.* A timed three-phase event whereby an EC cell's response rises and plateaus in a sample conditioning phase, remains relatively constant during a measurement data phase, then declines during a refresh phase. The sample conditioning phase exposes the EC cell to the gas sample for a length of time sufficient to reach a constant response. The measurement data phase is the time interval during which gas sample measurements can be made that meet the acceptance criteria of this protocol. The refresh phase then purges the EC cells with CO-free air. The refresh phase replenishes requisite O_2 and moisture in the electrolyte reserve and provides a mechanism to de-gas or desorb any interference gas scrubbers or filters so as to enable a stable CO EC cell response. There are four primary types of sampling runs: pre- sampling calibrations; stack gas sampling; post-sampling calibration checks; and measurement system repeatability checks. Stack gas sampling runs can be chained together for extended evaluations, providing all other procedural specifications are met.

3.10 Sampling Day. A time not to exceed twelve hours from the time of the pre-sampling calibration to the post-sampling calibration check. During this time, stack gas sampling runs can be repeated without repeated recalibrations, providing all other sampling specifications have been met.

3.11 Pre-Sampling Calibration/Post-Sampling Calibration Check. The protocols executed at the beginning and end of each sampling day to bracket measurement readings with controlled performance checks.

3.12 Performance-Established Configuration. The EC cell and sampling system configuration that existed at the time that it initially met the performance requirements of this protocol.

4.0 INTERFERENCES.

When present in sufficient concentrations, NO and NO_2 are two gas species that have been reported to interfere with CO concentration measurements. In the likelihood of this occurrence, it is the protocol user's responsibility to employ and properly maintain an appropriate CO EC cell filter or scrubber for removal of these gases, as described in Section 6.2.12.

5.0 SAFETY. [RESERVED]

6.0 EQUIPMENT AND SUPPLIES.

6.1 What equipment do I need for the measurement system?

The system must maintain the gas sample at conditions that will prevent moisture condensation in the sample transport lines, both before and as the sample gas contacts the EC cells. The essential components of the measurement system are described below.

6.2 Measurement System Components.

6.2.1 Sample Probe. A single extraction-point probe constructed of glass, stainless steel or other non-reactive material, and of length sufficient to reach any designated sampling point. The sample probe must be designed to prevent plugging due to condensation or particulate matter.

6.2.2 Sample Line. Non-reactive tubing to transport the effluent from the sample probe to the EC cell.

6.2.3 Calibration Assembly (optional). A three-way valve assembly or equivalent to introduce calibration gases at ambient pressure at the exit end of the sample probe during calibration checks. The assembly must be designed such that only stack gas or calibration gas flows in the sample line and all gases flow through any gas path filters.

6.2.4 Particulate Filter (optional). Filters before the inlet of the EC cell to prevent accumulation of particulate material in the measurement system and extend the useful life of the components. All filters must be fabricated of materials that are non-reactive to the gas mixtures being sampled.

6.2.5 Sample Pump. A leak-free pump to provide undiluted sample gas to the system at a flow rate sufficient to minimize the response time of the measurement system. If located upstream of the EC cells, the pump must be constructed of a material that is non-reactive to the gas mixtures being sampled.

6.2.8 Sample Flow Rate Monitoring. An adjustable rotameter or equivalent device used to adjust and maintain the sample flow rate through the analyzer as prescribed.

6.2.9 Sample Gas Manifold (optional). A manifold to divert a portion of the sample gas stream to the analyzer and the remainder to a by-pass discharge vent. The sample gas manifold may also include provisions for introducing calibration gases directly to the analyzer. The manifold must be constructed of a material that is non-reactive to the gas mixtures being sampled.

6.2.10 EC cell. A device containing one or more EC cells to determine the CO and O_2 concentrations in the sample gas stream. The EC cell(s) must meet the applicable performance specifications of Section 13 of this protocol.

6.2.11 Data Recorder. A strip chart recorder, computer or digital recorder to make a record of analyzer output data. The data recorder resolution (i.e., readability) must be no greater than 1 ppm for CO; 0.1 percent for O_2; and one degree (either °C or °F) for temperature. Alternatively, you may use a digital or analog meter having the same resolution to observe and manually record the analyzer responses.

6.2.12 Interference Gas Filter or Scrubber. A device to remove interfering compounds upstream of the CO EC cell. Specific interference gas filters or scrubbers used in the performance-established configuration of the analyzer must continue to be used. Such a filter or scrubber must have a means to determine when the removal agent is exhausted. Periodically replace or replenish it in accordance with the manufacturer's recommendations.

7.0 REAGENTS AND STANDARDS. WHAT CALIBRATION GASES ARE NEEDED?

7.1 Calibration Gases. CO calibration gases for the EC cell must be CO in nitrogen or CO in a mixture of nitrogen and O_2. Use CO calibration gases with labeled concentration values certified by the manufacturer to be within ±5 percent of the label value. Dry ambient air (20.9 percent O_2) is acceptable for calibration of the O_2 cell. If needed, any lower percentage O_2 calibration gas must be a mixture of O_2 in nitrogen.

7.1.1 Up-Scale CO Calibration Gas Concentration. Choose one or more up-scale gas concentrations such that the average of the stack gas measurements for each stack gas sampling run are between 25 and 150 percent of those concentrations. Alternatively, choose an up-scale gas that does not exceed twice the concentration of the applicable outlet standard. If a measured gas value exceeds 150 percent of the up-scale CO calibration gas value at any time during the stack gas sampling run, the run must be discarded and repeated.

7.1.2 Up-Scale O_2 Calibration Gas Concentration.

Select an O_2 gas concentration such that the difference between the gas concentration and the average stack gas measurement or reading for each sample run is less than 15 percent O_2. When the average exhaust gas O_2 readings are above 6 percent, you may use dry ambient air (20.9 percent O_2) for the up-scale O_2 calibration gas.

7.1.3 Zero Gas. Use an inert gas that contains less than 0.25 percent of the up-scale CO calibration gas concentration. You may use dry air that is free from ambient CO and other combustion gas products (e.g., CO_2).

8.0 SAMPLE COLLECTION AND ANALYSIS

8.1 Selection of Sampling Sites.

8.1.1 Control Device Inlet. Select a sampling site sufficiently downstream of the engine so that the combustion gases should be well mixed. Use a single sampling extraction point near the center of the duct (e.g., within the 10 percent centroidal area), unless instructed otherwise.

8.1.2 Exhaust Gas Outlet. Select a sampling site located at least two stack diameters downstream of any disturbance (e.g., turbocharger exhaust, crossover junction or recirculation take-off) and at least one-half stack diameter upstream of the gas discharge to the atmosphere. Use a single sampling extraction point near the center of the duct (e.g., within the 10 percent centroidal area), unless instructed otherwise.

8.2 Stack Gas Collection and Analysis. Prior to the first stack gas sampling run, conduct that the pre-sampling calibration in accordance with Section 10.1. Use Figure 1 to record all data. Zero the analyzer with zero gas. Confirm and record that the scrubber media color is correct and not exhausted. Then position the probe at the sampling point and begin the sampling run at the same flow rate used during the up-scale calibration. Record the start time. Record all EC cell output responses and the flow rate during the "sample conditioning phase" once per minute until constant readings are obtained. Then begin the "measurement data phase" and record readings every 15 seconds for at least two minutes (or eight readings), or as otherwise required to achieve two continuous minutes of data that meet the specification given in Section 13.1. Finally, perform the "refresh phase" by introducing dry air, free from CO and other combustion gases, until several minute-to-minute readings of consistent value have been obtained. For each run use the "measurement data phase" readings to calculate the average stack gas CO and O_2 concentrations.

8.3 EC Cell Rate. Maintain the EC cell sample flow rate so that it does not vary by more than ±10 percent throughout the pre-sampling calibration, stack gas sampling and post-sampling calibration check. Alternatively, the EC cell sample flow rate can be maintained within a tolerance range that does not affect the gas concentration readings by more than ±3 percent, as instructed by the EC cell manufacturer.

9.0 QUALITY CONTROL (RESERVED)

10.0 CALIBRATION AND STANDARDIZATION

10.1 Pre-Sampling Calibration. Conduct the following protocol once for each nominal range to be used on each EC cell before performing a stack gas sampling run on each field sampling day. Repeat the calibration if you replace an EC cell before completing all of the sampling runs. There is no prescribed order for calibration of the EC cells; however, each cell must complete the measurement data phase during calibration. Assemble the measurement system by following the manufacturer's recommended protocols including for preparing and preconditioning the EC cell. Assure the measurement system has no leaks and verify the gas scrubbing agent is not depleted. Use Figure 1 to record all data.

10.1.1 Zero Calibration. For both the O_2 and CO cells, introduce zero gas to the measurement system (e.g., at the calibration assembly) and record the concentration reading every minute until readings are constant for at least two consecutive minutes. Include the time and sample flow rate. Repeat the steps in this section at least once to verify the zero calibration for each component gas.

10.1.2 Zero Calibration Tolerance. For each zero gas introduction, the zero level output must be less than or equal to ±3 percent of the up-scale gas value or ±1 ppm, whichever is less restrictive, for the CO channel and less than or equal to ±0.3 percent O_2 for the O_2 channel.

10.1.3 Up-Scale Calibration. Individually introduce each calibration gas to the measurement system (e.g., at the calibration assembly) and record the start time. Record all EC cell output responses and the flow rate during this "sample conditioning phase" once per minute until readings are constant for at least two minutes. Then begin the "measurement data phase" and record readings every 15 seconds for a total of two minutes, or as otherwise required. Finally, perform the "refresh phase" by introducing dry air, free from CO and other combustion gases, until readings are constant for at least two consecutive minutes. Then repeat the steps in this section at least once to verify the calibration for each component gas. Introduce all gases to flow through the entire sample handling system (i.e., at the exit end of the sampling probe or the calibration assembly).

10.1.4 Up-Scale Calibration Error. The mean of the difference of the "measurement data phase" readings from the reported standard gas value must be less than or equal to ±5 percent or ±1 ppm for CO or ±0.5 percent O_2, whichever is less restrictive, respectively. The maximum allowable deviation from the mean measured value of any single "measurement data phase" reading must be less than or equal to ±2 percent or ±1 ppm for CO or ±0.5 percent O_2, whichever is less restrictive, respectively.

10.2 Post-Sampling Calibration Check. Conduct a stack gas post-sampling calibration check after the stack gas sampling run or set of runs and within 12 hours of the initial calibration. Conduct up-scale and zero calibration checks using the protocol in Section 10.1. Make no changes to the sampling system or EC cell calibration until all post-sampling calibration checks have been recorded. If either the zero or up-scale calibration error exceeds the respective specification in Sections 10.1.2 and 10.1.4 then all measurement data collected since the previous successful calibrations are invalid and re-calibration and re-sampling are required. If the sampling system is disassembled or the EC cell calibration is adjusted, repeat the calibration check before conducting the next analyzer sampling run.

11.0 ANALYTICAL PROCEDURE

The analytical procedure is fully discussed in Section 8.

12.0 CALCULATIONS AND DATA ANALYSIS

Determine the CO and O_2 concentrations for each stack gas sampling run by calculating the mean gas concentrations of the data recorded during the "measurement data phase".

13.0 PROTOCOL PERFORMANCE

Use the following protocols to verify consistent analyzer performance during each field sampling day.

13.1 Measurement Data Phase Performance Check. Calculate the mean of the readings from the "measurement data phase". The maximum allowable deviation from the mean for each of the individual readings is ±2 percent, or ±1 ppm, whichever is less restrictive. Record the mean value and maximum deviation for each gas monitored. Data must conform to Section 10.1.4. The EC cell flow rate must conform to the specification in Section 8.3.

Example: A measurement data phase is invalid if the maximum deviation of any single reading comprising that mean is greater than ±2 percent *or* ±1 ppm (the default criteria). For example, if the mean = 30 ppm, single readings of below 29 ppm and above 31 ppm are disallowed).

13.2 Interference Check. Before the initial use of the EC cell and interference gas scrubber in the field, and semi-annually thereafter, challenge the interference gas scrubber with NO and NO_2 gas standards that are generally recognized as representative of diesel-fueled engine NO and NO_2 emission values. Record the responses displayed by the CO EC cell and other pertinent data on Figure 1 or a similar form.

13.2.1 Interference Response. The combined NO and NO_2 interference response should be less than or equal to ±5 percent of the up-scale CO calibration gas concentration.

13.3 Repeatability Check. Conduct the following check once for each nominal range that is to be used on the CO EC cell within 5 days prior to each field sampling program. If a field sampling program lasts longer than 5 days, repeat this check every 5 days. Immediately repeat the check if the EC cell is replaced or if the EC cell is exposed to gas concentrations greater than 150 percent of the highest up-scale gas concentration.

13.3.1 Repeatability Check Procedure. Perform a complete EC cell sampling run (all three phases) by introducing the CO calibration gas to the measurement system and record the response. Follow Section 10.1.3. Use Figure 1 to record all data. Repeat the run three times for a total of four complete runs. During the four repeatability check runs, do not adjust the system except where necessary to achieve the correct calibration gas flow rate at the analyzer.

13.3.2 Repeatability Check Calculations. Determine the highest and lowest average "measurement data phase" CO concentrations from the four repeatability check runs and record the results on Figure 1 or a similar form. The absolute value of the difference between the maximum and minimum average values recorded must not vary more than ±3 percent or ±1 ppm of the up-scale gas value, whichever is less restrictive.

14.0 POLLUTION PREVENTION (RESERVED)

15.0 WASTE MANAGEMENT (RESERVED)

16.0 ALTERNATIVE PROCEDURES (RESERVED)

17.0 REFERENCES

(1) "Development of an Electrochemical Cell Emission Analyzer Test Protocol", Topical Report, Phil Juneau, Emission Monitoring, Inc., July 1997.

(2) "Determination of Nitrogen Oxides, Carbon Monoxide, and Oxygen Emissions from Natural Gas-Fired Engines, Boilers, and Process Heaters Using Portable Analyzers", EMC Conditional Test Protocol 30 (CTM-30), Gas Research Institute Protocol GRI-96/0008, Revision 7, October 13, 1997.

(3) "ICAC Test Protocol for Periodic Monitoring", EMC Conditional Test Protocol 34 (CTM-034), The Institute of Clean Air Companies, September 8, 1999.

(4) "Code of Federal Regulations", Protection of Environment, 40 CFR, Part 60, Appendix A, Methods 1-4; 10.

TABLE 1: APPENDIX A—SAMPLING RUN DATA.

Facility_____ Engine I.D._____ Date_____											
Run Type:	(_)		(_)				(_)				(_)
(X)	Pre-Sample Calibration		Stack Gas Sample				Post-Sample Cal. Check				Repeatability Check
Run #	1	1	2	2	3	3	4	4	Time	Scrub. OK	Flow- Rate
Gas	O_2	CO	O_2	CO	O_2	CO	O_2	CO			
Sample Cond. Phase											
″											
″											
″											
″											
Measurement Data Phase											
″											
″											

″											
″											
″											
″											
″											
″											
″											
″											
Mean											
Refresh Phase											
″											
″											
″											
″											

Appendix G: 40 CFR pt. 63, subp. A Provisions

40 CFR Part 63, Subpart A—General Provisions

§63.1 Applicability.

(a) *General.*

(1) Terms used throughout this part are defined in §63.2 or in the Clean Air Act (Act) as amended in 1990, except that individual subparts of this part may include specific definitions in addition to or that supersede definitions in §63.2.

(2) This part contains national emission standards for hazardous air pollutants (NESHAP) established pursuant to section 112 of the Act as amended November 15, 1990. These standards regulate specific categories of stationary sources that emit (or have the potential to emit) one or more hazardous air pollutants listed in this part pursuant to section 112(b) of the Act. This section explains the applicability of such standards to sources affected by them. The standards in this part are independent of NESHAP contained in 40 CFR part 61. The NESHAP in part 61 promulgated by signature of the Administrator before November 15, 1990 (i.e., the date of enactment of the Clean Air Act Amendments of 1990) remain in effect until they are amended, if appropriate, and added to this part.

(3) No emission standard or other requirement established under this part shall be interpreted, construed, or applied to diminish or replace the requirements of a more stringent emission limitation or other applicable requirement established by the Administrator pursuant to other authority of the Act (section 111, part C or D or any other authority of this Act), or a standard issued under State authority. The Administrator may specify in a specific standard under this part that facilities subject to other provisions under the Act need only comply with the provisions of that standard.

(4)(i) Each relevant standard in this part 63 must identify explicitly whether each provision in this subpart A is or is not included in such relevant standard.

(ii) If a relevant part 63 standard incorporates the requirements of 40 CFR part 60, part 61 or other part 63 standards, the relevant part 63 standard must identify explicitly the applicability of each corresponding part 60, part 61, or other part 63 subpart A (General) provision.

(iii) The General Provisions in this subpart A do not apply to regulations developed pursuant to section 112(r) of the amended Act, unless otherwise specified in those regulations.

(5) [Reserved]

(6) To obtain the most current list of categories of sources to be regulated under section 112 of the Act, or to obtain the most recent regulation promulgation schedule established pursuant to section 112(e) of the Act, contact the Office of the Director, Emission Standards Division, Office of Air Quality Planning and Standards, U.S. EPA (MD-13), Research Triangle Park, North Carolina 27711.

(7)-(9) [Reserved]

(10) For the purposes of this part, time periods specified in days shall be measured in calendar days, even if the word “calendar” is absent, unless otherwise specified in an applicable requirement.

(11) For the purposes of this part, if an explicit postmark deadline is not specified in an applicable requirement for the submittal of a notification, application, test plan, report, or other written communication to the Administrator, the owner or operator shall postmark the submittal on or before the number of days specified in the applicable requirement. For example, if a notification must be submitted 15 days before a particular event is scheduled to take place, the notification shall be postmarked on or before 15 days preceding the event; likewise, if a notification must be submitted 15 days after a particular event takes place, the notification shall be postmarked on or before 15 days following the end of the event. The use of reliable non-Government mail carriers that provide indications of verifiable delivery of information required to be submitted to the Administrator, similar to the postmark provided by the U.S. Postal Service, or alternative means of delivery agreed to by the permitting authority, is acceptable.

(12) Notwithstanding time periods or postmark deadlines specified in this part for the submittal of information to the Administrator by an owner or operator, or the review of such information by the Administrator, such time periods or deadlines may be changed by mutual agreement between the owner or operator and the Administrator. Procedures governing the implementation of this provision are specified in §63.9(i).

(b) *Initial applicability determination for this part.* (1) The provisions of this part apply to the owner or operator of any stationary source that—

(i) Emits or has the potential to emit any hazardous air pollutant listed in or pursuant to section 112(b) of the Act; and

(ii) Is subject to any standard, limitation, prohibition, or other federally enforceable requirement established pursuant to this part.

(2) [Reserved]

(3) An owner or operator of a stationary source who is in the relevant source category and who determines that the source is not subject to a relevant standard or other requirement established under this part must keep a record as specified in §63.10(b)(3).

(c) *Applicability of this part after a relevant standard has been set under this part.* (1) If a relevant standard has been established under this part, the owner or operator of an affected source must comply with the provisions of that standard and of this subpart as provided in paragraph (a)(4) of this section.

(2) Except as provided in §63.10(b)(3), if a relevant standard has been established under this part, the owner or operator of an affected source may be required to obtain a title V permit from a permitting authority in the State in which the source is located. Emission standards promulgated in this part for area sources pursuant to section 112(c)(3) of the Act will specify whether—

(i) States will have the option to exclude area sources affected by that standard from the requirement to obtain a title V permit (i.e., the standard will exempt the category of area sources altogether from the permitting requirement);

(ii) States will have the option to defer permitting of area sources in that category until the Administrator takes rulemaking action to determine applicability of the permitting requirements; or

(iii) If a standard fails to specify what the permitting requirements will be for area sources affected by such a standard, then area sources that are subject to the standard will be subject to the requirement to obtain a title V permit without any deferral.

(3)-(4) [Reserved]

(5) If an area source that otherwise would be subject to an emission standard or other requirement established under this part if it were a major source subsequently increases its emissions of hazardous air pollutants (or its potential to emit hazardous air pollutants) such that the source is a major source that is subject to the emission standard or other requirement, such source also shall be subject to the notification requirements of this subpart.

(d) [Reserved]

(e) If the Administrator promulgates an emission standard under section 112(d) or (h) of the Act that is applicable to a source subject to an emission limitation by permit established under section 112(j) of the Act, and the requirements under the section 112(j) emission limitation are substantially as effective as the promulgated emission standard, the owner or operator may request the permitting authority to revise the source's title V permit to reflect that the emission limitation in the permit satisfies the requirements of the promulgated emission standard. The process by which the permitting authority determines whether the section 112(j) emission limitation is substantially as effective as the promulgated emission standard must include, consistent with part 70 or 71 of this chapter, the opportunity for full public, EPA, and affected State review (including the opportunity for EPA's objection) prior to the permit revision being finalized. A negative determination by the permitting authority constitutes final action for purposes of review and appeal under the applicable title V operating permit program.

§63.2 Definitions.

The terms used in this part are defined in the Act or in this section as follows:

Act means the Clean Air Act (42 U.S.C. 7401 *et seq.,* as amended by Pub. L. 101-549, 104 Stat. 2399).

Actual emissions is defined in subpart D of this part for the purpose of granting a compliance extension for an early reduction of hazardous air pollutants.

Administrator means the Administrator of the United States Environmental Protection Agency or his or her authorized representative (e.g., a State that has been delegated the authority to implement the provisions of this part).

Affected source, for the purposes of this part, means the collection of equipment, activities, or both within a single contiguous area and under common control that is included in a section 112(c) source category or subcategory for which a section 112(d) standard or other relevant standard is established pursuant to section 112 of the Act. Each relevant standard will define the “affected source,” as defined in this paragraph unless a different definition is warranted based on a published justification as to why this definition would result in significant administrative, practical, or implementation problems and why the different definition would resolve

those problems. The term "affected source," as used in this part, is separate and distinct from any other use of that term in EPA regulations such as those implementing title IV of the Act. Affected source may be defined differently for part 63 than affected facility and stationary source in parts 60 and 61, respectively. This definition of "affected source," and the procedures for adopting an alternative definition of "affected source," shall apply to each section 112(d) standard for which the initial proposed rule is signed by the Administrator after June 30, 2002.

Alternative emission limitation means conditions established pursuant to sections 112(i)(5) or 112(i)(6) of the Act by the Administrator or by a State with an approved permit program.

Alternative emission standard means an alternative means of emission limitation that, after notice and opportunity for public comment, has been demonstrated by an owner or operator to the Administrator's satisfaction to achieve a reduction in emissions of any air pollutant at least equivalent to the reduction in emissions of such pollutant achieved under a relevant design, equipment, work practice, or operational emission standard, or combination thereof, established under this part pursuant to section 112(h) of the Act.

Alternative test method means any method of sampling and analyzing for an air pollutant that is not a test method in this chapter and that has been demonstrated to the Administrator's satisfaction, using Method 301 in appendix A of this part, to produce results adequate for the Administrator's determination that it may be used in place of a test method specified in this part.

Approved permit program means a State permit program approved by the Administrator as meeting the requirements of part 70 of this chapter or a Federal permit program established in this chapter pursuant to title V of the Act (42 U.S.C. 7661).

Area source means any stationary source of hazardous air pollutants that is not a major source as defined in this part.

Commenced means, with respect to construction or reconstruction of an affected source, that an owner or operator has undertaken a continuous program of construction or reconstruction or that an owner or operator has entered into a contractual obligation to undertake and complete, within a reasonable time, a continuous program of construction or reconstruction.

Compliance date means the date by which an affected source is required to be in compliance with a relevant standard, limitation, prohibition, or any federally enforceable requirement established by the Administrator (or a State with an approved permit program) pursuant to section 112 of the Act.

Compliance schedule means:

(1) In the case of an affected source that is in compliance with all applicable requirements established under this part, a statement that the source will continue to comply with such requirements; or

(2) In the case of an affected source that is required to comply with applicable requirements by a future date, a statement that the source will meet such requirements on a timely basis and, if required by an applicable requirement, a detailed schedule of the dates by which each step toward compliance will be reached; or

(3) In the case of an affected source not in compliance with all applicable requirements established under this part, a schedule of remedial measures, including an enforceable sequence of actions or operations with milestones and a schedule for the submission of certified progress reports, where applicable, leading to compliance with a relevant standard, limitation, prohibition, or any federally enforceable requirement established pursuant to section 112 of the Act for which the affected source is not in compliance. This compliance schedule shall resemble and be at least as stringent as that contained in any judicial consent decree or administrative order to which the source is subject. Any such schedule of compliance shall be supplemental to, and shall not sanction noncompliance with, the applicable requirements on which it is based.

Construction means the on-site fabrication, erection, or installation of an affected source. Construction does not include the removal of all equipment comprising an affected source from an existing location and reinstallation of such equipment at a new location. The owner or operator of an existing affected source that is relocated may elect not to reinstall minor ancillary equipment including, but not limited to, piping, ductwork, and valves. However, removal and reinstallation of an affected source will be construed as reconstruction if it satisfies the criteria for reconstruction as defined in this section. The costs of replacing minor ancillary equipment must be considered in determining whether the existing affected source is reconstructed.

Continuous emission monitoring system (CEMS) means the total equipment that may be required to meet the data acquisition and availability requirements of this part, used to sample, condition (if applicable), analyze, and provide a record of emissions.

Continuous monitoring system (CMS) is a comprehensive term that may include, but is not limited to, continuous emission monitoring systems, continuous opacity monitoring systems, continuous parameter monitoring systems, or other manual or automatic monitoring that is used for demonstrating compliance with an applicable regulation on a continuous basis as defined by the regulation.

Continuous opacity monitoring system (COMS) means a continuous monitoring system that measures the opacity of emissions.

Continuous parameter monitoring system means the total equipment that may be required to meet the data acquisition and availability requirements of this part, used to sample, condition (if applicable), analyze, and provide a record of process or control system parameters.

Effective date means:

(1) With regard to an emission standard established under this part, the date of promulgation in the Federal Register of such standard; or

(2) With regard to an alternative emission limitation or equivalent emission limitation determined by the Administrator (or a State with an approved permit program), the date that the alternative emission limitation or equivalent emission limitation becomes effective according to the provisions of this part.

Emission standard means a national standard, limitation, prohibition, or other regulation promulgated in a subpart of this part pursuant to sections 112(d), 112(h), or 112(f) of the Act.

Emissions averaging is a way to comply with the emission limitations specified in a relevant standard, whereby an affected source, if allowed under a subpart of this part, may create emission credits by reducing emissions from specific points to a level below that required by the relevant standard, and those credits are used to offset emissions from points that are not controlled to the level required by the relevant standard.

EPA means the United States Environmental Protection Agency.

Equivalent emission limitation means any maximum achievable control technology emission limitation or requirements which are applicable to a major source of hazardous air pollutants and are adopted by the Administrator (or a State with an approved permit program) on a case-by-case basis, pursuant to section 112(g) or (j) of the Act.

Excess emissions and continuous monitoring system performance report is a report that must be submitted periodically by an affected source in order to provide data on its compliance with relevant emission limits, operating parameters, and the performance of its continuous parameter monitoring systems.

Existing source means any affected source that is not a new source.

Federally enforceable means all limitations and conditions that are enforceable by the Administrator and citizens under the Act or that are enforceable under other statutes administered by the Administrator. Examples of federally enforceable limitations and conditions include, but are not limited to:

(1) Emission standards, alternative emission standards, alternative emission limitations, and equivalent emission limitations established pursuant to section 112 of the Act as amended in 1990;

(2) New source performance standards established pursuant to section 111 of the Act, and emission standards established pursuant to section 112 of the Act before it was amended in 1990;

(3) All terms and conditions in a title V permit, including any provisions that limit a source's potential to emit, unless expressly designated as not federally enforceable;

(4) Limitations and conditions that are part of an approved State Implementation Plan (SIP) or a Federal Implementation Plan (FIP);

(5) Limitations and conditions that are part of a Federal construction permit issued under 40 CFR 52.21 or any construction permit issued under regulations approved by the EPA in accordance with 40 CFR part 51;

(6) Limitations and conditions that are part of an operating permit where the permit and the permitting program pursuant to which it was issued meet all of the following criteria:

(i) The operating permit program has been submitted to and approved by EPA into a State implementation plan (SIP) under section 110 of the CAA;

(ii) The SIP imposes a legal obligation that operating permit holders adhere to the terms and limitations of such permits and provides that permits which do not conform to the operating permit program requirements and the requirements of EPA's underlying regulations may be deemed not “federally enforceable” by EPA;

(iii) The operating permit program requires that all emission limitations, controls, and other requirements imposed by such permits will be at least as stringent as any other applicable limitations and requirements contained in the SIP or enforceable under the SIP, and that the program may not issue permits that waive, or make less stringent, any limitations or requirements contained in or issued pursuant to the SIP, or that are otherwise "federally enforceable";

(iv) The limitations, controls, and requirements in the permit in question are permanent, quantifiable, and otherwise enforceable as a practical matter; and

(v) The permit in question was issued only after adequate and timely notice and opportunity for comment for EPA and the public.

(7) Limitations and conditions in a State rule or program that has been approved by the EPA under subpart E of this part for the purposes of implementing and enforcing section 112; and

(8) Individual consent agreements that the EPA has legal authority to create.

Fixed capital cost means the capital needed to provide all the depreciable components of an existing source.

Force majeure means, for purposes of §63.7, an event that will be or has been caused by circumstances beyond the control of the affected facility, its contractors, or any entity controlled by the affected facility that prevents the owner or operator from complying with the regulatory requirement to conduct performance tests within the specified timeframe despite the affected facility's best efforts to fulfill the obligation. Examples of such events are acts of nature, acts of war or terrorism, or equipment failure or safety hazard beyond the control of the affected facility.

Fugitive emissions means those emissions from a stationary source that could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening. Under section 112 of the Act, all fugitive emissions are to be considered in determining whether a stationary source is a major source.

Hazardous air pollutant means any air pollutant listed in or pursuant to section 112(b) of the Act.

Issuance of a part 70 permit will occur, if the State is the permitting authority, in accordance with the requirements of part 70 of this chapter and the applicable, approved State permit program. When the EPA is the permitting authority, issuance of a title V permit occurs immediately after the EPA takes final action on the final permit.

Major source means any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit considering controls, in the aggregate, 10 tons per year or more of any hazardous air pollutant or 25 tons per year or more of any combination of hazardous air pollutants, unless the Administrator establishes a lesser quantity, or in the case of radionuclides, different criteria from those specified in this sentence.

Malfunction means any sudden, infrequent, and not reasonably preventable failure of air pollution control and monitoring equipment, process equipment, or a process to operate in a normal or usual manner which causes, or has the potential to cause, the emission limitations in an applicable standard to be exceeded. Failures that are caused in part by poor maintenance or careless operation are not malfunctions.

Monitoring means the collection and use of measurement data or other information to control the operation of a process or pollution control device or to verify a work practice standard relative to assuring compliance with applicable requirements. Monitoring is composed of four elements:

(1) Indicator(s) of performance—the parameter or parameters you measure or observe for demonstrating proper operation of the pollution control measures or compliance with the applicable emissions limitation or standard. Indicators of performance may include direct or predicted emissions measurements (including opacity), operational parametric values that correspond to process or control device (and capture system) efficiencies or emissions rates, and recorded findings of inspection of work practice activities, materials tracking, or design characteristics. Indicators may be expressed as a single maximum or minimum value, a function of process variables (for example, within a range of pressure drops), a particular operational or work practice status (for example, a damper position, completion of a waste recovery task, materials tracking), or an interdependency between two or among more than two variables.

(2) Measurement techniques—the means by which you gather and record information of or about the indicators of performance. The components of the measurement technique include the detector type, location and installation specifications, inspection procedures, and quality assurance and quality control measures. Examples of measurement techniques include continuous emission monitoring systems, continuous opacity monitoring systems, continuous parametric monitoring systems, and manual inspections that include making records of process conditions or work practices.

(3) Monitoring frequency—the number of times you obtain and record monitoring data over a specified time interval. Examples of monitoring frequencies include at least four points equally spaced for each hour for continuous emissions or parametric monitoring systems, at least every 10 seconds for continuous opacity monitoring systems, and at least once per operating day (or week, month, etc.) for work practice or design inspections.

(4) Averaging time—the period over which you average and use data to verify proper operation of the pollution control approach or compliance with the emissions limitation or standard. Examples of averaging time include a 3-hour average in units of the emissions limitation, a 30-day rolling average emissions value, a daily average of a control device operational parametric range, and an instantaneous alarm.

New affected source means the collection of equipment, activities, or both within a single contiguous area and under common control that is included in a section 112(c) source category or subcategory that is subject to a section 112(d) or other relevant standard for new sources. This definition of "new affected source," and the criteria to be utilized in implementing it, shall apply to each section 112(d) standard for which the initial proposed rule is signed by the Administrator after June 30, 2002. Each relevant standard will define the term "new affected source," which will be the same as the "affected source" unless a different collection is warranted based on consideration of factors including:

(1) Emission reduction impacts of controlling individual sources versus groups of sources;

(2) Cost effectiveness of controlling individual equipment;

(3) Flexibility to accommodate common control strategies;

(4) Cost/benefits of emissions averaging;

(5) Incentives for pollution prevention;

(6) Feasibility and cost of controlling processes that share common equipment (e.g., product recovery devices);

(7) Feasibility and cost of monitoring; and

(8) Other relevant factors.

New source means any affected source the construction or reconstruction of which is commenced after the Administrator first proposes a relevant emission standard under this part establishing an emission standard applicable to such source.

One-hour period, unless otherwise defined in an applicable subpart, means any 60-minute period commencing on the hour.

Opacity means the degree to which emissions reduce the transmission of light and obscure the view of an object in the background. For continuous opacity monitoring systems, opacity means the fraction of incident light that is attenuated by an optical medium.

Owner or operator means any person who owns, leases, operates, controls, or supervises a stationary source.

Performance audit means a procedure to analyze blind samples, the content of which is known by the Administrator, simultaneously with the analysis of performance test samples in order to provide a measure of test data quality.

Performance evaluation means the conduct of relative accuracy testing, calibration error testing, and other measurements used in validating the continuous monitoring system data.

Performance test means the collection of data resulting from the execution of a test method (usually three emission test runs) used to demonstrate compliance with a relevant emission standard as specified in the performance test section of the relevant standard.

Permit modification means a change to a title V permit as defined in regulations codified in this chapter to implement title V of the Act (42 U.S.C. 7661).

Permit program means a comprehensive State operating permit system established pursuant to title V of the Act (42 U.S.C. 7661) and regulations codified in part 70 of this chapter and applicable State regulations, or a comprehensive Federal operating permit system established pursuant to title V of the Act and regulations codified in this chapter.

Permit revision means any permit modification or administrative permit amendment to a title V permit as defined in regulations codified in this chapter to implement title V of the Act (42 U.S.C. 7661).

Permitting authority means:

(1) The State air pollution control agency, local agency, other State agency, or other agency authorized by the Administrator to carry out a permit program under part 70 of this chapter; or

(2) The Administrator, in the case of EPA-implemented permit programs under title V of the Act (42 U.S.C. 7661).

Pollution Prevention means *source reduction* as defined under the Pollution Prevention Act (42 U.S.C. 13101-13109). The definition is as follows:

(1) *Source reduction* is any practice that:

(i) Reduces the amount of any hazardous substance, pollutant, or contaminant entering any waste stream or otherwise released into the environment (including fugitive emissions) prior to recycling, treatment, or disposal; and

(ii) Reduces the hazards to public health and the environment associated with the release of such substances, pollutants, or contaminants.

(2) The term *source reduction* includes equipment or technology modifications, process or procedure modifications, reformulation or redesign of products, substitution of raw materials, and improvements in housekeeping, maintenance, training, or inventory control.

(3) The term *source reduction* does not include any practice that alters the physical, chemical, or biological characteristics or the volume of a hazardous substance, pollutant, or contaminant through a process or activity which itself is not integral to and necessary for the production of a product or the providing of a service.

Potential to emit means the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the stationary source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable.

Reconstruction, unless otherwise defined in a relevant standard, means the replacement of components of an affected or a previously nonaffected source to such an extent that:

(1) The fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable new source; and

(2) It is technologically and economically feasible for the reconstructed source to meet the relevant standard(s) established by the Administrator (or a State) pursuant to section 112 of the Act. Upon reconstruction, an affected source, or a stationary source that becomes an affected source, is subject to relevant standards for new sources, including compliance dates, irrespective of any change in emissions of hazardous air pollutants from that source.

Regulation promulgation schedule means the schedule for the promulgation of emission standards under this part, established by the Administrator pursuant to section 112(e) of the Act and published in the Federal Register.

Relevant standard means:

(1) An emission standard;

(2) An alternative emission standard;

(3) An alternative emission limitation; or

(4) An equivalent emission limitation established pursuant to section 112 of the Act that applies to the collection of equipment, activities, or both regulated by such standard or limitation. A relevant standard may include or consist of a design, equipment, work practice, or operational requirement, or other measure, process, method, system, or technique (including prohibition of emissions) that the Administrator (or a State) establishes for new or existing sources to which such standard or limitation applies. Every relevant standard established pursuant to section 112 of the Act includes subpart A of this part, as provided by §63.1(a)(4), and all applicable appendices of this part or of other parts of this chapter that are referenced in that standard.

Responsible official means one of the following:

(1) For a corporation: A president, secretary, treasurer, or vice president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities and either:

(i) The facilities employ more than 250 persons or have gross annual sales or expenditures exceeding $25 million (in second quarter 1980 dollars); or

(ii) The delegation of authority to such representative is approved in advance by the Administrator.

(2) For a partnership or sole proprietorship: a general partner or the proprietor, respectively.

(3) For a municipality, State, Federal, or other public agency: either a principal executive officer or ranking elected official. For the purposes of this part, a principal executive officer of a Federal agency includes the chief executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., a Regional Administrator of the EPA).

(4) For affected sources (as defined in this part) applying for or subject to a title V permit: "responsible official" shall have the same meaning as defined in part 70 or Federal title V regulations in this chapter (42 U.S.C. 7661), whichever is applicable.

Run means one of a series of emission or other measurements needed to determine emissions for a representative operating period or cycle as specified in this part.

Shutdown means the cessation of operation of an affected source or portion of an affected source for any purpose.

Six-minute period means, with respect to opacity determinations, any one of the 10 equal parts of a 1-hour period.

Source at a Performance Track member facility means a major or area source located at a facility which has been accepted by EPA for membership in the Performance Track Program (as described at *www.epa.gov/PerformanceTrack*) and is still a member of the Program. The Performance Track Program is a

voluntary program that encourages continuous environmental improvement through the use of environmental management systems, local community outreach, and measurable results.

Standard conditions means a temperature of 293 K (68 °F) and a pressure of 101.3 kilopascals (29.92 in. Hg).

Startup means the setting in operation of an affected source or portion of an affected source for any purpose.

State means all non-Federal authorities, including local agencies, interstate associations, and State-wide programs, that have delegated authority to implement: (1) The provisions of this part and/or (2) the permit program established under part 70 of this chapter. The term State shall have its conventional meaning where clear from the context.

Stationary source means any building, structure, facility, or installation which emits or may emit any air pollutant.

Test method means the validated procedure for sampling, preparing, and analyzing for an air pollutant specified in a relevant standard as the performance test procedure. The test method may include methods described in an appendix of this chapter, test methods incorporated by reference in this part, or methods validated for an application through procedures in Method 301 of appendix A of this part.

Title V permit means any permit issued, renewed, or revised pursuant to Federal or State regulations established to implement title V of the Act (42 U.S.C. 7661). A title V permit issued by a State permitting authority is called a part 70 permit in this part.

Visible emission means the observation of an emission of opacity or optical density above the threshold of vision.

Working day means any day on which Federal Government offices (or State government offices for a State that has obtained delegation under section 112(l)) are open for normal business. Saturdays, Sundays, and official Federal (or where delegated, State) holidays are not working days.

§63.3 Units and abbreviations.

Used in this part are abbreviations and symbols of units of measure. These are defined as follows:

(a) *System International (SI) units of measure:*

A = ampere

g = gram

Hz = hertz

J = joule

°K = degree Kelvin

kg = kilogram

l = liter

m = meter

m^3 = cubic meter

mg = milligram = 10^{-3} gram

ml = milliliter = 10^{-3} liter

mm = millimeter = 10^{-3} meter

Mg = megagram = 10^6 gram = metric ton

MJ = megajoule

mol = mole

N = newton

ng = nanogram = 10^{-9} gram

nm = nanometer = 10^{-9} meter

Pa = pascal

s = second

V = volt

W = watt

Ω = ohm

µg = microgram = 10^{-6} gram

µl = microliter = 10^{-6} liter

(b) *Other units of measure:*

Btu = British thermal unit

°C = degree Celsius (centigrade)

cal = calorie

cfm = cubic feet per minute

cc = cubic centimeter

cu ft = cubic feet

d = day

dcf = dry cubic feet

dcm = dry cubic meter

dscf = dry cubic feet at standard conditions

dscm = dry cubic meter at standard conditions

eq = equivalent

°F degree Fahrenheit

ft = feet

ft^2 = square feet

ft^3 = cubic feet

gal = gallon

gr = grain

g-eq = gram equivalent

g-mole = gram mole

hr = hour

in. = inch

in. H_2O = inches of water

K = 1,000

kcal = kilocalorie

lb = pound

lpm = liter per minute

meq = milliequivalent

min = minute

MW = molecular weight

oz = ounces

ppb = parts per billion

ppbw = parts per billion by weight

ppbv = parts per billion by volume

ppm = parts per million

ppmw = parts per million by weight

ppmv = parts per million by volume

psia = pounds per square inch absolute

psig = pounds per square inch gage

°R = degree Rankine

scf = cubic feet at standard conditions

scfh = cubic feet at standard conditions per hour

scm = cubic meter at standard conditions

scmm = cubic meter at standard conditions per minute

sec = second

sq ft = square feet

std = at standard conditions

v/v = volume per volume

yd^2 = square yards

yr = year

(c) *Miscellaneous:*

act = actual

avg = average

I.D. = inside diameter

M = molar

N = normal

O.D. = outside diameter

% = percent

§63.4 Prohibited activities and circumvention.

(a) *Prohibited activities.*

(1) No owner or operator subject to the provisions of this part must operate any affected source in violation of the requirements of this part. Affected sources subject to and in compliance with either an extension of compliance or an exemption from compliance are not in violation of the requirements of this part. An extension of compliance can be granted by the Administrator under this part; by a State with an approved permit program; or by the President under section 112(i)(4) of the Act.

(2) No owner or operator subject to the provisions of this part shall fail to keep records, notify, report, or revise reports as required under this part.

(3)-(5) [Reserved]

(b) *Circumvention.* No owner or operator subject to the provisions of this part shall build, erect, install, or use any article, machine, equipment, or process to conceal an emission that would otherwise constitute noncompliance with a relevant standard. Such concealment includes, but is not limited to—

(1) The use of diluents to achieve compliance with a relevant standard based on the concentration of a pollutant in the effluent discharged to the atmosphere;

(2) The use of gaseous diluents to achieve compliance with a relevant standard for visible emissions; and

(c) *Fragmentation.* Fragmentation after November 15, 1990 which divides ownership of an operation, within the same facility among various owners where there is no real change in control, will not affect applicability. The owner and operator must not use fragmentation or phasing of reconstruction activities (i.e., intentionally dividing reconstruction into multiple parts for purposes of avoiding new source requirements) to avoid becoming subject to new source requirements.

§63.5 Preconstruction review and notification requirements.

(a) *Applicability.*

(1) This section implements the preconstruction review requirements of section 112(i)(1). After the effective date of a relevant standard, promulgated pursuant to section 112(d), (f), or (h) of the Act, under this part, the preconstruction review requirements in this section apply to the owner or operator of new affected sources and reconstructed affected sources that are major-emitting as specified in this section. New and reconstructed affected sources that commence construction or reconstruction before the effective date of a relevant standard are not subject to the preconstruction review requirements specified in paragraphs (b)(3), (d), and (e) of this section.

(2) This section includes notification requirements for new affected sources and reconstructed affected sources that are not major-emitting affected sources and that are or become subject to a relevant promulgated emission standard after the effective date of a relevant standard promulgated under this part.

(b) *Requirements for existing, newly constructed, and reconstructed sources.* (1) A new affected source for which construction commences after proposal of a relevant standard is subject to relevant standards for new affected sources, including compliance dates. An affected source for which reconstruction commences after proposal of a relevant standard is subject to relevant standards for new sources, including compliance dates, irrespective of any change in emissions of hazardous air pollutants from that source.

(2) [Reserved]

(3) After the effective date of any relevant standard promulgated by the Administrator under this part, no person may, without obtaining written approval in advance from the Administrator in accordance with the procedures specified in paragraphs (d) and (e) of this section, do any of the following:

(i) Construct a new affected source that is major-emitting and subject to such standard;

(ii) Reconstruct an affected source that is major-emitting and subject to such standard; or

(iii) Reconstruct a major source such that the source becomes an affected source that is major-emitting and subject to the standard.

(4) 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 of the intended construction or reconstruction. The notification must be submitted in accordance with the procedures in §63.9(b).

(5) [Reserved]

(6) After the effective date of any relevant standard promulgated by the Administrator under this part, equipment added (or a process change) to an affected source that is within the scope of the definition of affected source under the relevant standard must be considered part of the affected source and subject to all provisions of the relevant standard established for that affected source.

(c) [Reserved]

(d) *Application for approval of construction or reconstruction.* The provisions of this paragraph implement section 112(i)(1) of the Act.

(1) *General application requirements.* (i) An owner or operator who is subject to the requirements of paragraph (b)(3) of this section must submit to the Administrator an application for approval of the construction or reconstruction. The application must be submitted as soon as practicable before actual construction or reconstruction begins. The application for approval of construction or reconstruction may be used to fulfill the initial notification requirements of §63.9(b)(5). The owner or operator may submit the application for approval well in advance of the date actual construction or reconstruction begins in order to ensure a timely review by the Administrator and that the planned date to begin will not be delayed.

(ii) A separate application shall be submitted for each construction or reconstruction. Each application for approval of construction or reconstruction shall include at a minimum:

(A) The applicant's name and address;

(B) A notification of intention to construct a new major affected source or make any physical or operational change to a major affected source that may meet or has been determined to meet the criteria for a reconstruction, as defined in §63.2 or in the relevant standard;

(C) The address (i.e., physical location) or proposed address of the source;

(D) An identification of the relevant standard that is the basis of the application;

(E) The expected date of the beginning of actual construction or reconstruction;

(F) The expected completion date of the construction or reconstruction;

(G) [Reserved]

(H) The type and quantity of hazardous air pollutants emitted by the source, reported in units and averaging times and in accordance with the test methods specified in the relevant standard, or if actual emissions data are not yet available, an estimate of the type and quantity of hazardous air pollutants expected to be emitted by the source reported in units and averaging times specified in the relevant standard. The owner or operator may submit percent reduction information if a relevant standard is established in terms of percent reduction. However, operating parameters, such as flow rate, shall be included in the submission to the extent that they demonstrate performance and compliance; and

(I) [Reserved]

(J) Other information as specified in paragraphs (d)(2) and (d)(3) of this section.

(iii) An owner or operator who submits estimates or preliminary information in place of the actual emissions data and analysis required in paragraphs (d)(1)(ii)(H) and (d)(2) of this section shall submit the actual, measured emissions data and other correct information as soon as available but no later than with the notification of compliance status required in §63.9(h) (see §63.9(h)(5)).

(2) *Application for approval of construction.* Each application for approval of construction must include, in addition to the information required in paragraph (d)(1)(ii) of this section, technical information describing the proposed nature, size, design, operating design capacity, and method of operation of the source, including an identification of each type of emission point for each type of hazardous air pollutant that is emitted (or could reasonably be anticipated to be emitted) and a description of the planned air pollution control system (equipment or method) for each emission point. The description of the equipment to be used for the control of emissions must include each control device for each hazardous air pollutant and the estimated control efficiency (percent) for each control device. The description of the method to be used for the control of emissions must include an estimated control efficiency (percent) for that method. Such technical information must include calculations of emission estimates in sufficient detail to permit assessment of the validity of the calculations.

(3) *Application for approval of reconstruction.* Each application for approval of reconstruction shall include, in addition to the information required in paragraph (d)(1)(ii) of this section—

(i) A brief description of the affected source and the components that are to be replaced;

(ii) A description of present and proposed emission control systems (i.e., equipment or methods). The description of the equipment to be used for the control of emissions shall include each control device for each hazardous air pollutant and the estimated control efficiency (percent) for each control device. The description of the method to be used for the control of emissions shall include an estimated control efficiency (percent) for that method. Such technical information shall include calculations of emission estimates in sufficient detail to permit assessment of the validity of the calculations;

(iii) An estimate of the fixed capital cost of the replacements and of constructing a comparable entirely new source;

(iv) The estimated life of the affected source after the replacements; and

(v) A discussion of any economic or technical limitations the source may have in complying with relevant standards or other requirements after the proposed replacements. The discussion shall be sufficiently detailed to demonstrate to the Administrator's satisfaction that the technical or economic limitations affect the source's ability to comply with the relevant standard and how they do so.

(vi) If in the application for approval of reconstruction the owner or operator designates the affected source as a reconstructed source and declares that there are no economic or technical limitations to prevent the source from complying with all relevant standards or other requirements, the owner or operator need not submit the information required in paragraphs (d)(3)(iii) through (d)(3)(v) of this section.

(4) *Additional information.* The Administrator may request additional relevant information after the submittal of an application for approval of construction or reconstruction.

(e) *Approval of construction or reconstruction.* (1)(i) If the Administrator determines that, if properly constructed, or reconstructed, and operated, a new or existing source for which an application under paragraph (d) of this section was submitted will not cause emissions in violation of the relevant standard(s) and any other federally enforceable requirements, the Administrator will approve the construction or reconstruction.

(ii) In addition, in the case of reconstruction, the Administrator's determination under this paragraph will be based on:

(A) The fixed capital cost of the replacements in comparison to the fixed capital cost that would be required to construct a comparable entirely new source;

(B) The estimated life of the source after the replacements compared to the life of a comparable entirely new source;

(C) The extent to which the components being replaced cause or contribute to the emissions from the source; and

(D) Any economic or technical limitations on compliance with relevant standards that are inherent in the proposed replacements.

(2)(i) The Administrator will notify the owner or operator in writing of approval or intention to deny approval of construction or reconstruction within 60 calendar days after receipt of sufficient information to evaluate an application submitted under paragraph (d) of this section. The 60-day approval or denial period will begin after the owner or operator has been notified in writing that his/her application is complete. The Administrator will notify the owner or operator in writing of the status of his/her application, that is, whether the application contains sufficient information to make a determination, within 30 calendar days after receipt of the original application and within 30 calendar days after receipt of any supplementary information that is submitted.

(ii) When notifying the owner or operator that his/her application is not complete, the Administrator will specify the information needed to complete the application and provide notice of opportunity for the applicant to present, in writing, within 30 calendar days after he/she is notified of the incomplete application, additional information or arguments to the Administrator to enable further action on the application.

(3) Before denying any application for approval of construction or reconstruction, the Administrator will notify the applicant of the Administrator's intention to issue the denial together with—

(i) Notice of the information and findings on which the intended denial is based; and

(ii) Notice of opportunity for the applicant to present, in writing, within 30 calendar days after he/she is notified of the intended denial, additional information or arguments to the Administrator to enable further action on the application.

(4) A final determination to deny any application for approval will be in writing and will specify the grounds on which the denial is based. The final determination will be made within 60 calendar days of presentation of additional information or arguments (if the application is complete), or within 60 calendar days after the final date specified for presentation if no presentation is made.

(5) Neither the submission of an application for approval nor the Administrator's approval of construction or reconstruction shall—

(i) Relieve an owner or operator of legal responsibility for compliance with any applicable provisions of this part or with any other applicable Federal, State, or local requirement; or

(ii) Prevent the Administrator from implementing or enforcing this part or taking any other action under the Act.

(f) *Approval of construction or reconstruction based on prior State preconstruction review.*

(1) Preconstruction review procedures that a State utilizes for other purposes may also be utilized for purposes of this section if the procedures are substantially equivalent to those specified in this section. The Administrator will approve an application for construction or reconstruction specified in paragraphs (b)(3) and (d) of this section if the owner or operator of a new affected source or reconstructed affected source, who is subject to such requirement meets the following conditions:

(i) The owner or operator of the new affected source or reconstructed affected source has undergone a preconstruction review and approval process in the State in which the source is (or would be) located and has received a federally enforceable construction permit that contains a finding that the source will meet the relevant promulgated emission standard, if the source is properly built and operated.

(ii) Provide a statement from the State or other evidence (such as State regulations) that it considered the factors specified in paragraph (e)(1) of this section.

(2) The owner or operator must submit to the Administrator the request for approval of construction or reconstruction under this paragraph (f)(2) no later than the application deadline specified in paragraph

(d)(1) of this section (see also §63.9(b)(2)). The owner or operator must include in the request information sufficient for the Administrator's determination. The Administrator will evaluate the owner or operator's request in accordance with the procedures specified in paragraph (e) of this section. The Administrator may request additional relevant information after the submittal of a request for approval of construction or reconstruction under this paragraph (f)(2).

§63.6 Compliance with standards and maintenance requirements.

(a) *Applicability.*

(1) The requirements in this section apply to the owner or operator of affected sources for which any relevant standard has been established pursuant to section 112 of the Act and the applicability of such requirements is set out in accordance with §63.1(a)(4) unless—

(i) The Administrator (or a State with an approved permit program) has granted an extension of compliance consistent with paragraph (i) of this section; or

(ii) The President has granted an exemption from compliance with any relevant standard in accordance with section 112(i)(4) of the Act.

(2) If an area source that otherwise would be subject to an emission standard or other requirement established under this part if it were a major source subsequently increases its emissions of hazardous air pollutants (or its potential to emit hazardous air pollutants) such that the source is a major source, such source shall be subject to the relevant emission standard or other requirement.

(b) *Compliance dates for new and reconstructed sources.*

(1) Except as specified in paragraphs (b)(3) and (4) of this section, the owner or operator of a new or reconstructed affected source for which construction or reconstruction commences after proposal of a relevant standard that has an initial startup before the effective date of a relevant standard established under this part pursuant to section 112(d), (f), or (h) of the Act must comply with such standard not later than the standard's effective date.

(2) Except as specified in paragraphs (b)(3) and (4) of this section, the owner or operator of a new or reconstructed affected source that has an initial startup after the effective date of a relevant standard established under this part pursuant to section 112(d), (f), or (h) of the Act must comply with such standard upon startup of the source.

(3) The owner or operator of an affected source for which construction or reconstruction is commenced after the proposal date of a relevant standard established under this part pursuant to section 112(d), 112(f), or 112(h) of the Act but before the effective date (that is, promulgation) of such standard shall comply with the relevant emission standard not later than the date 3 years after the effective date if:

(i) The promulgated standard (that is, the relevant standard) is more stringent than the proposed standard; for purposes of this paragraph, a finding that controls or compliance methods are “more stringent” must include control technologies or performance criteria and compliance or compliance

assurance methods that are different but are substantially equivalent to those required by the promulgated rule, as determined by the Administrator (or his or her authorized representative); and

(ii) The owner or operator complies with the standard as proposed during the 3-year period immediately after the effective date.

(4) The owner or operator of an affected source for which construction or reconstruction is commenced after the proposal date of a relevant standard established pursuant to section 112(d) of the Act but before the proposal date of a relevant standard established pursuant to section 112(f) shall not be required to comply with the section 112(f) emission standard until the date 10 years after the date construction or reconstruction is commenced, except that, if the section 112(f) standard is promulgated more than 10 years after construction or reconstruction is commenced, the owner or operator must comply with the standard as provided in paragraphs (b)(1) and (2) of this section.

(5) The owner or operator of a new source that is subject to the compliance requirements of paragraph (b)(3) or (4) of this section must notify the Administrator in accordance with §63.9(d)

(6) [Reserved]

(7) When an area source becomes a major source by the addition of equipment or operations that meet the definition of new affected source in the relevant standard, the portion of the existing facility that is a new affected source must comply with all requirements of that standard applicable to new sources. The source owner or operator must comply with the relevant standard upon startup.

(c) *Compliance dates for existing sources.* (1) After the effective date of a relevant standard established under this part pursuant to section 112(d) or 112(h) of the Act, the owner or operator of an existing source shall comply with such standard by the compliance date established by the Administrator in the applicable subpart(s) of this part. Except as otherwise provided for in section 112 of the Act, in no case will the compliance date established for an existing source in an applicable subpart of this part exceed 3 years after the effective date of such standard.

(2) If an existing source is subject to a standard established under this part pursuant to section 112(f) of the Act, the owner or operator must comply with the standard by the date 90 days after the standard's effective date, or by the date specified in an extension granted to the source by the Administrator under paragraph (i)(4)(ii) of this section, whichever is later.

(3)-(4) [Reserved]

(5) Except as provided in paragraph (b)(7) of this section, the owner or operator of an area source that increases its emissions of (or its potential to emit) hazardous air pollutants such that the source becomes a major source shall be subject to relevant standards for existing sources. Such sources must comply by the date specified in the standards for existing area sources that become major sources. If no such compliance date is specified in the standards, the source shall have a period of time to comply with the relevant emission standard that is equivalent to the compliance period specified in the relevant standard for existing sources in existence at the time the standard becomes effective.

(d) [Reserved]

(e) *Operation and maintenance requirements.* (1)(i) At all times, including periods of startup, shutdown, and malfunction, the owner or operator must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. During a period of startup, shutdown, or malfunction, this general duty to minimize emissions requires that the owner or operator reduce emissions from the affected source to the greatest extent which is consistent with safety and good air pollution control practices. The general duty to minimize emissions during a period of startup, shutdown, or malfunction does not require the owner or operator to achieve emission levels that would be required by the applicable standard at other times if this is not consistent with safety and good air pollution control practices, nor does it require the owner or operator to make any further efforts to reduce emissions if levels required by the applicable 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 (including the startup, shutdown, and malfunction plan required in paragraph (e)(3) of this section), review of operation and maintenance records, and inspection of the source.

(ii) Malfunctions must be corrected as soon as practicable after their occurrence. To the extent that an unexpected event arises during a startup, shutdown, or malfunction, an owner or operator must comply by minimizing emissions during such a startup, shutdown, and malfunction event consistent with safety and good air pollution control practices.

(iii) Operation and maintenance requirements established pursuant to section 112 of the Act are enforceable independent of emissions limitations or other requirements in relevant standards.

(2) [Reserved]

(3) *Startup, shutdown, and malfunction plan.*

(i) The owner or operator of an affected source must develop a written startup, shutdown, and malfunction plan that describes, in detail, procedures for operating and maintaining the source during periods of startup, shutdown, and malfunction; and a program of corrective action for malfunctioning process, air pollution control, and monitoring equipment used to comply with the relevant standard. The startup, shutdown, and malfunction plan does not need to address any scenario that would not cause the source to exceed an applicable emission limitation in the relevant standard. This plan must be developed by the owner or operator by the source's compliance date for that relevant standard. The purpose of the startup, shutdown, and malfunction plan is to—

(A) Ensure that, at all times, the owner or operator operates and maintains each affected source, including associated air pollution control and monitoring equipment, in a manner which satisfies the general duty to minimize emissions established by paragraph (e)(1)(i) of this section;

(B) Ensure that owners or operators are prepared to correct malfunctions as soon as practicable after their occurrence in order to minimize excess emissions of hazardous air pollutants; and

(C) Reduce the reporting burden associated with periods of startup, shutdown, and malfunction (including corrective action taken to restore malfunctioning process and air pollution control equipment to its normal or usual manner of operation).

(ii) [Reserved]

(iii) When actions taken by the owner or operator during a startup or shutdown (and the startup or shutdown causes the source to exceed any applicable emission limitation in the relevant emission standards), or malfunction (including actions taken to correct a malfunction) are consistent with the procedures specified in the affected source's startup, shutdown, and malfunction plan, the owner or operator must keep records for that event which demonstrate that the procedures specified in the plan were followed. These records may take the form of a "checklist," or other effective form of recordkeeping that confirms conformance with the startup, shutdown, and malfunction plan and describes the actions taken for that event. In addition, the owner or operator must keep records of these events as specified in paragraph 63.10(b), including records of the occurrence and duration of each startup or shutdown (if the startup or shutdown causes the source to exceed any applicable emission limitation in the relevant emission standards), or malfunction of operation and each malfunction of the air pollution control and monitoring equipment. Furthermore, the owner or operator shall confirm that actions taken during the relevant reporting period during periods of startup, shutdown, and malfunction were consistent with the affected source's startup, shutdown and malfunction plan in the semiannual (or more frequent) startup, shutdown, and malfunction report required in §63.10(d)(5).

(iv) If an action taken by the owner or operator during a startup, shutdown, or malfunction (including an action taken to correct a malfunction) is not consistent with the procedures specified in the affected source's startup, shutdown, and malfunction plan, and the source exceeds any applicable emission limitation in the relevant emission standard, then the owner or operator must record the actions taken for that event and must report such actions within 2 working days after commencing actions inconsistent with the plan, followed by a letter within 7 working days after the end of the event, in accordance with §63.10(d)(5) (unless the owner or operator makes alternative reporting arrangements, in advance, with the Administrator).

(v) The owner or operator must maintain at the affected source a current startup, shutdown, and malfunction plan and must make the plan available upon request for inspection and copying by the Administrator. In addition, if the startup, shutdown, and malfunction plan is subsequently revised as provided in paragraph (e)(3)(viii) of this section, the owner or operator must maintain at the affected source each previous (i.e., superseded) version of the startup, shutdown, and malfunction plan, and must make each such previous version available for inspection and copying by the Administrator for a period of 5 years after revision of the plan. If at any time after adoption of a startup, shutdown, and malfunction plan the affected source ceases operation or is otherwise no

longer subject to the provisions of this part, the owner or operator must retain a copy of the most recent plan for 5 years from the date the source ceases operation or is no longer subject to this part and must make the plan available upon request for inspection and copying by the Administrator. The Administrator may at any time request in writing that the owner or operator submit a copy of any startup, shutdown, and malfunction plan (or a portion thereof) which is maintained at the affected source or in the possession of the owner or operator. Upon receipt of such a request, the owner or operator must promptly submit a copy of the requested plan (or a portion thereof) to the Administrator. The owner or operator may elect to submit the required copy of any startup, shutdown, and malfunction plan to the Administrator in an electronic format. If the owner or operator claims that any portion of such a startup, shutdown, and malfunction plan is confidential business information entitled to protection from disclosure under section 114(c) of the Act or 40 CFR 2.301, the material which is claimed as confidential must be clearly designated in the submission.

(vi) To satisfy the requirements of this section to develop a startup, shutdown, and malfunction plan, the owner or operator may use the affected source's standard operating procedures (SOP) manual, or an Occupational Safety and Health Administration (OSHA) or other plan, provided the alternative plans meet all the requirements of this section and are made available for inspection or submitted when requested by the Administrator.

(vii) Based on the results of a determination made under paragraph (e)(1)(i) of this section, the Administrator may require that an owner or operator of an affected source make changes to the startup, shutdown, and malfunction plan for that source. The Administrator must require appropriate revisions to a startup, shutdown, and malfunction plan, if the Administrator finds that the plan:

(A) Does not address a startup, shutdown, or malfunction event that has occurred;

(B) Fails to provide for the operation of the source (including associated air pollution control and monitoring equipment) during a startup, shutdown, or malfunction event in a manner consistent with the general duty to minimize emissions established by paragraph (e)(1)(i) of this section;

(C) Does not provide adequate procedures for correcting malfunctioning process and/or air pollution control and monitoring equipment as quickly as practicable; or

(D) Includes an event that does not meet the definition of startup, shutdown, or malfunction listed in §63.2.

(viii) The owner or operator may periodically revise the startup, shutdown, and malfunction plan for the affected source as necessary to satisfy the requirements of this part or to reflect changes in equipment or procedures at the affected source. Unless the permitting authority provides otherwise, the owner or operator may make such revisions to the startup, shutdown, and malfunction plan without prior approval by the Administrator or the permitting authority. However, each such revision to a startup, shutdown, and malfunction plan must be reported in the

semiannual report required by §63.10(d)(5). If the startup, shutdown, and malfunction plan fails to address or inadequately addresses an event that meets the characteristics of a malfunction but was not included in the startup, shutdown, and malfunction plan at the time the owner or operator developed the plan, the owner or operator must revise the startup, shutdown, and malfunction plan within 45 days after the event to include detailed procedures for operating and maintaining the source during similar malfunction events and a program of corrective action for similar malfunctions of process or air pollution control and monitoring equipment. In the event that the owner or operator makes any revision to the startup, shutdown, and malfunction plan which alters the scope of the activities at the source which are deemed to be a startup, shutdown, or malfunction, or otherwise modifies the applicability of any emission limit, work practice requirement, or other requirement in a standard established under this part, the revised plan shall not take effect until after the owner or operator has provided a written notice describing the revision to the permitting authority.

(ix) The title V permit for an affected source must require that the owner or operator develop a startup, shutdown, and malfunction plan which conforms to the provisions of this part, but may do so by citing to the relevant subpart or subparagraphs of paragraph (e) of this section. However, any revisions made to the startup, shutdown, and malfunction plan in accordance with the procedures established by this part shall not be deemed to constitute permit revisions under part 70 or part 71 of this chapter and the elements of the startup, shutdown, and malfunction plan shall not be considered an applicable requirement as defined in §70.2 and §71.2 of this chapter. Moreover, none of the procedures specified by the startup, shutdown, and malfunction plan for an affected source shall be deemed to fall within the permit shield provision in section 504(f) of the Act.

(f) *Compliance with nonopacity emission standards—*

(1) *Applicability.* The non-opacity emission standards set forth in this part shall apply at all times except during periods of startup, shutdown, and malfunction, and as otherwise specified in an applicable subpart. If a startup, shutdown, or malfunction of one portion of an affected source does not affect the ability of particular emission points within other portions of the affected source to comply with the non-opacity emission standards set forth in this part, then that emission point must still be required to comply with the non-opacity emission standards and other applicable requirements.

(2) *Methods for determining compliance.*

(i) The Administrator will determine compliance with nonopacity emission standards in this part based on the results of performance tests conducted according to the procedures in §63.7, unless otherwise specified in an applicable subpart of this part.

(ii) The Administrator will determine compliance with nonopacity emission standards in this part by evaluation of an owner or operator's conformance with operation and maintenance requirements, including the evaluation of monitoring data, as specified in §63.6(e) and applicable subparts of this part.

(iii) If an affected source conducts performance testing at startup to obtain an operating permit in the State in which the source is located, the results of such testing may be used to demonstrate compliance with a relevant standard if—

(A) The performance test was conducted within a reasonable amount of time before an initial performance test is required to be conducted under the relevant standard;

(B) The performance test was conducted under representative operating conditions for the source;

(C) The performance test was conducted and the resulting data were reduced using EPA-approved test methods and procedures, as specified in §63.7(e) of this subpart; and

(D) The performance test was appropriately quality-assured, as specified in §63.7(c).

(iv) The Administrator will determine compliance with design, equipment, work practice, or operational emission standards in this part by review of records, inspection of the source, and other procedures specified in applicable subparts of this part.

(v) The Administrator will determine compliance with design, equipment, work practice, or operational emission standards in this part by evaluation of an owner or operator's conformance with operation and maintenance requirements, as specified in paragraph (e) of this section and applicable subparts of this part.

(3) *Finding of compliance.* The Administrator will make a finding concerning an affected source's compliance with a non-opacity emission standard, as specified in paragraphs (f)(1) and (2) of this section, upon obtaining all the compliance information required by the relevant standard (including the written reports of performance test results, monitoring results, and other information, if applicable), and information available to the Administrator pursuant to paragraph (e)(1)(i) of this section.

(g) *Use of an alternative nonopacity emission standard.*

(1) If, in the Administrator's judgment, an owner or operator of an affected source has established that an alternative means of emission limitation will achieve a reduction in emissions of a hazardous air pollutant from an affected source at least equivalent to the reduction in emissions of that pollutant from that source achieved under any design, equipment, work practice, or operational emission standard, or combination thereof, established under this part pursuant to section 112(h) of the Act, the Administrator will publish in the Federal Register a notice permitting the use of the alternative emission standard for purposes of compliance with the promulgated standard. Any Federal Register notice under this paragraph shall be published only after the public is notified and given the opportunity to comment. Such notice will restrict the permission to the stationary source(s) or category(ies) of sources from which the alternative emission standard will achieve equivalent emission reductions. The Administrator will condition permission in such notice on requirements to assure the proper operation and maintenance of equipment and practices required for compliance with the alternative emission standard and other requirements, including appropriate quality assurance and quality control requirements, that are deemed necessary.

(2) An owner or operator requesting permission under this paragraph shall, unless otherwise specified in an applicable subpart, submit a proposed test plan or the results of testing and monitoring in accordance with §63.7 and §63.8, a description of the procedures followed in testing or monitoring, and a description of pertinent conditions during testing or monitoring. Any testing or monitoring conducted to request permission to use an alternative nonopacity emission standard shall be appropriately quality assured and quality controlled, as specified in §63.7 and §63.8.

(3) The Administrator may establish general procedures in an applicable subpart that accomplish the requirements of paragraphs (g)(1) and (g)(2) of this section.

(h) *Compliance with opacity and visible emission standards—*

(1) *Applicability.* The opacity and visible emission standards set forth in this part must apply at all times except during periods of startup, shutdown, and malfunction, and as otherwise specified in an applicable subpart. If a startup, shutdown, or malfunction of one portion of an affected source does not affect the ability of particular emission points within other portions of the affected source to comply with the opacity and visible emission standards set forth in this part, then that emission point shall still be required to comply with the opacity and visible emission standards and other applicable requirements.

(2) *Methods for determining compliance.*

(i) The Administrator will determine compliance with opacity and visible emission standards in this part based on the results of the test method specified in an applicable subpart. Whenever a continuous opacity monitoring system (COMS) is required to be installed to determine compliance with numerical opacity emission standards in this part, compliance with opacity emission standards in this part shall be determined by using the results from the COMS. Whenever an opacity emission test method is not specified, compliance with opacity emission standards in this part shall be determined by conducting observations in accordance with Test Method 9 in appendix A of part 60 of this chapter or the method specified in paragraph (h)(7)(ii) of this section. Whenever a visible emission test method is not specified, compliance with visible emission standards in this part shall be determined by conducting observations in accordance with Test Method 22 in appendix A of part 60 of this chapter.

(ii) [Reserved]

(iii) If an affected source undergoes opacity or visible emission testing at startup to obtain an operating permit in the State in which the source is located, the results of such testing may be used to demonstrate compliance with a relevant standard if—

(A) The opacity or visible emission test was conducted within a reasonable amount of time before a performance test is required to be conducted under the relevant standard;

(B) The opacity or visible emission test was conducted under representative operating conditions for the source;

(C) The opacity or visible emission test was conducted and the resulting data were reduced using EPA-approved test methods and procedures, as specified in §63.7(e); and

(D) The opacity or visible emission test was appropriately quality-assured, as specified in §63.7(c) of this section.

(3) [Reserved]

(4) *Notification of opacity or visible emission observations.* The owner or operator of an affected source shall notify the Administrator in writing of the anticipated date for conducting opacity or visible emission observations in accordance with §63.9(f), if such observations are required for the source by a relevant standard.

(5) *Conduct of opacity or visible emission observations.* When a relevant standard under this part includes an opacity or visible emission standard, the owner or operator of an affected source shall comply with the following:

(i) For the purpose of demonstrating initial compliance, opacity or visible emission observations shall be conducted concurrently with the initial performance test required in §63.7 unless one of the following conditions applies:

(A) If no performance test under §63.7 is required, opacity or visible emission observations shall be conducted within 60 days after achieving the maximum production rate at which a new or reconstructed source will be operated, but not later than 120 days after initial startup of the source, or within 120 days after the effective date of the relevant standard in the case of new sources that start up before the standard's effective date. If no performance test under §63.7 is required, opacity or visible emission observations shall be conducted within 120 days after the compliance date for an existing or modified source; or

(B) If visibility or other conditions prevent the opacity or visible emission observations from being conducted concurrently with the initial performance test required under §63.7, or within the time period specified in paragraph (h)(5)(i)(A) of this section, the source's owner or operator shall reschedule the opacity or visible emission observations as soon after the initial performance test, or time period, as possible, but not later than 30 days thereafter, and shall advise the Administrator of the rescheduled date. The rescheduled opacity or visible emission observations shall be conducted (to the extent possible) under the same operating conditions that existed during the initial performance test conducted under §63.7. The visible emissions observer shall determine whether visibility or other conditions prevent the opacity or visible emission observations from being made concurrently with the initial performance test in accordance with procedures contained in Test Method 9 or Test Method 22 in appendix A of part 60 of this chapter.

(ii) For the purpose of demonstrating initial compliance, the minimum total time of opacity observations shall be 3 hours (30 6-minute averages) for the performance test or other required set of observations (e.g., for fugitive-type emission sources subject only to an opacity emission standard).

(iii) The owner or operator of an affected source to which an opacity or visible emission standard in this part applies shall conduct opacity or visible emission observations in accordance with the

provisions of this section, record the results of the evaluation of emissions, and report to the Administrator the opacity or visible emission results in accordance with the provisions of §63.10(d).

(iv) [Reserved]

(v) Opacity readings of portions of plumes that contain condensed, uncombined water vapor shall not be used for purposes of determining compliance with opacity emission standards.

(6) *Availability of records.* The owner or operator of an affected source shall make available, upon request by the Administrator, such records that the Administrator deems necessary to determine the conditions under which the visual observations were made and shall provide evidence indicating proof of current visible observer emission certification.

(7) *Use of a continuous opacity monitoring system.*

(i) The owner or operator of an affected source required to use a continuous opacity monitoring system (COMS) shall record the monitoring data produced during a performance test required under §63.7 and shall furnish the Administrator a written report of the monitoring results in accordance with the provisions of §63.10(e)(4).

(ii) Whenever an opacity emission test method has not been specified in an applicable subpart, or an owner or operator of an affected source is required to conduct Test Method 9 observations (see appendix A of part 60 of this chapter), the owner or operator may submit, for compliance purposes, COMS data results produced during any performance test required under §63.7 in lieu of Method 9 data. If the owner or operator elects to submit COMS data for compliance with the opacity emission standard, he or she shall notify the Administrator of that decision, in writing, simultaneously with the notification under §63.7(b) of the date the performance test is scheduled to begin. Once the owner or operator of an affected source has notified the Administrator to that effect, the COMS data results will be used to determine opacity compliance during subsequent performance tests required under §63.7, unless the owner or operator notifies the Administrator in writing to the contrary not later than with the notification under §63.7(b) of the date the subsequent performance test is scheduled to begin.

(iii) For the purposes of determining compliance with the opacity emission standard during a performance test required under §63.7 using COMS data, the COMS data shall be reduced to 6-minute averages over the duration of the mass emission performance test.

(iv) The owner or operator of an affected source using a COMS for compliance purposes is responsible for demonstrating that he/she has complied with the performance evaluation requirements of §63.8(e), that the COMS has been properly maintained, operated, and data quality-assured, as specified in §63.8(c) and §63.8(d), and that the resulting data have not been altered in any way.

(v) Except as provided in paragraph (h)(7)(ii) of this section, the results of continuous monitoring by a COMS that indicate that the opacity at the time visual observations were made was not in excess of the emission standard are probative but not conclusive evidence of the actual opacity of an

emission, provided that the affected source proves that, at the time of the alleged violation, the instrument used was properly maintained, as specified in §63.8(c), and met Performance Specification 1 in appendix B of part 60 of this chapter, and that the resulting data have not been altered in any way.

(8) *Finding of compliance.* The Administrator will make a finding concerning an affected source's compliance with an opacity or visible emission standard upon obtaining all the compliance information required by the relevant standard (including the written reports of the results of the performance tests required by §63.7, the results of Test Method 9 or another required opacity or visible emission test method, the observer certification required by paragraph (h)(6) of this section, and the continuous opacity monitoring system results, whichever is/are applicable) and any information available to the Administrator needed to determine whether proper operation and maintenance practices are being used.

(9) *Adjustment to an opacity emission standard.*

(i) If the Administrator finds under paragraph (h)(8) of this section that an affected source is in compliance with all relevant standards for which initial performance tests were conducted under §63.7, but during the time such performance tests were conducted fails to meet any relevant opacity emission standard, the owner or operator of such source may petition the Administrator to make appropriate adjustment to the opacity emission standard for the affected source. Until the Administrator notifies the owner or operator of the appropriate adjustment, the relevant opacity emission standard remains applicable.

(ii) The Administrator may grant such a petition upon a demonstration by the owner or operator that—

(A) The affected source and its associated air pollution control equipment were operated and maintained in a manner to minimize the opacity of emissions during the performance tests;

(B) The performance tests were performed under the conditions established by the Administrator; and

(C) The affected source and its associated air pollution control equipment were incapable of being adjusted or operated to meet the relevant opacity emission standard.

(iii) The Administrator will establish an adjusted opacity emission standard for the affected source meeting the above requirements at a level at which the source will be able, as indicated by the performance and opacity tests, to meet the opacity emission standard at all times during which the source is meeting the mass or concentration emission standard. The Administrator will promulgate the new opacity emission standard in the Federal Register.

(iv) After the Administrator promulgates an adjusted opacity emission standard for an affected source, the owner or operator of such source shall be subject to the new opacity emission standard, and the new opacity emission standard shall apply to such source during any subsequent performance tests.

(i) *Extension of compliance with emission standards.*

(1) Until an extension of compliance has been granted by the Administrator (or a State with an approved permit program) under this paragraph, the owner or operator of an affected source subject to the requirements of this section shall comply with all applicable requirements of this part.

(2) *Extension of compliance for early reductions and other reductions—*

(i) *Early reductions.* Pursuant to section 112(i)(5) of the Act, if the owner or operator of an existing source demonstrates that the source has achieved a reduction in emissions of hazardous air pollutants in accordance with the provisions of subpart D of this part, the Administrator (or the State with an approved permit program) will grant the owner or operator an extension of compliance with specific requirements of this part, as specified in subpart D.

(ii) *Other reductions.* Pursuant to section 112(i)(6) of the Act, if the owner or operator of an existing source has installed best available control technology (BACT) (as defined in section 169(3) of the Act) or technology required to meet a lowest achievable emission rate (LAER) (as defined in section 171 of the Act) prior to the promulgation of an emission standard in this part applicable to such source and the same pollutant (or stream of pollutants) controlled pursuant to the BACT or LAER installation, the Administrator will grant the owner or operator an extension of compliance with such emission standard that will apply until the date 5 years after the date on which such installation was achieved, as determined by the Administrator.

(3) *Request for extension of compliance.* Paragraphs (i)(4) through (i)(7) of this section concern requests for an extension of compliance with a relevant standard under this part (except requests for an extension of compliance under paragraph (i)(2)(i) of this section will be handled through procedures specified in subpart D of this part).

(4)(i)(A) The owner or operator of an existing source who is unable to comply with a relevant standard established under this part pursuant to section 112(d) of the Act may request that the Administrator (or a State, when the State has an approved part 70 permit program and the source is required to obtain a part 70 permit under that program, or a State, when the State has been delegated the authority to implement and enforce the emission standard for that source) grant an extension allowing the source up to 1 additional year to comply with the standard, if such additional period is necessary for the installation of controls. An additional extension of up to 3 years may be added for mining waste operations, if the 1-year extension of compliance is insufficient to dry and cover mining waste in order to reduce emissions of any hazardous air pollutant. The owner or operator of an affected source who has requested an extension of compliance under this paragraph and who is otherwise required to obtain a title V permit shall apply for such permit or apply to have the source's title V permit revised to incorporate the conditions of the extension of compliance. The conditions of an extension of compliance granted under this paragraph will be incorporated into the affected source's title V permit according to the provisions of part 70 or Federal title V regulations in this chapter (42 U.S.C. 7661), whichever are applicable.

(B) Any request under this paragraph for an extension of compliance with a relevant standard must be submitted in writing to the appropriate authority no later than 120 days

prior to the affected source's compliance date (as specified in paragraphs (b) and (c) of this section), except as provided for in paragraph (i)(4)(i)(C) of this section. Nonfrivolous requests submitted under this paragraph will stay the applicability of the rule as to the emission points in question until such time as the request is granted or denied. A denial will be effective as of the date of denial. Emission standards established under this part may specify alternative dates for the submittal of requests for an extension of compliance if alternatives are appropriate for the source categories affected by those standards.

(C) An owner or operator may submit a compliance extension request after the date specified in paragraph (i)(4)(i)(B) of this section provided the need for the compliance extension arose after that date, and before the otherwise applicable compliance date and the need arose due to circumstances beyond reasonable control of the owner or operator. This request must include, in addition to the information required in paragraph (i)(6)(i) of this section, a statement of the reasons additional time is needed and the date when the owner or operator first learned of the problems. Nonfrivolous requests submitted under this paragraph will stay the applicability of the rule as to the emission points in question until such time as the request is granted or denied. A denial will be effective as of the original compliance date.

(ii) The owner or operator of an existing source unable to comply with a relevant standard established under this part pursuant to section 112(f) of the Act may request that the Administrator grant an extension allowing the source up to 2 years after the standard's effective date to comply with the standard. The Administrator may grant such an extension if he/she finds that such additional period is necessary for the installation of controls and that steps will be taken during the period of the extension to assure that the health of persons will be protected from imminent endangerment. Any request for an extension of compliance with a relevant standard under this paragraph must be submitted in writing to the Administrator not later than 90 calendar days after the effective date of the relevant standard.

(5) The owner or operator of an existing source that has installed BACT or technology required to meet LAER [as specified in paragraph (i)(2)(ii) of this section] prior to the promulgation of a relevant emission standard in this part may request that the Administrator grant an extension allowing the source 5 years from the date on which such installation was achieved, as determined by the Administrator, to comply with the standard. Any request for an extension of compliance with a relevant standard under this paragraph shall be submitted in writing to the Administrator not later than 120 days after the promulgation date of the standard. The Administrator may grant such an extension if he or she finds that the installation of BACT or technology to meet LAER controls the same pollutant (or stream of pollutants) that would be controlled at that source by the relevant emission standard.

(6)(i) The request for a compliance extension under paragraph (i)(4) of this section shall include the following information:

(A) A description of the controls to be installed to comply with the standard;

(B) A compliance schedule, including the date by which each step toward compliance will be reached. At a minimum, the list of dates shall include:

(*1*) The date by which on-site construction, installation of emission control equipment, or a process change is planned to be initiated; and

(*2*) The date by which final compliance is to be achieved.

(*3*) The date by which on-site construction, installation of emission control equipment, or a process change is to be completed; and

(*4*) The date by which final compliance is to be achieved;

(C)-(D)

(ii) The request for a compliance extension under paragraph (i)(5) of this section shall include all information needed to demonstrate to the Administrator's satisfaction that the installation of BACT or technology to meet LAER controls the same pollutant (or stream of pollutants) that would be controlled at that source by the relevant emission standard.

(7) Advice on requesting an extension of compliance may be obtained from the Administrator (or the State with an approved permit program).

(8) *Approval of request for extension of compliance.* Paragraphs (i)(9) through (i)(14) of this section concern approval of an extension of compliance requested under paragraphs (i)(4) through (i)(6) of this section.

(9) Based on the information provided in any request made under paragraphs (i)(4) through (i)(6) of this section, or other information, the Administrator (or the State with an approved permit program) may grant an extension of compliance with an emission standard, as specified in paragraphs (i)(4) and (i)(5) of this section.

(10) The extension will be in writing and will—

(i) Identify each affected source covered by the extension;

(ii) Specify the termination date of the extension;

(iii) Specify the dates by which steps toward compliance are to be taken, if appropriate;

(iv) Specify other applicable requirements to which the compliance extension applies (e.g., performance tests); and

(v)(A) Under paragraph (i)(4), specify any additional conditions that the Administrator (or the State) deems necessary to assure installation of the necessary controls and protection of the health of persons during the extension period; or

(B) Under paragraph (i)(5), specify any additional conditions that the Administrator deems necessary to assure the proper operation and maintenance of the installed controls during the extension period.

(11) The owner or operator of an existing source that has been granted an extension of compliance under paragraph (i)(10) of this section may be required to submit to the Administrator (or the State with an approved permit program) progress reports indicating whether the steps toward compliance outlined in the compliance schedule have been reached. The contents of the progress reports and the dates by which they shall be submitted will be specified in the written extension of compliance granted under paragraph (i)(10) of this section.

(12)(i) The Administrator (or the State with an approved permit program) will notify the owner or operator in writing of approval or intention to deny approval of a request for an extension of compliance within 30 calendar days after receipt of sufficient information to evaluate a request submitted under paragraph (i)(4)(i) or (i)(5) of this section. The Administrator (or the State) will notify the owner or operator in writing of the status of his/her application, that is, whether the application contains sufficient information to make a determination, within 30 calendar days after receipt of the original application and within 30 calendar days after receipt of any supplementary information that is submitted. The 30-day approval or denial period will begin after the owner or operator has been notified in writing that his/her application is complete.

(ii) When notifying the owner or operator that his/her application is not complete, the Administrator will specify the information needed to complete the application and provide notice of opportunity for the applicant to present, in writing, within 30 calendar days after he/she is notified of the incomplete application, additional information or arguments to the Administrator to enable further action on the application.

(iii) Before denying any request for an extension of compliance, the Administrator (or the State with an approved permit program) will notify the owner or operator in writing of the Administrator's (or the State's) intention to issue the denial, together with—

(A) Notice of the information and findings on which the intended denial is based; and

(B) Notice of opportunity for the owner or operator to present in writing, within 15 calendar days after he/she is notified of the intended denial, additional information or arguments to the Administrator (or the State) before further action on the request.

(iv) The Administrator's final determination to deny any request for an extension will be in writing and will set forth the specific grounds on which the denial is based. The final determination will be made within 30 calendar days after presentation of additional information or argument (if the application is complete), or within 30 calendar days after the final date specified for the presentation if no presentation is made.

(13)(i) The Administrator will notify the owner or operator in writing of approval or intention to deny approval of a request for an extension of compliance within 30 calendar days after receipt of sufficient information to evaluate a request submitted under paragraph (i)(4)(ii) of this section. The 30-day approval or denial period will begin after the owner or operator has been notified in writing that his/her application is complete. The Administrator (or the State) will notify the owner or operator in writing of the status of his/her application, that is, whether the application contains sufficient information to make a

determination, within 15 calendar days after receipt of the original application and within 15 calendar days after receipt of any supplementary information that is submitted.

(ii) When notifying the owner or operator that his/her application is not complete, the Administrator will specify the information needed to complete the application and provide notice of opportunity for the applicant to present, in writing, within 15 calendar days after he/she is notified of the incomplete application, additional information or arguments to the Administrator to enable further action on the application.

(iii) Before denying any request for an extension of compliance, the Administrator will notify the owner or operator in writing of the Administrator's intention to issue the denial, together with—

(A) Notice of the information and findings on which the intended denial is based; and

(B) Notice of opportunity for the owner or operator to present in writing, within 15 calendar days after he/she is notified of the intended denial, additional information or arguments to the Administrator before further action on the request.

(iv) A final determination to deny any request for an extension will be in writing and will set forth the specific grounds on which the denial is based. The final determination will be made within 30 calendar days after presentation of additional information or argument (if the application is complete), or within 30 calendar days after the final date specified for the presentation if no presentation is made.

(14) The Administrator (or the State with an approved permit program) may terminate an extension of compliance at an earlier date than specified if any specification under paragraph (i)(10)(iii) or (iv) of this section is not met. Upon a determination to terminate, the Administrator will notify, in writing, the owner or operator of the Administrator's determination to terminate, together with:

(i) Notice of the reason for termination; and

(ii) Notice of opportunity for the owner or operator to present in writing, within 15 calendar days after he/she is notified of the determination to terminate, additional information or arguments to the Administrator before further action on the termination.

(iii) A final determination to terminate an extension of compliance will be in writing and will set forth the specific grounds on which the termination is based. The final determination will be made within 30 calendar days after presentation of additional information or arguments, or within 30 calendar days after the final date specified for the presentation if no presentation is made.

(15) [Reserved]

(16) The granting of an extension under this section shall not abrogate the Administrator's authority under section 114 of the Act.

(j) *Exemption from compliance with emission standards.* The President may exempt any stationary source from compliance with any relevant standard established pursuant to section 112 of the Act for a period of not more than 2 years if the President determines that the technology to implement such standard is not available

and that it is in the national security interests of the United States to do so. An exemption under this paragraph may be extended for 1 or more additional periods, each period not to exceed 2 years.

§63.7 Performance testing requirements.

(a) *Applicability and performance test dates.*

(1) The applicability of this section is set out in §63.1(a)(4).

(2) Except as provided in paragraph (a)(4) of this section, if required to do performance testing by a relevant standard, and unless a waiver of performance testing is obtained under this section or the conditions of paragraph (c)(3)(ii)(B) of this section apply, the owner or operator of the affected source must perform such tests within 180 days of the compliance date for such source.

(i)-(viii) [Reserved]

(ix) Except as provided in paragraph (a)(4) of this section, when an emission standard promulgated under this part is more stringent than the standard proposed (see §63.6(b)(3)), the owner or operator of a new or reconstructed source subject to that standard for which construction or reconstruction is commenced between the proposal and promulgation dates of the standard shall comply with performance testing requirements within 180 days after the standard's effective date, or within 180 days after startup of the source, whichever is later. If the promulgated standard is more stringent than the proposed standard, the owner or operator may choose to demonstrate compliance with either the proposed or the promulgated standard. If the owner or operator chooses to comply with the proposed standard initially, the owner or operator shall conduct a second performance test within 3 years and 180 days after the effective date of the standard, or after startup of the source, whichever is later, to demonstrate compliance with the promulgated standard.

(3) The Administrator may require an owner or operator to conduct performance tests at the affected source at any other time when the action is authorized by section 114 of the Act.

(4) If a force majeure is about to occur, occurs, or has occurred for which the affected owner or operator intends to assert a claim of force majeure:

(i) The owner or operator shall notify the Administrator, in writing as soon as practicable following the date the owner or operator first knew, or through due diligence should have known that the event may cause or caused a delay in testing beyond the regulatory deadline specified in paragraph (a)(2) or (a)(3) of this section, or elsewhere in this part, but the notification must occur before the performance test deadline unless the initial force majeure or a subsequent force majeure event delays the notice, and in such cases, the notification shall occur as soon as practicable.

(ii) The owner or operator shall provide to the Administrator a written description of the force majeure event and a rationale for attributing the delay in testing beyond the regulatory deadline to the force majeure; describe the measures taken or to be taken to minimize the delay; and identify a

date by which the owner or operator proposes to conduct the performance test. The performance test shall be conducted as soon as practicable after the force majeure occurs.

(iii) The decision as to whether or not to grant an extension to the performance test deadline is solely within the discretion of the Administrator. The Administrator will notify the owner or operator in writing of approval or disapproval of the request for an extension as soon as practicable.

(iv) Until an extension of the performance test deadline has been approved by the Administrator under paragraphs (a)(4)(i), (a)(4)(ii), and (a)(4)(iii) of this section, the owner or operator of the affected facility remains strictly subject to the requirements of this part.

(b) *Notification of performance test.*

(1) The owner or operator of an affected source must notify the Administrator in writing of his or her intention to conduct a performance test at least 60 calendar days before the performance test is initially scheduled to begin to allow the Administrator, upon request, to review an approve the site-specific test plan required under paragraph (c) of this section and to have an observer present during the test.

(2) In the event the owner or operator is unable to conduct the performance test on the date specified in the notification requirement specified in paragraph (b)(1) of this section due to unforeseeable circumstances beyond his or her control, the owner or operator must notify the Administrator as soon as practicable and without delay prior to the scheduled performance test date and specify the date when the performance test is rescheduled. This notification of delay in conducting the performance test shall not relieve the owner or operator of legal responsibility for compliance with any other applicable provisions of this part or with any other applicable Federal, State, or local requirement, nor will it prevent the Administrator from implementing or enforcing this part or taking any other action under the Act.

(c) *Quality assurance program.*

(1) The results of the quality assurance program required in this paragraph will be considered by the Administrator when he/she determines the validity of a performance test.

(2)(i) *Submission of site-specific test plan.* Before conducting a required performance test, the owner or operator of an affected source shall develop and, if requested by the Administrator, shall submit a site-specific test plan to the Administrator for approval. The test plan shall include a test program summary, the test schedule, data quality objectives, and both an internal and external quality assurance (QA) program. Data quality objectives are the pretest expectations of precision, accuracy, and completeness of data.

(ii) The internal QA program shall include, at a minimum, the activities planned by routine operators and analysts to provide an assessment of test data precision; an example of internal QA is the sampling and analysis of replicate samples.

(iii) The performance testing shall include a test method performance audit (PA) during the performance test. The PAs consist of blind audit samples supplied by an accredited audit sample provider and analyzed during the performance test in order to provide a measure of test data bias. Gaseous audit samples are designed to audit the performance of the sampling system as well as the analytical system and must be collected by the sampling system during the compliance test just as

the compliance samples are collected. If a liquid or solid audit sample is designed to audit the sampling system, it must also be collected by the sampling system during the compliance test. If multiple sampling systems or sampling trains are used during the compliance test for any of the test methods, the tester is only required to use one of the sampling systems per method to collect the audit sample. The audit sample must be analyzed by the same analyst using the same analytical reagents and analytical system and at the same time as the compliance samples. Retests are required when there is a failure to produce acceptable results for an audit sample. However, if the audit results do not affect the compliance or noncompliance status of the affected facility, the compliance authority may waive the reanalysis requirement, further audits, or retests and accept the results of the compliance test. Acceptance of the test results shall constitute a waiver of the reanalysis requirement, further audits, or retests. The compliance authority may also use the audit sample failure and the compliance test results as evidence to determine the compliance or noncompliance status of the affected facility. A blind audit sample is a sample whose value is known only to the sample provider and is not revealed to the tested facility until after they report the measured value of the audit sample. For pollutants that exist in the gas phase at ambient temperature, the audit sample shall consist of an appropriate concentration of the pollutant in air or nitrogen that can be introduced into the sampling system of the test method at or near the same entry point as a sample from the emission source. If no gas phase audit samples are available, an acceptable alternative is a sample of the pollutant in the same matrix that would be produced when the sample is recovered from the sampling system as required by the test method. For samples that exist only in a liquid or solid form at ambient temperature, the audit sample shall consist of an appropriate concentration of the pollutant in the same matrix that would be produced when the sample is recovered from the sampling system as required by the test method. An accredited audit sample provider (AASP) is an organization that has been accredited to prepare audit samples by an independent, third party accrediting body.

(A) The source owner, operator, or representative of the tested facility shall obtain an audit sample, if commercially available, from an AASP for each test method used for regulatory compliance purposes. No audit samples are required for the following test methods: Methods 3A and 3C of appendix A-3 of part 60 of this chapter; Methods 6C, 7E, 9, and 10 of appendix A-4 of part 60; Methods 18 and 19 of appendix A-6 of part 60; Methods 20, 22, and 25A of appendix A-7 of part 60; Methods 30A and 30B of appendix A-8 of part 60; and Methods 303, 318, 320, and 321 of appendix A of this part. If multiple sources at a single facility are tested during a compliance test event, only one audit sample is required for each method used during a compliance test. The compliance authority responsible for the compliance test may waive the requirement to include an audit sample if they believe that an audit sample is not necessary. “Commercially available” means that two or more independent AASPs have blind audit samples available for purchase. If the source owner, operator, or representative cannot find an audit sample for a specific method, the owner, operator, or representative shall consult the EPA Web site at the following URL, *www.epa.gov/ttn/emc,* to confirm whether there is a source that can supply an audit sample for that method. If the EPA Web site does not list an available audit sample at least

60 days prior to the beginning of the compliance test, the source owner, operator, or representative shall not be required to include an audit sample as part of the quality assurance program for the compliance test. When ordering an audit sample, the source owner, operator, or representative shall give the sample provider an estimate for the concentration of each pollutant that is emitted by the source or the estimated concentration of each pollutant based on the permitted level and the name, address, and phone number of the compliance authority. The source owner, operator, or representative shall report the results for the audit sample along with a summary of the emission test results for the audited pollutant to the compliance authority and shall report the results of the audit sample to the AASP. The source owner, operator, or representative shall make both reports at the same time and in the same manner or shall report to the compliance authority first and then report to the AASP. If the method being audited is a method that allows the samples to be analyzed in the field and the tester plans to analyze the samples in the field, the tester may analyze the audit samples prior to collecting the emission samples provided a representative of the compliance authority is present at the testing site. The tester may request, and the compliance authority may grant, a waiver to the requirement that a representative of the compliance authority must be present at the testing site during the field analysis of an audit sample. The source owner, operator, or representative may report the results of the audit sample to the compliance authority and then report the results of the audit sample to the AASP prior to collecting any emission samples. The test protocol and final test report shall document whether an audit sample was ordered and utilized and the pass/fail results as applicable.

(B) An AASP shall have and shall prepare, analyze, and report the true value of audit samples in accordance with a written technical criteria document that describes how audit samples will be prepared and distributed in a manner that will ensure the integrity of the audit sample program. An acceptable technical criteria document shall contain standard operating procedures for all of the following operations:

(*1*) Preparing the sample;

(*2*) Confirming the true concentration of the sample;

(*3*) Defining the acceptance limits for the results from a well qualified tester. This procedure must use well established statistical methods to analyze historical results from well qualified testers. The acceptance limits shall be set so that there is 95 percent confidence that 90 percent of well qualified labs will produce future results that are within the acceptance limit range;

(*4*) Providing the opportunity for the compliance authority to comment on the selected concentration level for an audit sample;

(*5*) Distributing the sample to the user in a manner that guarantees that the true value of the sample is unknown to the user;

(*6*) Recording the measured concentration reported by the user and determining if the measured value is within acceptable limits;

(*7*) Reporting the results from each audit sample in a timely manner to the compliance authority and to the source owner, operator, or representative by the AASP. The AASP shall make both reports at the same time and in the same manner or shall report to the compliance authority first and then report to the source owner, operator, or representative. The results shall include the name of the facility tested, the date on which the compliance test was conducted, the name of the company performing the sample collection, the name of the company that analyzed the compliance samples including the audit sample, the measured result for the audit sample, and whether the testing company passed or failed the audit. The AASP shall report the true value of the audit sample to the compliance authority. The AASP may report the true value to the source owner, operator, or representative if the AASP's operating plan ensures that no laboratory will receive the same audit sample twice.

(*8*) Evaluating the acceptance limits of samples at least once every two years to determine in consultation with the voluntary consensus standard body if they should be changed.

(*9*) Maintaining a database, accessible to the compliance authorities, of results from the audit that shall include the name of the facility tested, the date on which the compliance test was conducted, the name of the company performing the sample collection, the name of the company that analyzed the compliance samples including the audit sample, the measured result for the audit sample, the true value of the audit sample, the acceptance range for the measured value, and whether the testing company passed or failed the audit.

(C) The accrediting body shall have a written technical criteria document that describes how it will ensure that the AASP is operating in accordance with the AASP technical criteria document that describes how audit samples are to be prepared and distributed. This document shall contain standard operating procedures for all of the following operations:

(*1*) Checking audit samples to confirm their true value as reported by the AASP.

(*2*) Performing technical systems audits of the AASP's facilities and operating procedures at least once every two years.

(*3*) Providing standards for use by the voluntary consensus standard body to approve the accrediting body that will accredit the audit sample providers.

(D) The technical criteria documents for the accredited sample providers and the accrediting body shall be developed through a public process guided by a voluntary consensus standards body (VCSB). The VCSB shall operate in accordance with the procedures and requirements in the Office of Management and Budget *Circular A-119.* A

copy of Circular A-119 is available upon request by writing the Office of Information and Regulatory Affairs, Office of Management and Budget, 725 17th Street, NW., Washington, DC 20503, by calling (202) 395-6880 or downloading online at *http://standards.gov/standards_gov/a119.cfm.* The VCSB shall approve all accrediting bodies. The Administrator will review all technical criteria documents. If the technical criteria documents do not meet the minimum technical requirements in paragraphs (c)(2)(iii)(B) through (C) of this section, the technical criteria documents are not acceptable and the proposed audit sample program is not capable of producing audit samples of sufficient quality to be used in a compliance test. All acceptable technical criteria documents shall be posted on the EPA Web site at the following URL, *http://www.epa.gov/ttn/emc.*

(iv) The owner or operator of an affected source shall submit the site-specific test plan to the Administrator upon the Administrator's request at least 60 calendar days before the performance test is scheduled to take place, that is, simultaneously with the notification of intention to conduct a performance test required under paragraph (b) of this section, or on a mutually agreed upon date.

(v) The Administrator may request additional relevant information after the submittal of a site-specific test plan.

(3) *Approval of site-specific test plan.*

(i) The Administrator will notify the owner or operator of approval or intention to deny approval of the site-specific test plan (if review of the site-specific test plan is requested) within 30 calendar days after receipt of the original plan and within 30 calendar days after receipt of any supplementary information that is submitted under paragraph (c)(3)(i)(B) of this section. Before disapproving any site-specific test plan, the Administrator will notify the applicant of the Administrator's intention to disapprove the plan together with—

(A) Notice of the information and findings on which the intended disapproval is based; and

(B) Notice of opportunity for the owner or operator to present, within 30 calendar days after he/she is notified of the intended disapproval, additional information to the Administrator before final action on the plan.

(ii) In the event that the Administrator fails to approve or disapprove the site-specific test plan within the time period specified in paragraph (c)(3)(i) of this section, the following conditions shall apply:

(A) If the owner or operator intends to demonstrate compliance using the test method(s) specified in the relevant standard or with only minor changes to those tests methods (see paragraph (e)(2)(i) of this section), the owner or operator must conduct the performance test within the time specified in this section using the specified method(s);

(B) If the owner or operator intends to demonstrate compliance by using an alternative to any test method specified in the relevant standard, the owner or operator is authorized to

conduct the performance test using an alternative test method after the Administrator approves the use of the alternative method when the Administrator approves the site-specific test plan (if review of the site-specific test plan is requested) or after the alternative method is approved (see paragraph (f) of this section). However, the owner or operator is authorized to conduct the performance test using an alternative method in the absence of notification of approval 45 days after submission of the site-specific test plan or request to use an alternative method. The owner or operator is authorized to conduct the performance test within 60 calendar days after he/she is authorized to demonstrate compliance using an alternative test method. Notwithstanding the requirements in the preceding three sentences, the owner or operator may proceed to conduct the performance test as required in this section (without the Administrator's prior approval of the site-specific test plan) if he/she subsequently chooses to use the specified testing and monitoring methods instead of an alternative.

(iii) Neither the submission of a site-specific test plan for approval, nor the Administrator's approval or disapproval of a plan, nor the Administrator's failure to approve or disapprove a plan in a timely manner shall—

(A) Relieve an owner or operator of legal responsibility for compliance with any applicable provisions of this part or with any other applicable Federal, State, or local requirement; or

(B) Prevent the Administrator from implementing or enforcing this part or taking any other action under the Act.

(d) *Performance testing facilities.* If required to do performance testing, the owner or operator of each new source and, at the request of the Administrator, the owner or operator of each existing source, shall provide performance testing facilities as follows:

(1) Sampling ports adequate for test methods applicable to such source. This includes:

(i) Constructing the air pollution control system such that volumetric flow rates and pollutant emission rates can be accurately determined by applicable test methods and procedures; and

(ii) Providing a stack or duct free of cyclonic flow during performance tests, as demonstrated by applicable test methods and procedures;

(2) Safe sampling platform(s);

(3) Safe access to sampling platform(s);

(4) Utilities for sampling and testing equipment; and

(5) Any other facilities that the Administrator deems necessary for safe and adequate testing of a source.

(e) *Conduct of performance tests.*

(1) Performance tests shall be conducted under such conditions as the Administrator specifies to the owner or operator based on representative performance (i.e., performance based on normal operating conditions) of the affected source. Operations during periods of startup, shutdown, and malfunction shall

not constitute representative conditions for the purpose of a performance test, nor shall emissions in excess of the level of the relevant standard during periods of startup, shutdown, and malfunction be considered a violation of the relevant standard unless otherwise specified in the relevant standard or a determination of noncompliance is made under §63.6(e). Upon request, the owner or operator shall make available to the Administrator such records as may be necessary to determine the conditions of performance tests.

(2) Performance tests shall be conducted and data shall be reduced in accordance with the test methods and procedures set forth in this section, in each relevant standard, and, if required, in applicable appendices of parts 51, 60, 61, and 63 of this chapter unless the Administrator—

(i) Specifies or approves, in specific cases, the use of a test method with minor changes in methodology (see definition in §63.90(a)). Such changes may be approved in conjunction with approval of the site-specific test plan (see paragraph (c) of this section); or

(ii) Approves the use of an intermediate or major change or alternative to a test method (see definitions in §63.90(a)), the results of which the Administrator has determined to be adequate for indicating whether a specific affected source is in compliance; or

(iii) Approves shorter sampling times or smaller sample volumes when necessitated by process variables or other factors; or

(iv) Waives the requirement for performance tests because the owner or operator of an affected source has demonstrated by other means to the Administrator's satisfaction that the affected source is in compliance with the relevant standard.

(3) Unless otherwise specified in a relevant standard or test method, each performance test shall consist of three separate runs using the applicable test method. Each run shall be conducted for the time and under the conditions specified in the relevant standard. For the purpose of determining compliance with a relevant standard, the arithmetic mean of the results of the three runs shall apply. Upon receiving approval from the Administrator, results of a test run may be replaced with results of an additional test run in the event that—

(i) A sample is accidentally lost after the testing team leaves the site; or

(ii) Conditions occur in which one of the three runs must be discontinued because of forced shutdown; or

(iii) Extreme meteorological conditions occur; or

(iv) Other circumstances occur that are beyond the owner or operator's control.

(4) Nothing in paragraphs (e)(1) through (e)(3) of this section shall be construed to abrogate the Administrator's authority to require testing under section 114 of the Act.

(f) *Use of an alternative test method—*

(1)*General.* Until authorized to use an intermediate or major change or alternative to a test method, the owner or operator of an affected source remains subject to the requirements of this section and the relevant standard.

(2) The owner or operator of an affected source required to do performance testing by a relevant standard may use an alternative test method from that specified in the standard provided that the owner or operator—

(i) Notifies the Administrator of his or her intention to use an alternative test method at least 60 days before the performance test is scheduled to begin;

(ii) Uses Method 301 in appendix A of this part to validate the alternative test method. This may include the use of specific procedures of Method 301 if use of such procedures are sufficient to validate the alternative test method; and

(iii) Submits the results of the Method 301 validation process along with the notification of intention and the justification for not using the specified test method. The owner or operator may submit the information required in this paragraph well in advance of the deadline specified in paragraph (f)(2)(i) of this section to ensure a timely review by the Administrator in order to meet the performance test date specified in this section or the relevant standard.

(3) The Administrator will determine whether the owner or operator's validation of the proposed alternative test method is adequate and issue an approval or disapproval of the alternative test method. If the owner or operator intends to demonstrate compliance by using an alternative to any test method specified in the relevant standard, the owner or operator is authorized to conduct the performance test using an alternative test method after the Administrator approves the use of the alternative method. However, the owner or operator is authorized to conduct the performance test using an alternative method in the absence of notification of approval/disapproval 45 days after submission of the request to use an alternative method and the request satisfies the requirements in paragraph (f)(2) of this section. The owner or operator is authorized to conduct the performance test within 60 calendar days after he/she is authorized to demonstrate compliance using an alternative test method. Notwithstanding the requirements in the preceding three sentences, the owner or operator may proceed to conduct the performance test as required in this section (without the Administrator's prior approval of the site-specific test plan) if he/she subsequently chooses to use the specified testing and monitoring methods instead of an alternative.

(4) If the Administrator finds reasonable grounds to dispute the results obtained by an alternative test method for the purposes of demonstrating compliance with a relevant standard, the Administrator may require the use of a test method specified in a relevant standard.

(5) If the owner or operator uses an alternative test method for an affected source during a required performance test, the owner or operator of such source shall continue to use the alternative test method for subsequent performance tests at that affected source until he or she receives approval from the Administrator to use another test method as allowed under §63.7(f).

(6) Neither the validation and approval process nor the failure to validate an alternative test method shall abrogate the owner or operator's responsibility to comply with the requirements of this part.

(g) *Data analysis, recordkeeping, and reporting.*

(1) Unless otherwise specified in a relevant standard or test method, or as otherwise approved by the Administrator in writing, results of a performance test shall include the analysis of samples, determination of emissions, and raw data. A performance test is "completed" when field sample collection is terminated. The owner or operator of an affected source shall report the results of the performance test to the Administrator before the close of business on the 60th day following the completion of the performance test, unless specified otherwise in a relevant standard or as approved otherwise in writing by the Administrator (see §63.9(i)). The results of the performance test shall be submitted as part of the notification of compliance status required under §63.9(h). Before a title V permit has been issued to the owner or operator of an affected source, the owner or operator shall send the results of the performance test to the Administrator. After a title V permit has been issued to the owner or operator of an affected source, the owner or operator shall send the results of the performance test to the appropriate permitting authority.

(2) Contents of report (electronic or paper submitted copy). Unless otherwise specified in a relevant standard or test method, or as otherwise approved by the Administrator in writing, the report for a performance test shall include the elements identified in paragraphs (g)(2)(i) through (vi) of this section.

(i) General identification information for the facility including a mailing address, the physical address, the owner or operator or responsible official (where applicable) and his/her email address, and the appropriate Federal Registry System (FRS) number for the facility.

(ii) Purpose of the test including the applicable regulation requiring the test, the pollutant(s) and other parameters being measured, the applicable emission standard, and any process parameter component, and a brief process description.

(iii) Description of the emission unit tested including fuel burned, control devices, and vent characteristics; the appropriate source classification code (SCC); the permitted maximum process rate (where applicable); and the sampling location.

(iv) Description of sampling and analysis procedures used and any modifications to standard procedures, quality assurance procedures and results, record of process operating conditions that demonstrate the applicable test conditions are met, and values for any operating parameters for which limits were being set during the test.

(v) Where a test method requires you record or report, the following shall be included in your report: Record of preparation of standards, record of calibrations, raw data sheets for field sampling, raw data sheets for field and laboratory analyses, chain-of-custody documentation, and example calculations for reported results.

(vi) Identification of the company conducting the performance test including the primary office address, telephone number, and the contact for this test including his/her email address.

(3) For a minimum of 5 years after a performance test is conducted, the owner or operator shall retain and make available, upon request, for inspection by the Administrator the records or results of such performance test and other data needed to determine emissions from an affected source.

(h) *Waiver of performance tests.*

(1) Until a waiver of a performance testing requirement has been granted by the Administrator under this paragraph, the owner or operator of an affected source remains subject to the requirements of this section.

(2) Individual performance tests may be waived upon written application to the Administrator if, in the Administrator's judgment, the source is meeting the relevant standard(s) on a continuous basis, or the source is being operated under an extension of compliance, or the owner or operator has requested an extension of compliance and the Administrator is still considering that request.

(3) *Request to waive a performance test.*

(i) If a request is made for an extension of compliance under §63.6(i), the application for a waiver of an initial performance test shall accompany the information required for the request for an extension of compliance. If no extension of compliance is requested or if the owner or operator has requested an extension of compliance and the Administrator is still considering that request, the application for a waiver of an initial performance test shall be submitted at least 60 days before the performance test if the site-specific test plan under paragraph (c) of this section is not submitted.

(ii) If an application for a waiver of a subsequent performance test is made, the application may accompany any required compliance progress report, compliance status report, or excess emissions and continuous monitoring system performance report [such as those required under §63.6(i), §63.9(h), and §63.10(e) or specified in a relevant standard or in the source's title V permit], but it shall be submitted at least 60 days before the performance test if the site-specific test plan required under paragraph (c) of this section is not submitted.

(iii) Any application for a waiver of a performance test shall include information justifying the owner or operator's request for a waiver, such as the technical or economic infeasibility, or the impracticality, of the affected source performing the required test.

(4) *Approval of request to waive performance test.* The Administrator will approve or deny a request for a waiver of a performance test made under paragraph (h)(3) of this section when he/she—

(i) Approves or denies an extension of compliance under §63.6(i)(8); or

(ii) Approves or disapproves a site-specific test plan under §63.7(c)(3); or

(iii) Makes a determination of compliance following the submission of a required compliance status report or excess emissions and continuous monitoring systems performance report; or

(iv) Makes a determination of suitable progress towards compliance following the submission of a compliance progress report, whichever is applicable.

(5) Approval of any waiver granted under this section shall not abrogate the Administrator's authority under the Act or in any way prohibit the Administrator from later canceling the waiver. The cancellation will be made only after notice is given to the owner or operator of the affected source.

§63.8 Monitoring requirements.

(a) *Applicability.*

(1) The applicability of this section is set out in §63.1(a)(4).

(2) For the purposes of this part, all CMS required under relevant standards shall be subject to the provisions of this section upon promulgation of performance specifications for CMS as specified in the relevant standard or otherwise by the Administrator.

(3) [Reserved]

(4) Additional monitoring requirements for control devices used to comply with provisions in relevant standards of this part are specified in §63.11.

(b) *Conduct of monitoring.*

(1) Monitoring shall be conducted as set forth in this section and the relevant standard(s) unless the Administrator—

(i) Specifies or approves the use of minor changes in methodology for the specified monitoring requirements and procedures (see §63.90(a) for definition); or

(ii) Approves the use of an intermediate or major change or alternative to any monitoring requirements or procedures (see §63.90(a) for definition).

(iii) Owners or operators with flares subject to §63.11(b) are not subject to the requirements of this section unless otherwise specified in the relevant standard.

(2)(i) When the emissions from two or more affected sources are combined before being released to the atmosphere, the owner or operator may install an applicable CMS for each emission stream or for the combined emissions streams, provided the monitoring is sufficient to demonstrate compliance with the relevant standard.

(ii) If the relevant standard is a mass emission standard and the emissions from one affected source are released to the atmosphere through more than one point, the owner or operator must install an applicable CMS at each emission point unless the installation of fewer systems is—

(A) Approved by the Administrator; or

(B) Provided for in a relevant standard (e.g., instead of requiring that a CMS be installed at each emission point before the effluents from those points are channeled to a common control device, the standard specifies that only one CMS is required to be installed at the vent of the control device).

(3) When more than one CMS is used to measure the emissions from one affected source (e.g., multiple breechings, multiple outlets), the owner or operator shall report the results as required for each CMS. However, when one CMS is used as a backup to another CMS, the owner or operator shall report the results from the CMS used to meet the monitoring requirements of this part. If both such CMS are used during a particular reporting period to meet the monitoring requirements of this part, then the owner or operator shall report the results from each CMS for the relevant compliance period.

(c) *Operation and maintenance of continuous monitoring systems.*

(1) The owner or operator of an affected source shall maintain and operate each CMS as specified in this section, or in a relevant standard, and in a manner consistent with good air pollution control practices. (i) The owner or operator of an affected source must maintain and operate each CMS as specified in §63.6(e)(1).

(ii) The owner or operator must keep the necessary parts for routine repairs of the affected CMS equipment readily available.

(iii) The owner or operator of an affected source must develop a written startup, shutdown, and malfunction plan for CMS as specified in §63.6(e)(3).

(2)(i) All CMS must be installed such that representative measures of emissions or process parameters from the affected source are obtained. In addition, CEMS must be located according to procedures contained in the applicable performance specification(s).

(ii) Unless the individual subpart states otherwise, the owner or operator must ensure the read out (that portion of the CMS that provides a visual display or record), or other indication of operation, from any CMS required for compliance with the emission standard is readily accessible on site for operational control or inspection by the operator of the equipment.

(3) All CMS shall be installed, operational, and the data verified as specified in the relevant standard either prior to or in conjunction with conducting performance tests under §63.7. Verification of operational status shall, at a minimum, include completion of the manufacturer's written specifications or recommendations for installation, operation, and calibration of the system.

(4) Except for system breakdowns, out-of-control periods, repairs, maintenance periods, calibration checks, and zero (low-level) and high-level calibration drift adjustments, all CMS, including COMS and CEMS, shall be in continuous operation and shall meet minimum frequency of operation requirements as follows:

(i) All COMS shall 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 6-minute period.

(ii) All CEMS for measuring emissions other than opacity shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period.

(5) Unless otherwise approved by the Administrator, minimum procedures for COMS shall include a method for producing a simulated zero opacity condition and an upscale (high-level) opacity condition using a certified neutral density filter or other related technique to produce a known obscuration of the

light beam. Such procedures shall provide a system check of all the analyzer's internal optical surfaces and all electronic circuitry, including the lamp and photodetector assembly normally used in the measurement of opacity.

(6) The owner or operator of a CMS that is not a CPMS, which is installed in accordance with the provisions of this part and the applicable CMS performance specification(s), must check the zero (low-level) and high-level calibration drifts at least once daily in accordance with the written procedure specified in the performance evaluation plan developed under paragraphs (e)(3)(i) and (ii) of this section. The zero (low-level) and high-level calibration drifts must be adjusted, at a minimum, whenever the 24-hour zero (low-level) drift exceeds two times the limits of the applicable performance specification(s) specified in the relevant standard. The system shall allow the amount of excess zero (low-level) and high-level drift measured at the 24-hour interval checks to be recorded and quantified whenever specified. For COMS, all optical and instrumental surfaces exposed to the effluent gases must be cleaned prior to performing the zero (low-level) and high-level drift adjustments; the optical surfaces and instrumental surfaces must be cleaned when the cumulative automatic zero compensation, if applicable, exceeds 4 percent opacity. The CPMS must be calibrated prior to use for the purposes of complying with this section. The CPMS must be checked daily for indication that the system is responding. If the CPMS system includes an internal system check, results must be recorded and checked daily for proper operation.

(7)(i) A CMS is out of control if—

(A) The zero (low-level), mid-level (if applicable), or high-level calibration drift (CD) exceeds two times the applicable CD specification in the applicable performance specification or in the relevant standard; or

(B) The CMS fails a performance test audit (e.g., cylinder gas audit), relative accuracy audit, relative accuracy test audit, or linearity test audit; or

(C) The COMS CD exceeds two times the limit in the applicable performance specification in the relevant standard.

(ii) When the CMS is out of control, the owner or operator of the affected source shall take the necessary corrective action and shall repeat all necessary tests which indicate that the system is out of control. The owner or operator shall take corrective action and conduct retesting until the performance requirements are below the applicable limits. The beginning of the out-of-control period is the hour the owner or operator conducts a performance check (e.g., calibration drift) that indicates an exceedance of the performance requirements established under this part. The end of the out-of-control period is the hour following the completion of corrective action and successful demonstration that the system is within the allowable limits. During the period the CMS is out of control, recorded data shall not be used in data averages and calculations, or to meet any data availability requirement established under this part.

(8) The owner or operator of a CMS that is out of control as defined in paragraph (c)(7) of this section shall submit all information concerning out-of-control periods, including start and end dates and hours and

descriptions of corrective actions taken, in the excess emissions and continuous monitoring system performance report required in §63.10(e)(3).

(d) *Quality control program.*

(1) The results of the quality control program required in this paragraph will be considered by the Administrator when he/she determines the validity of monitoring data.

(2) The owner or operator of an affected source that is required to use a CMS and is subject to the monitoring requirements of this section and a relevant standard shall develop and implement a CMS quality control program. As part of the quality control program, the owner or operator shall develop and submit to the Administrator for approval upon request a site-specific performance evaluation test plan for the CMS performance evaluation required in paragraph (e)(3)(i) of this section, according to the procedures specified in paragraph (e). In addition, each quality control program shall include, at a minimum, a written protocol that describes procedures for each of the following operations:

(i) Initial and any subsequent calibration of the CMS;

(ii) Determination and adjustment of the calibration drift of the CMS;

(iii) Preventive maintenance of the CMS, including spare parts inventory;

(iv) Data recording, calculations, and reporting;

(v) Accuracy audit procedures, including sampling and analysis methods; and

(vi) Program of corrective action for a malfunctioning CMS.

(3) The owner or operator shall keep these written procedures on record for the life of the affected source or until the affected source is no longer subject to the provisions of this part, to be made available for inspection, upon request, by the Administrator. If the performance evaluation plan is revised, the owner or operator shall keep previous (i.e., superseded) versions of the performance evaluation plan on record to be made available for inspection, upon request, by the Administrator, for a period of 5 years after each revision to the plan. Where relevant, e.g., program of corrective action for a malfunctioning CMS, these written procedures may be incorporated as part of the affected source's startup, shutdown, and malfunction plan to avoid duplication of planning and recordkeeping efforts.

(e) *Performance evaluation of continuous monitoring systems—*

(1) *General.* When required by a relevant standard, and at any other time the Administrator may require under section 114 of the Act, the owner or operator of an affected source being monitored shall conduct a performance evaluation of the CMS. Such performance evaluation shall be conducted according to the applicable specifications and procedures described in this section or in the relevant standard.

(2) *Notification of performance evaluation.* The owner or operator shall notify the Administrator in writing of the date of the performance evaluation simultaneously with the notification of the performance test date required under §63.7(b) or at least 60 days prior to the date the performance evaluation is scheduled to begin if no performance test is required.

(3)(i) *Submission of site-specific performance evaluation test plan.* Before conducting a required CMS performance evaluation, the owner or operator of an affected source shall develop and submit a site-specific performance evaluation test plan to the Administrator for approval upon request. The performance evaluation test plan shall include the evaluation program objectives, an evaluation program summary, the performance evaluation schedule, data quality objectives, and both an internal and external QA program. Data quality objectives are the pre-evaluation expectations of precision, accuracy, and completeness of data.

(ii) The internal QA program shall include, at a minimum, the activities planned by routine operators and analysts to provide an assessment of CMS performance. The external QA program shall include, at a minimum, systems audits that include the opportunity for on-site evaluation by the Administrator of instrument calibration, data validation, sample logging, and documentation of quality control data and field maintenance activities.

(iii) The owner or operator of an affected source shall submit the site-specific performance evaluation test plan to the Administrator (if requested) at least 60 days before the performance test or performance evaluation is scheduled to begin, or on a mutually agreed upon date, and review and approval of the performance evaluation test plan by the Administrator will occur with the review and approval of the site-specific test plan (if review of the site-specific test plan is requested).

(iv) The Administrator may request additional relevant information after the submittal of a site-specific performance evaluation test plan.

(v) In the event that the Administrator fails to approve or disapprove the site-specific performance evaluation test plan within the time period specified in §63.7(c)(3), the following conditions shall apply:

(A) If the owner or operator intends to demonstrate compliance using the monitoring method(s) specified in the relevant standard, the owner or operator shall conduct the performance evaluation within the time specified in this subpart using the specified method(s);

(B) If the owner or operator intends to demonstrate compliance by using an alternative to a monitoring method specified in the relevant standard, the owner or operator shall refrain from conducting the performance evaluation until the Administrator approves the use of the alternative method. If the Administrator does not approve the use of the alternative method within 30 days before the performance evaluation is scheduled to begin, the performance evaluation deadlines specified in paragraph (e)(4) of this section may be extended such that the owner or operator shall conduct the performance evaluation within 60 calendar days after the Administrator approves the use of the alternative method. Notwithstanding the requirements in the preceding two sentences, the owner or operator may proceed to conduct the performance evaluation as required in this section (without the Administrator's prior approval of the site-specific performance evaluation test plan) if

he/she subsequently chooses to use the specified monitoring method(s) instead of an alternative.

(vi) Neither the submission of a site-specific performance evaluation test plan for approval, nor the Administrator's approval or disapproval of a plan, nor the Administrator's failure to approve or disapprove a plan in a timely manner shall—

(A) Relieve an owner or operator of legal responsibility for compliance with any applicable provisions of this part or with any other applicable Federal, State, or local requirement; or

(B) Prevent the Administrator from implementing or enforcing this part or taking any other action under the Act.

(4) *Conduct of performance evaluation and performance evaluation dates.* The owner or operator of an affected source shall conduct a performance evaluation of a required CMS during any performance test required under §63.7 in accordance with the applicable performance specification as specified in the relevant standard. Notwithstanding the requirement in the previous sentence, if the owner or operator of an affected source elects to submit COMS data for compliance with a relevant opacity emission standard as provided under §63.6(h)(7), he/she shall conduct a performance evaluation of the COMS as specified in the relevant standard, before the performance test required under §63.7 is conducted in time to submit the results of the performance evaluation as specified in paragraph (e)(5)(ii) of this section. If a performance test is not required, or the requirement for a performance test has been waived under §63.7(h), the owner or operator of an affected source shall conduct the performance evaluation not later than 180 days after the appropriate compliance date for the affected source, as specified in §63.7(a), or as otherwise specified in the relevant standard.

(5) *Reporting performance evaluation results.*

(i) The owner or operator shall furnish the Administrator a copy of a written report of the results of the performance evaluation simultaneously with the results of the performance test required under §63.7 or within 60 days of completion of the performance evaluation if no test is required, unless otherwise specified in a relevant standard. The Administrator may request that the owner or operator submit the raw data from a performance evaluation in the report of the performance evaluation results.

(ii) The owner or operator of an affected source using a COMS to determine opacity compliance during any performance test required under §63.7 and described in §63.6(d)(6) shall furnish the Administrator two or, upon request, three copies of a written report of the results of the COMS performance evaluation under this paragraph. The copies shall be provided at least 15 calendar days before the performance test required under §63.7 is conducted.

(f) *Use of an alternative monitoring method—*

(1) *General.* Until permission to use an alternative monitoring procedure (minor, intermediate, or major changes; see definition in §63.90(a)) has been granted by the Administrator under this paragraph (f)(1), the

owner or operator of an affected source remains subject to the requirements of this section and the relevant standard.

(2) After receipt and consideration of written application, the Administrator may approve alternatives to any monitoring methods or procedures of this part including, but not limited to, the following:

(i) Alternative monitoring requirements when installation of a CMS specified by a relevant standard would not provide accurate measurements due to liquid water or other interferences caused by substances within the effluent gases;

(ii) Alternative monitoring requirements when the affected source is infrequently operated;

(iii) Alternative monitoring requirements to accommodate CEMS that require additional measurements to correct for stack moisture conditions;

(iv) Alternative locations for installing CMS when the owner or operator can demonstrate that installation at alternate locations will enable accurate and representative measurements;

(v) Alternate methods for converting pollutant concentration measurements to units of the relevant standard;

(vi) Alternate procedures for performing daily checks of zero (low-level) and high-level drift that do not involve use of high-level gases or test cells;

(vii) Alternatives to the American Society for Testing and Materials (ASTM) test methods or sampling procedures specified by any relevant standard;

(viii) Alternative CMS that do not meet the design or performance requirements in this part, but adequately demonstrate a definite and consistent relationship between their measurements and the measurements of opacity by a system complying with the requirements as specified in the relevant standard. The Administrator may require that such demonstration be performed for each affected source; or

(ix) Alternative monitoring requirements when the effluent from a single affected source or the combined effluent from two or more affected sources is released to the atmosphere through more than one point.

(3) If the Administrator finds reasonable grounds to dispute the results obtained by an alternative monitoring method, requirement, or procedure, the Administrator may require the use of a method, requirement, or procedure specified in this section or in the relevant standard. If the results of the specified and alternative method, requirement, or procedure do not agree, the results obtained by the specified method, requirement, or procedure shall prevail.

(4)(i) *Request to use alternative monitoring procedure.* An owner or operator who wishes to use an alternative monitoring procedure must submit an application to the Administrator as described in paragraph (f)(4)(ii) of this section. The application may be submitted at any time provided that the monitoring procedure is not the performance test method used to demonstrate compliance with a relevant standard or other requirement. If the alternative monitoring procedure will serve as the performance test

method that is to be used to demonstrate compliance with a relevant standard, the application must be submitted at least 60 days before the performance evaluation is scheduled to begin and must meet the requirements for an alternative test method under §63.7(f).

(ii) The application must contain a description of the proposed alternative monitoring system which addresses the four elements contained in the definition of monitoring in §63.2 and a performance evaluation test plan, if required, as specified in paragraph (e)(3) of this section. In addition, the application must include information justifying the owner or operator's request for an alternative monitoring method, such as the technical or economic infeasibility, or the impracticality, of the affected source using the required method.

(iii) The owner or operator may submit the information required in this paragraph well in advance of the submittal dates specified in paragraph (f)(4)(i) above to ensure a timely review by the Administrator in order to meet the compliance demonstration date specified in this section or the relevant standard.

(iv) Application for minor changes to monitoring procedures, as specified in paragraph (b)(1) of this section, may be made in the site-specific performance evaluation plan.

(5) *Approval of request to use alternative monitoring procedure.*

(i) The Administrator will notify the owner or operator of approval or intention to deny approval of the request to use an alternative monitoring method within 30 calendar days after receipt of the original request and within 30 calendar days after receipt of any supplementary information that is submitted. If a request for a minor change is made in conjunction with site-specific performance evaluation plan, then approval of the plan will constitute approval of the minor change. Before disapproving any request to use an alternative monitoring method, the Administrator will notify the applicant of the Administrator's intention to disapprove the request together with—

(A) Notice of the information and findings on which the intended disapproval is based; and

(B) Notice of opportunity for the owner or operator to present additional information to the Administrator before final action on the request. At the time the Administrator notifies the applicant of his or her intention to disapprove the request, the Administrator will specify how much time the owner or operator will have after being notified of the intended disapproval to submit the additional information.

(ii) The Administrator may establish general procedures and criteria in a relevant standard to accomplish the requirements of paragraph (f)(5)(i) of this section.

(iii) If the Administrator approves the use of an alternative monitoring method for an affected source under paragraph (f)(5)(i) of this section, the owner or operator of such source shall continue to use the alternative monitoring method until he or she receives approval from the Administrator to use another monitoring method as allowed by §63.8(f).

(6) *Alternative to the relative accuracy test.* An alternative to the relative accuracy test for CEMS specified in a relevant standard may be requested as follows:

(i) *Criteria for approval of alternative procedures.* An alternative to the test method for determining relative accuracy is available for affected sources with emission rates demonstrated to be less than 50 percent of the relevant standard. The owner or operator of an affected source may petition the Administrator under paragraph (f)(6)(ii) of this section to substitute the relative accuracy test in section 7 of Performance Specification 2 with the procedures in section 10 if the results of a performance test conducted according to the requirements in §63.7, or other tests performed following the criteria in §63.7, demonstrate that the emission rate of the pollutant of interest in the units of the relevant standard is less than 50 percent of the relevant standard. For affected sources subject to emission limitations expressed as control efficiency levels, the owner or operator may petition the Administrator to substitute the relative accuracy test with the procedures in section 10 of Performance Specification 2 if the control device exhaust emission rate is less than 50 percent of the level needed to meet the control efficiency requirement. The alternative procedures do not apply if the CEMS is used continuously to determine compliance with the relevant standard.

(ii) *Petition to use alternative to relative accuracy test.* The petition to use an alternative to the relative accuracy test shall include a detailed description of the procedures to be applied, the location and the procedure for conducting the alternative, the concentration or response levels of the alternative relative accuracy materials, and the other equipment checks included in the alternative procedure(s). The Administrator will review the petition for completeness and applicability. The Administrator's determination to approve an alternative will depend on the intended use of the CEMS data and may require specifications more stringent than in Performance Specification 2.

(iii) *Rescission of approval to use alternative to relative accuracy test.* The Administrator will review the permission to use an alternative to the CEMS relative accuracy test and may rescind such permission if the CEMS data from a successful completion of the alternative relative accuracy procedure indicate that the affected source's emissions are approaching the level of the relevant standard. The criterion for reviewing the permission is that the collection of CEMS data shows that emissions have exceeded 70 percent of the relevant standard for any averaging period, as specified in the relevant standard. For affected sources subject to emission limitations expressed as control efficiency levels, the criterion for reviewing the permission is that the collection of CEMS data shows that exhaust emissions have exceeded 70 percent of the level needed to meet the control efficiency requirement for any averaging period, as specified in the relevant standard. The owner or operator of the affected source shall maintain records and determine the level of emissions relative to the criterion for permission to use an alternative for relative accuracy testing. If this criterion is exceeded, the owner or operator shall notify the Administrator within 10 days of such occurrence and include a description of the nature and cause of the increased emissions. The Administrator will review the notification and may rescind permission to use an alternative and require the owner or operator to conduct a relative accuracy test of the CEMS as specified in section 7 of Performance Specification 2. The Administrator will review the notification and may rescind permission to use an alternative and require the owner or operator to conduct a relative accuracy test of the CEMS as specified in section 8.4 of Performance Specification 2.

(g) *Reduction of monitoring data.*

(1) The owner or operator of each CMS must reduce the monitoring data as specified in paragraphs (g)(1) through (5) of this section.

(2) The owner or operator of each COMS shall reduce all data to 6-minute averages calculated from 36 or more data points equally spaced over each 6-minute period. Data from CEMS for measurement other than opacity, unless otherwise specified in the relevant standard, shall be reduced to 1-hour averages computed from four or more data points equally spaced over each 1-hour period, except during periods when calibration, quality assurance, or maintenance activities pursuant to provisions of this part are being performed. During these periods, a valid hourly average shall consist of at least two data points with each representing a 15-minute period. Alternatively, an arithmetic or integrated 1-hour average of CEMS data may be used. Time periods for averaging are defined in §63.2.

(3) The data may be recorded in reduced or nonreduced form (e.g., ppm pollutant and percent O_2 or ng/J of pollutant).

(4) All emission data shall be converted into units of the relevant standard for reporting purposes using the conversion procedures specified in that standard. After conversion into units of the relevant standard, the data may be rounded to the same number of significant digits as used in that standard to specify the emission limit (e.g., rounded to the nearest 1 percent opacity).

(5) Monitoring data recorded during periods of unavoidable CMS breakdowns, out-of-control periods, repairs, maintenance periods, calibration checks, and zero (low-level) and high-level adjustments must not be included in any data average computed under this part. For the owner or operator complying with the requirements of §63.10(b)(2)(vii)(A) or (B), data averages must include any data recorded during periods of monitor breakdown or malfunction.

§63.9 Notification requirements.

(a) *Applicability and general information.*

(1) The applicability of this section is set out in §63.1(a)(4).

(2) For affected sources that have been granted an extension of compliance under subpart D of this part, the requirements of this section do not apply to those sources while they are operating under such compliance extensions.

(3) If any State requires a notice that contains all the information required in a notification listed in this section, the owner or operator may send the Administrator a copy of the notice sent to the State to satisfy the requirements of this section for that notification.

(4)(i) Before a State has been delegated the authority to implement and enforce notification requirements established under this part, the owner or operator of an affected source in such State subject to such requirements shall submit notifications to the appropriate Regional Office of the EPA (to the attention of the Director of the Division indicated in the list of the EPA Regional Offices in §63.13).

(ii) After a State has been delegated the authority to implement and enforce notification requirements established under this part, the owner or operator of an affected source in such State subject to such requirements shall submit notifications to the delegated State authority (which may be the same as the permitting authority). In addition, if the delegated (permitting) authority is the State, the owner or operator shall send a copy of each notification submitted to the State to the appropriate Regional Office of the EPA, as specified in paragraph (a)(4)(i) of this section. The Regional Office may waive this requirement for any notifications at its discretion.

(b) *Initial notifications.*

(1)(i) The requirements of this paragraph apply to the owner or operator of an affected source when such source becomes subject to a relevant standard.

(ii) If an area source that otherwise would be subject to an emission standard or other requirement established under this part if it were a major source subsequently increases its emissions of hazardous air pollutants (or its potential to emit hazardous air pollutants) such that the source is a major source that is subject to the emission standard or other requirement, such source shall be subject to the notification requirements of this section.

(iii) Affected sources that are required under this paragraph to submit an initial notification may use the application for approval of construction or reconstruction under §63.5(d) of this subpart, if relevant, to fulfill the initial notification requirements of this paragraph.

(2) The owner or operator of an affected source that has an initial startup before the effective date of a relevant standard under this part shall notify the Administrator in writing that the source is subject to the relevant standard. The notification, which shall be submitted not later than 120 calendar days after the effective date of the relevant standard (or within 120 calendar days after the source becomes subject to the relevant standard), shall provide the following information:

(i) The name and address of the owner or operator;

(ii) The address (i.e., physical location) of the affected source;

(iii) An identification of the relevant standard, or other requirement, that is the basis of the notification and the source's compliance date;

(iv) A brief description of the nature, size, design, and method of operation of the source and an identification of the types of emission points within the affected source subject to the relevant standard and types of hazardous air pollutants emitted; and

(v) A statement of whether the affected source is a major source or an area source.

(3) [Reserved]

(4) The owner or operator of a new or reconstructed major affected source for which an application for approval of construction or reconstruction is required under §63.5(d) must provide the following information in writing to the Administrator:

(i) A notification of intention to construct a new major-emitting affected source, reconstruct a major-emitting affected source, or reconstruct a major source such that the source becomes a major-emitting affected source with the application for approval of construction or reconstruction as specified in §63.5(d)(1)(i); and

(ii)-(iv) [Reserved]

(v) A notification of the actual date of startup of the source, delivered or postmarked within 15 calendar days after that date.

(5) The owner or operator of a new or reconstructed affected source for which an application for approval of construction or reconstruction is not required under §63.5(d) must provide the following information in writing to the Administrator:

(i) A notification of intention to construct a new affected source, reconstruct an affected source, or reconstruct a source such that the source becomes an affected source, and

(ii) A notification of the actual date of startup of the source, delivered or postmarked within 15 calendar days after that date.

(iii) Unless the owner or operator has requested and received prior permission from the Administrator to submit less than the information in §63.5(d), the notification must include the information required on the application for approval of construction or reconstruction as specified in §63.5(d)(1)(i).

(c) *Request for extension of compliance.* If the owner or operator of an affected source cannot comply with a relevant standard by the applicable compliance date for that source, or if the owner or operator has installed BACT or technology to meet LAER consistent with §63.6(i)(5) of this subpart, he/she may submit to the Administrator (or the State with an approved permit program) a request for an extension of compliance as specified in §63.6(i)(4) through §63.6(i)(6).

(d) *Notification that source is subject to special compliance requirements.* An owner or operator of a new source that is subject to special compliance requirements as specified in §63.6(b)(3) and §63.6(b)(4) shall notify the Administrator of his/her compliance obligations not later than the notification dates established in paragraph (b) of this section for new sources that are not subject to the special provisions.

(e) *Notification of performance test.* The owner or operator of an affected source shall notify the Administrator in writing of his or her intention to conduct a performance test at least 60 calendar days before the performance test is scheduled to begin to allow the Administrator to review and approve the site-specific test plan required under §63.7(c), if requested by the Administrator, and to have an observer present during the test.

(f) *Notification of opacity and visible emission observations.* The owner or operator of an affected source shall notify the Administrator in writing of the anticipated date for conducting the opacity or visible emission observations specified in §63.6(h)(5), if such observations are required for the source by a relevant standard. The notification shall be submitted with the notification of the performance test date, as specified in paragraph (e) of this section, or if no performance test is required or visibility or other conditions prevent the

opacity or visible emission observations from being conducted concurrently with the initial performance test required under §63.7, the owner or operator shall deliver or postmark the notification not less than 30 days before the opacity or visible emission observations are scheduled to take place.

(g) *Additional notification requirements for sources with continuous monitoring systems.* The owner or operator of an affected source required to use a CMS by a relevant standard shall furnish the Administrator written notification as follows:

(1) A notification of the date the CMS performance evaluation under §63.8(e) is scheduled to begin, submitted simultaneously with the notification of the performance test date required under §63.7(b). If no performance test is required, or if the requirement to conduct a performance test has been waived for an affected source under §63.7(h), the owner or operator shall notify the Administrator in writing of the date of the performance evaluation at least 60 calendar days before the evaluation is scheduled to begin;

(2) A notification that COMS data results will be used to determine compliance with the applicable opacity emission standard during a performance test required by §63.7 in lieu of Method 9 or other opacity emissions test method data, as allowed by §63.6(h)(7)(ii), if compliance with an opacity emission standard is required for the source by a relevant standard. The notification shall be submitted at least 60 calendar days before the performance test is scheduled to begin; and

(3) A notification that the criterion necessary to continue use of an alternative to relative accuracy testing, as provided by §63.8(f)(6), has been exceeded. The notification shall be delivered or postmarked not later than 10 days after the occurrence of such exceedance, and it shall include a description of the nature and cause of the increased emissions.

(h) *Notification of compliance status.* (1) The requirements of paragraphs (h)(2) through (h)(4) of this section apply when an affected source becomes subject to a relevant standard.

(2)(i) Before a title V permit has been issued to the owner or operator of an affected source, and each time a notification of compliance status is required under this part, the owner or operator of such source shall submit to the Administrator a notification of compliance status, signed by the responsible official who shall certify its accuracy, attesting to whether the source has complied with the relevant standard. The notification shall list—

(A) The methods that were used to determine compliance;

(B) The results of any performance tests, opacity or visible emission observations, continuous monitoring system (CMS) performance evaluations, and/or other monitoring procedures or methods that were conducted;

(C) The methods that will be used for determining continuing compliance, including a description of monitoring and reporting requirements and test methods;

(D) The type and quantity of hazardous air pollutants emitted by the source (or surrogate pollutants if specified in the relevant standard), reported in units and averaging times and in accordance with the test methods specified in the relevant standard;

(E) If the relevant standard applies to both major and area sources, an analysis demonstrating whether the affected source is a major source (using the emissions data generated for this notification);

(F) A description of the air pollution control equipment (or method) for each emission point, including each control device (or method) for each hazardous air pollutant and the control efficiency (percent) for each control device (or method); and

(G) A statement by the owner or operator of the affected existing, new, or reconstructed source as to whether the source has complied with the relevant standard or other requirements.

(ii) The notification must be sent before the close of business on the 60th day following the completion of the relevant compliance demonstration activity specified in the relevant standard (unless a different reporting period is specified in the standard, in which case the letter must be sent before the close of business on the day the report of the relevant testing or monitoring results is required to be delivered or postmarked). For example, the notification shall be sent before close of business on the 60th (or other required) day following completion of the initial performance test and again before the close of business on the 60th (or other required) day following the completion of any subsequent required performance test. If no performance test is required but opacity or visible emission observations are required to demonstrate compliance with an opacity or visible emission standard under this part, the notification of compliance status shall be sent before close of business on the 30th day following the completion of opacity or visible emission observations. Notifications may be combined as long as the due date requirement for each notification is met.

(3) After a title V permit has been issued to the owner or operator of an affected source, the owner or operator of such source shall comply with all requirements for compliance status reports contained in the source's title V permit, including reports required under this part. After a title V permit has been issued to the owner or operator of an affected source, and each time a notification of compliance status is required under this part, the owner or operator of such source shall submit the notification of compliance status to the appropriate permitting authority following completion of the relevant compliance demonstration activity specified in the relevant standard.

(4) [Reserved]

(5) If an owner or operator of an affected source submits estimates or preliminary information in the application for approval of construction or reconstruction required in §63.5(d) in place of the actual emissions data or control efficiencies required in paragraphs (d)(1)(ii)(H) and (d)(2) of §63.5, the owner or operator shall submit the actual emissions data and other correct information as soon as available but no later than with the initial notification of compliance status required in this section.

(6) Advice on a notification of compliance status may be obtained from the Administrator.

(i) *Adjustment to time periods or postmark deadlines for submittal and review of required communications.*

(1)(i) Until an adjustment of a time period or postmark deadline has been approved by the Administrator under paragraphs (i)(2) and (i)(3) of this section, the owner or operator of an affected source remains strictly subject to the requirements of this part.

(ii) An owner or operator shall request the adjustment provided for in paragraphs (i)(2) and (i)(3) of this section each time he or she wishes to change an applicable time period or postmark deadline specified in this part.

(2) Notwithstanding time periods or postmark deadlines specified in this part for the submittal of information to the Administrator by an owner or operator, or the review of such information by the Administrator, such time periods or deadlines may be changed by mutual agreement between the owner or operator and the Administrator. An owner or operator who wishes to request a change in a time period or postmark deadline for a particular requirement shall request the adjustment in writing as soon as practicable before the subject activity is required to take place. The owner or operator shall include in the request whatever information he or she considers useful to convince the Administrator that an adjustment is warranted.

(3) If, in the Administrator's judgment, an owner or operator's request for an adjustment to a particular time period or postmark deadline is warranted, the Administrator will approve the adjustment. The Administrator will notify the owner or operator in writing of approval or disapproval of the request for an adjustment within 15 calendar days of receiving sufficient information to evaluate the request.

(4) If the Administrator is unable to meet a specified deadline, he or she will notify the owner or operator of any significant delay and inform the owner or operator of the amended schedule.

(j) *Change in information already provided.* Any change in the information already provided under this section shall be provided to the Administrator in writing within 15 calendar days after the change.

§63.10 Recordkeeping and reporting requirements.

(a) *Applicability and general information.* (1) The applicability of this section is set out in §63.1(a)(4).

(2) For affected sources that have been granted an extension of compliance under subpart D of this part, the requirements of this section do not apply to those sources while they are operating under such compliance extensions.

(3) If any State requires a report that contains all the information required in a report listed in this section, an owner or operator may send the Administrator a copy of the report sent to the State to satisfy the requirements of this section for that report.

(4)(i) Before a State has been delegated the authority to implement and enforce recordkeeping and reporting requirements established under this part, the owner or operator of an affected source in such State subject to such requirements shall submit reports to the appropriate Regional Office of the EPA (to the attention of the Director of the Division indicated in the list of the EPA Regional Offices in §63.13).

(ii) After a State has been delegated the authority to implement and enforce recordkeeping and reporting requirements established under this part, the owner or operator of an affected source in such State subject to such requirements shall submit reports to the delegated State authority (which may be the same as the permitting authority). In addition, if the delegated (permitting) authority is the State, the owner or operator shall send a copy of each report submitted to the State to the appropriate Regional Office of the EPA, as specified in paragraph (a)(4)(i) of this section. The Regional Office may waive this requirement for any reports at its discretion.

(5) If an owner or operator of an affected source in a State with delegated authority is required to submit periodic reports under this part to the State, and if the State has an established timeline for the submission of periodic reports that is consistent with the reporting frequency(ies) specified for such source under this part, the owner or operator may change the dates by which periodic reports under this part shall be submitted (without changing the frequency of reporting) to be consistent with the State's schedule by mutual agreement between the owner or operator and the State. For each relevant standard established pursuant to section 112 of the Act, the allowance in the previous sentence applies in each State beginning 1 year after the affected source's compliance date for that standard. Procedures governing the implementation of this provision are specified in §63.9(i).

(6) If an owner or operator supervises one or more stationary sources affected by more than one standard established pursuant to section 112 of the Act, he/she may arrange by mutual agreement between the owner or operator and the Administrator (or the State permitting authority) a common schedule on which periodic reports required for each source shall be submitted throughout the year. The allowance in the previous sentence applies in each State beginning 1 year after the latest compliance date for any relevant standard established pursuant to section 112 of the Act for any such affected source(s). Procedures governing the implementation of this provision are specified in §63.9(i).

(7) If an owner or operator supervises one or more stationary sources affected by standards established pursuant to section 112 of the Act (as amended November 15, 1990) and standards set under part 60, part 61, or both such parts of this chapter, he/she may arrange by mutual agreement between the owner or operator and the Administrator (or the State permitting authority) a common schedule on which periodic reports required by each relevant (i.e., applicable) standard shall be submitted throughout the year. The allowance in the previous sentence applies in each State beginning 1 year after the stationary source is required to be in compliance with the relevant section 112 standard, or 1 year after the stationary source is required to be in compliance with the applicable part 60 or part 61 standard, whichever is latest. Procedures governing the implementation of this provision are specified in §63.9(i).

(b) *General recordkeeping requirements.*

(1) The owner or operator of an affected source subject to the provisions of this part shall maintain files of all information (including all reports and notifications) required by this part recorded in a form suitable and readily available for expeditious inspection and review. The files shall be retained for at least 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. At a minimum, the most recent 2 years of data shall be retained on site. The remaining 3 years of data may be

retained off site. Such files may be maintained on microfilm, on a computer, on computer floppy disks, on magnetic tape disks, or on microfiche.

(2) The owner or operator of an affected source subject to the provisions of this part shall maintain relevant records for such source of—

(i) The occurrence and duration of each startup or shutdown when the startup or shutdown causes the source to exceed any applicable emission limitation in the relevant emission standards;

(ii) The occurrence and duration of each malfunction of operation (i.e., process equipment) or the required air pollution control and monitoring equipment;

(iii) All required maintenance performed on the air pollution control and monitoring equipment;

(iv)(A) Actions taken during periods of startup or shutdown when the source exceeded applicable emission limitations in a relevant standard and when the actions taken are different from the procedures specified in the affected source's startup, shutdown, and malfunction plan (see §63.6(e)(3)); or

(B) Actions taken during periods of malfunction (including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation) when the actions taken are different from the procedures specified in the affected source's startup, shutdown, and malfunction plan (see §63.6(e)(3));

(v) All information necessary, including actions taken, to demonstrate conformance with the affected source's startup, shutdown, and malfunction plan (see §63.6(e)(3)) when all actions taken during periods of startup or shutdown (and the startup or shutdown causes the source to exceed any applicable emission limitation in the relevant emission standards), and malfunction (including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation) are consistent with the procedures specified in such plan. (The information needed to demonstrate conformance with the startup, shutdown, and malfunction plan may be recorded using a “checklist,” or some other effective form of recordkeeping, in order to minimize the recordkeeping burden for conforming events);

(vi) Each period during which a CMS is malfunctioning or inoperative (including out-of-control periods);

(vii) All required measurements needed to demonstrate compliance with a relevant standard (including, but not limited to, 15-minute averages of CMS data, raw performance testing measurements, and raw performance evaluation measurements, that support data that the source is required to report);

(A) This paragraph applies to owners or operators required to install a continuous emissions monitoring system (CEMS) where the CEMS installed is automated, and where the calculated data averages do not exclude periods of CEMS breakdown or malfunction. An automated CEMS records and reduces the measured data to the form of the pollutant emission standard through the use of a computerized data acquisition system. In lieu of

maintaining a file of all CEMS subhourly measurements as required under paragraph (b)(2)(vii) of this section, the owner or operator shall retain the most recent consecutive three averaging periods of subhourly measurements and a file that contains a hard copy of the data acquisition system algorithm used to reduce the measured data into the reportable form of the standard.

(B) This paragraph applies to owners or operators required to install a CEMS where the measured data is manually reduced to obtain the reportable form of the standard, and where the calculated data averages do not exclude periods of CEMS breakdown or malfunction. In lieu of maintaining a file of all CEMS subhourly measurements as required under paragraph (b)(2)(vii) of this section, the owner or operator shall retain all subhourly measurements for the most recent reporting period. The subhourly measurements shall be retained for 120 days from the date of the most recent summary or excess emission report submitted to the Administrator.

(C) The Administrator or delegated authority, upon notification to the source, may require the owner or operator to maintain all measurements as required by paragraph (b)(2)(vii), if the administrator or the delegated authority determines these records are required to more accurately assess the compliance status of the affected source.

(viii) All results of performance tests, CMS performance evaluations, and opacity and visible emission observations;

(ix) All measurements as may be necessary to determine the conditions of performance tests and performance evaluations;

(x) All CMS calibration checks;

(xi) All adjustments and maintenance performed on CMS;

(xii) Any information demonstrating whether a source is meeting the requirements for a waiver of recordkeeping or reporting requirements under this part, if the source has been granted a waiver under paragraph (f) of this section;

(xiii) All emission levels relative to the criterion for obtaining permission to use an alternative to the relative accuracy test, if the source has been granted such permission under §63.8(f)(6); and

(xiv) All documentation supporting initial notifications and notifications of compliance status under §63.9.

(3) *Recordkeeping requirement for applicability determinations.* If an owner or operator determines that his or her stationary source that emits (or has the potential to emit, without considering controls) one or more hazardous air pollutants regulated by any standard established pursuant to section 112(d) or (f), and that stationary source is in the source category regulated by the relevant standard, but that source is not subject to the relevant standard (or other requirement established under this part) because of limitations on the source's potential to emit or an exclusion, the owner or operator must keep a record of the applicability determination on site at the source for a period of 5 years after the determination, or until the source

changes its operations to become an affected source, whichever comes first. The record of the applicability determination must be signed by the person making the determination and include an analysis (or other information) that demonstrates why the owner or operator believes the source is unaffected (e.g., because the source is an area source). The analysis (or other information) must be sufficiently detailed to allow the Administrator to make a finding about the source's applicability status with regard to the relevant standard or other requirement. If relevant, the analysis must be performed in accordance with requirements established in relevant subparts of this part for this purpose for particular categories of stationary sources. If relevant, the analysis should be performed in accordance with EPA guidance materials published to assist sources in making applicability determinations under section 112, if any. The requirements to determine applicability of a standard under §63.1(b)(3) and to record the results of that determination under paragraph (b)(3) of this section shall not by themselves create an obligation for the owner or operator to obtain a title V permit.

(c) *Additional recordkeeping requirements for sources with continuous monitoring systems.* In addition to complying with the requirements specified in paragraphs (b)(1) and (b)(2) of this section, the owner or operator of an affected source required to install a CMS by a relevant standard shall maintain records for such source of—

(1) All required CMS measurements (including monitoring data recorded during unavoidable CMS breakdowns and out-of-control periods);

(2)-(4) [Reserved]

(5) The date and time identifying each period during which the CMS was inoperative except for zero (low-level) and high-level checks;

(6) The date and time identifying each period during which the CMS was out of control, as defined in §63.8(c)(7);

(7) The specific identification (i.e., the date and time of commencement and completion) of each period of excess emissions and parameter monitoring exceedances, as defined in the relevant standard(s), that occurs during startups, shutdowns, and malfunctions of the affected source;

(8) The specific identification (i.e., the date and time of commencement and completion) of each time period of excess emissions and parameter monitoring exceedances, as defined in the relevant standard(s), that occurs during periods other than startups, shutdowns, and malfunctions of the affected source;

(9) [Reserved]

(10) The nature and cause of any malfunction (if known);

(11) The corrective action taken or preventive measures adopted;

(12) The nature of the repairs or adjustments to the CMS that was inoperative or out of control;

(13) The total process operating time during the reporting period; and

(14) All procedures that are part of a quality control program developed and implemented for CMS under §63.8(d).

(15) In order to satisfy the requirements of paragraphs (c)(10) through (c)(12) of this section and to avoid duplicative recordkeeping efforts, the owner or operator may use the affected source's startup, shutdown, and malfunction plan or records kept to satisfy the recordkeeping requirements of the startup, shutdown, and malfunction plan specified in §63.6(e), provided that such plan and records adequately address the requirements of paragraphs (c)(10) through (c)(12).

(d) *General reporting requirements.*

(1) Notwithstanding the requirements in this paragraph or paragraph (e) of this section, and except as provided in §63.16, the owner or operator of an affected source subject to reporting requirements under this part shall submit reports to the Administrator in accordance with the reporting requirements in the relevant standard(s).

(2) *Reporting results of performance tests.* Before a title V permit has been issued to the owner or operator of an affected source, the owner or operator shall report the results of any performance test under §63.7 to the Administrator. After a title V permit has been issued to the owner or operator of an affected source, the owner or operator shall report the results of a required performance test to the appropriate permitting authority. The owner or operator of an affected source shall report the results of the performance test to the Administrator (or the State with an approved permit program) before the close of business on the 60th day following the completion of the performance test, unless specified otherwise in a relevant standard or as approved otherwise in writing by the Administrator. The results of the performance test shall be submitted as part of the notification of compliance status required under §63.9(h).

(3) *Reporting results of opacity or visible emission observations.* The owner or operator of an affected source required to conduct opacity or visible emission observations by a relevant standard shall report the opacity or visible emission results (produced using Test Method 9 or Test Method 22, or an alternative to these test methods) along with the results of the performance test required under §63.7. If no performance test is required, or if visibility or other conditions prevent the opacity or visible emission observations from being conducted concurrently with the performance test required under §63.7, the owner or operator shall report the opacity or visible emission results before the close of business on the 30th day following the completion of the opacity or visible emission observations.

(4) *Progress reports.* The owner or operator of an affected source who is required to submit progress reports as a condition of receiving an extension of compliance under §63.6(i) shall submit such reports to the Administrator (or the State with an approved permit program) by the dates specified in the written extension of compliance.

(5)(i) *Periodic startup, shutdown, and malfunction reports.* If actions taken by an owner or operator during a startup or shutdown (and the startup or shutdown causes the source to exceed any applicable emission limitation in the relevant emission standards), or malfunction of an affected source (including actions taken to correct a malfunction) are consistent with the procedures specified in the source's startup, shutdown, and malfunction plan (see §63.6(e)(3)), the owner or operator shall state such information in a startup, shutdown, and malfunction report. Actions taken to minimize emissions during such startups, shutdowns, and malfunctions shall be summarized in the report and may be done in checklist form; if actions taken are the same for each event, only one checklist is necessary. Such a report shall also include the number,

duration, and a brief description for each type of malfunction which occurred during the reporting period and which caused or may have caused any applicable emission limitation to be exceeded. Reports shall only be required if a startup or shutdown caused the source to exceed any applicable emission limitation in the relevant emission standards, or if a malfunction occurred during the reporting period. The startup, shutdown, and malfunction report shall consist of a letter, containing the name, title, and signature of the owner or operator or other responsible official who is certifying its accuracy, that shall be submitted to the Administrator semiannually (or on a more frequent basis if specified otherwise in a relevant standard or as established otherwise by the permitting authority in the source's title V permit). The startup, shutdown, and malfunction report shall be delivered or postmarked by the 30th day following the end of each calendar half (or other calendar reporting period, as appropriate). If the owner or operator is required to submit excess emissions and continuous monitoring system performance (or other periodic) reports under this part, the startup, shutdown, and malfunction reports required under this paragraph may be submitted simultaneously with the excess emissions and continuous monitoring system performance (or other) reports. If startup, shutdown, and malfunction reports are submitted with excess emissions and continuous monitoring system performance (or other periodic) reports, and the owner or operator receives approval to reduce the frequency of reporting for the latter under paragraph (e) of this section, the frequency of reporting for the startup, shutdown, and malfunction reports also may be reduced if the Administrator does not object to the intended change. The procedures to implement the allowance in the preceding sentence shall be the same as the procedures specified in paragraph (e)(3) of this section.

(ii) *Immediate startup, shutdown, and malfunction reports.* Notwithstanding the allowance to reduce the frequency of reporting for periodic startup, shutdown, and malfunction reports under paragraph (d)(5)(i) of this section, any time an action taken by an owner or operator during a startup or shutdown that caused the source to exceed any applicable emission limitation in the relevant emission standards, or malfunction (including actions taken to correct a malfunction) is not consistent with the procedures specified in the affected source's startup, shutdown, and malfunction plan, the owner or operator shall report the actions taken for that event within 2 working days after commencing actions inconsistent with the plan followed by a letter within 7 working days after the end of the event. The immediate report required under this paragraph (d)(5)(ii) shall consist of a telephone call (or facsimile (FAX) transmission) to the Administrator within 2 working days after commencing actions inconsistent with the plan, and it shall be followed by a letter, delivered or postmarked within 7 working days after the end of the event, that contains the name, title, and signature of the owner or operator or other responsible official who is certifying its accuracy, explaining the circumstances of the event, the reasons for not following the startup, shutdown, and malfunction plan, describing all excess emissions and/or parameter monitoring exceedances which are believed to have occurred (or could have occurred in the case of malfunctions), and actions taken to minimize emissions in conformance with §63.6(e)(1)(i). Notwithstanding the requirements of the previous sentence, after the effective date of an approved permit program in the State in which an affected source is located, the owner or operator may make alternative reporting arrangements, in advance, with the permitting authority in that State. Procedures governing the arrangement of alternative reporting requirements under this paragraph (d)(5)(ii) are specified in §63.9(i).

(e) *Additional reporting requirements for sources with continuous monitoring systems—*

(1) *General.* When more than one CEMS is used to measure the emissions from one affected source (e.g., multiple breechings, multiple outlets), the owner or operator shall report the results as required for each CEMS.

(2) *Reporting results of continuous monitoring system performance evaluations.*

(i) The owner or operator of an affected source required to install a CMS by a relevant standard shall furnish the Administrator a copy of a written report of the results of the CMS performance evaluation, as required under §63.8(e), simultaneously with the results of the performance test required under §63.7, unless otherwise specified in the relevant standard.

(ii) The owner or operator of an affected source using a COMS to determine opacity compliance during any performance test required under §63.7 and described in §63.6(d)(6) shall furnish the Administrator two or, upon request, three copies of a written report of the results of the COMS performance evaluation conducted under §63.8(e). The copies shall be furnished at least 15 calendar days before the performance test required under §63.7 is conducted.

(3) *Excess emissions and continuous monitoring system performance report and summary report.*

(i) Excess emissions and parameter monitoring exceedances are defined in relevant standards. The owner or operator of an affected source required to install a CMS by a relevant standard shall submit an excess emissions and continuous monitoring system performance report and/or a summary report to the Administrator semiannually, except when—

(A) More frequent reporting is specifically required by a relevant standard;

(B) The Administrator determines on a case-by-case basis that more frequent reporting is necessary to accurately assess the compliance status of the source; or

(C) [Reserved]

(D) The affected source is complying with the Performance Track Provisions of §63.16, which allows less frequent reporting.

(ii) *Request to reduce frequency of excess emissions and continuous monitoring system performance reports.* Notwithstanding the frequency of reporting requirements specified in paragraph (e)(3)(i) of this section, an owner or operator who is required by a relevant standard to submit excess emissions and continuous monitoring system performance (and summary) reports on a quarterly (or more frequent) basis may reduce the frequency of reporting for that standard to semiannual if the following conditions are met:

(A) For 1 full year (e.g., 4 quarterly or 12 monthly reporting periods) the affected source's excess emissions and continuous monitoring system performance reports continually demonstrate that the source is in compliance with the relevant standard;

(B) The owner or operator continues to comply with all recordkeeping and monitoring requirements specified in this subpart and the relevant standard; and

(C) The Administrator does not object to a reduced frequency of reporting for the affected source, as provided in paragraph (e)(3)(iii) of this section.

(iii) The frequency of reporting of excess emissions and continuous monitoring system performance (and summary) reports required to comply with a relevant standard may be reduced only after the owner or operator notifies the Administrator in writing of his or her intention to make such a change and the Administrator does not object to the intended change. In deciding whether to approve a reduced frequency of reporting, the Administrator may review information concerning the source's entire previous performance history during the 5-year recordkeeping period prior to the intended change, including performance test results, monitoring data, and evaluations of an owner or operator's conformance with operation and maintenance requirements. Such information may be used by the Administrator to make a judgment about the source's potential for noncompliance in the future. If the Administrator disapproves the owner or operator's request to reduce the frequency of reporting, the Administrator will notify the owner or operator in writing within 45 days after receiving notice of the owner or operator's intention. The notification from the Administrator to the owner or operator will specify the grounds on which the disapproval is based. In the absence of a notice of disapproval within 45 days, approval is automatically granted.

(iv) As soon as CMS data indicate that the source is not in compliance with any emission limitation or operating parameter specified in the relevant standard, the frequency of reporting shall revert to the frequency specified in the relevant standard, and the owner or operator shall submit an excess emissions and continuous monitoring system performance (and summary) report for the noncomplying emission points at the next appropriate reporting period following the noncomplying event. After demonstrating ongoing compliance with the relevant standard for another full year, the owner or operator may again request approval from the Administrator to reduce the frequency of reporting for that standard, as provided for in paragraphs (e)(3)(ii) and (e)(3)(iii) of this section.

(v) *Content and submittal dates for excess emissions and monitoring system performance reports.* All excess emissions and monitoring system performance reports and all summary reports, if required, shall be delivered or postmarked by the 30th day following the end of each calendar half or quarter, as appropriate. Written reports of excess emissions or exceedances of process or control system parameters shall include all the information required in paragraphs (c)(5) through (c)(13) of this section, in §§63.8(c)(7) and 63.8(c)(8), and in the relevant standard, and they shall contain the name, title, and signature of the responsible official who is certifying the accuracy of the report. When no excess emissions or exceedances of a parameter have occurred, or a CMS has not been inoperative, out of control, repaired, or adjusted, such information shall be stated in the report.

(vi) *Summary report.* As required under paragraphs (e)(3)(vii) and (e)(3)(viii) of this section, one summary report shall be submitted for the hazardous air pollutants monitored at each affected source (unless the relevant standard specifies that more than one summary report is required, e.g., one summary report for each hazardous air pollutant monitored). The summary report shall be entitled “Summary Report—Gaseous and Opacity Excess Emission and Continuous Monitoring System Performance” and shall contain the following information:

(A) The company name and address of the affected source;

(B) An identification of each hazardous air pollutant monitored at the affected source;

(C) The beginning and ending dates of the reporting period;

(D) A brief description of the process units;

(E) The emission and operating parameter limitations specified in the relevant standard(s);

(F) The monitoring equipment manufacturer(s) and model number(s);

(G) The date of the latest CMS certification or audit;

(H) The total operating time of the affected source during the reporting period;

(I) An emission data summary (or similar summary if the owner or operator monitors control system parameters), including the total duration of excess emissions during the reporting period (recorded in minutes for opacity and hours for gases), the total duration of excess emissions expressed as a percent of the total source operating time during that reporting period, and a breakdown of the total duration of excess emissions during the reporting period into those that are due to startup/shutdown, control equipment problems, process problems, other known causes, and other unknown causes;

(J) A CMS performance summary (or similar summary if the owner or operator monitors control system parameters), including the total CMS downtime during the reporting period (recorded in minutes for opacity and hours for gases), the total duration of CMS downtime expressed as a percent of the total source operating time during that reporting period, and a breakdown of the total CMS downtime during the reporting period into periods that are due to monitoring equipment malfunctions, nonmonitoring equipment malfunctions, quality assurance/quality control calibrations, other known causes, and other unknown causes;

(K) A description of any changes in CMS, processes, or controls since the last reporting period;

(L) The name, title, and signature of the responsible official who is certifying the accuracy of the report; and

(M) The date of the report.

(vii) If the total duration of excess emissions or process or control system parameter exceedances for the reporting period is less than 1 percent of the total operating time for the reporting period, and CMS downtime for the reporting period is less than 5 percent of the total operating time for the reporting period, only the summary report shall be submitted, and the full excess emissions and continuous monitoring system performance report need not be submitted unless required by the Administrator.

(viii) If the total duration of excess emissions or process or control system parameter exceedances for the reporting period is 1 percent or greater of the total operating time for the reporting period, or the total CMS downtime for the reporting period is 5 percent or greater of the total operating time for the reporting period, both the summary report and the excess emissions and continuous monitoring system performance report shall be submitted.

(4) *Reporting continuous opacity monitoring system data produced during a performance test.* The owner or operator of an affected source required to use a COMS shall record the monitoring data produced during a performance test required under §63.7 and shall furnish the Administrator a written report of the monitoring results. The report of COMS data shall be submitted simultaneously with the report of the performance test results required in paragraph (d)(2) of this section.

(f) *Waiver of recordkeeping or reporting requirements.*

(1) Until a waiver of a recordkeeping or reporting requirement has been granted by the Administrator under this paragraph, the owner or operator of an affected source remains subject to the requirements of this section.

(2) Recordkeeping or reporting requirements may be waived upon written application to the Administrator if, in the Administrator's judgment, the affected source is achieving the relevant standard(s), or the source is operating under an extension of compliance, or the owner or operator has requested an extension of compliance and the Administrator is still considering that request.

(3) If an application for a waiver of recordkeeping or reporting is made, the application shall accompany the request for an extension of compliance under §63.6(i), any required compliance progress report or compliance status report required under this part (such as under §§63.6(i) and 63.9(h)) or in the source's title V permit, or an excess emissions and continuous monitoring system performance report required under paragraph (e) of this section, whichever is applicable. The application shall include whatever information the owner or operator considers useful to convince the Administrator that a waiver of recordkeeping or reporting is warranted.

(4) The Administrator will approve or deny a request for a waiver of recordkeeping or reporting requirements under this paragraph when he/she—

(i) Approves or denies an extension of compliance; or

(ii) Makes a determination of compliance following the submission of a required compliance status report or excess emissions and continuous monitoring systems performance report; or

(iii) Makes a determination of suitable progress towards compliance following the submission of a compliance progress report, whichever is applicable.

(5) A waiver of any recordkeeping or reporting requirement granted under this paragraph may be conditioned on other recordkeeping or reporting requirements deemed necessary by the Administrator.

(6) Approval of any waiver granted under this section shall not abrogate the Administrator's authority under the Act or in any way prohibit the Administrator from later canceling the waiver. The cancellation will be made only after notice is given to the owner or operator of the affected source.

§63.11 Control device and work practice requirements.

(a) *Applicability.*

(1) The applicability of this section is set out in §63.1(a)(4).

(2) This section contains requirements for control devices used to comply with applicable subparts of this part. The requirements are placed here for administrative convenience and apply only to facilities covered by subparts referring to this section.

(3) This section also contains requirements for an alternative work practice used to identify leaking equipment. This alternative work practice is placed here for administrative convenience and is available to all subparts in 40 CFR parts 60, 61, 63, and 65 that require monitoring of equipment with a 40 CFR part 60, appendix A-7, Method 21 monitor.

(b) *Flares.*

(1) Owners or operators using flares to comply with the provisions of this part shall monitor these control devices to assure that they are operated and maintained in conformance with their designs. Applicable subparts will provide provisions stating how owners or operators using flares shall monitor these control devices.

(2) Flares shall be steam-assisted, air-assisted, or non-assisted.

(3) Flares shall be operated at all times when emissions may be vented to them.

(4) Flares shall be designed for and operated with no visible emissions, except for periods not to exceed a total of 5 minutes during any 2 consecutive hours. Test Method 22 in appendix A of part 60 of this chapter shall be used to determine the compliance of flares with the visible emission provisions of this part. The observation period is 2 hours and shall be used according to Method 22.

(5) Flares shall be operated with a flame present at all times. The presence of a flare pilot flame shall be monitored using a thermocouple or any other equivalent device to detect the presence of a flame.

(6) An owner/operator has the choice of adhering to the heat content specifications in paragraph (b)(6)(ii) of this section, and the maximum tip velocity specifications in paragraph (b)(7) or (b)(8) of this section, or adhering to the requirements in paragraph (b)(6)(i) of this section.

(i)(A) Flares shall be used that have a diameter of 3 inches or greater, are nonassisted, have a hydrogen content of 8.0 percent (by volume) or greater, and are designed for and operated with an exit velocity less than 37.2 m/sec (122 ft/sec) and less than the velocity V_{max}, as determined by the following equation:

$$V_{max} = (X_{H2} - K_1) * K_2$$

Where:

V_{max} = Maximum permitted velocity, m/sec.

K_1 = Constant, 6.0 volume-percent hydrogen.

K_2 = Constant, 3.9(m/sec)/volume-percent hydrogen.

X_{H2} = The volume-percent of hydrogen, on a wet basis, as calculated by using the American Society for Testing and Materials (ASTM) Method D1946-77. (Incorporated by reference as specified in §63.14).

(B) The actual exit velocity of a flare shall be determined by the method specified in paragraph (b)(7)(i) of this section.

(ii) Flares shall be used only with the net heating value of the gas being combusted at 11.2 MJ/scm (300 Btu/scf) or greater if the flare is steam-assisted or air-assisted; or with the net heating value of the gas being combusted at 7.45 M/scm (200 Btu/scf) or greater if the flares is non-assisted. The net heating value of the gas being combusted in a flare shall be calculated using the following equation:

$$H_T = K\sum_{i=1}^{n} C_i H_i$$

Where:

H_T = Net heating value of the sample, MJ/scm; where the net enthalpy per mole of offgas is based on combustion at 25 °C and 760 mm Hg, but the standard temperature for determining the volume corresponding to one mole is 20 °C.

K = Constant =

$$1.740\times10^{-7}\left(\frac{1}{ppmv}\right)\left(\frac{\text{g-mole}}{\text{scm}}\right)\left(\frac{\text{MJ}}{\text{kcal}}\right)$$

where the standard temperature for (g-mole/scm) is 20 °C.

C_i = Concentration of sample component i in ppmv on a wet basis, as measured for organics by Test Method 18 and measured for hydrogen and carbon monoxide by American Society for Testing and Materials (ASTM) D1946-77 or 90 (Reapproved 1994) (incorporated by reference as specified in §63.14).

H_i = Net heat of combustion of sample component i, kcal/g-mole at 25 °C and 760 mm Hg. The heats of combustion may be determined using ASTM D2382-76 or 88 or D4809-95 (incorporated by reference as specified in §63.14) if published values are not available or cannot be calculated.

n = Number of sample components.

(7)(i) Steam-assisted and nonassisted flares shall be designed for and operated with an exit velocity less than 18.3 m/sec (60 ft/sec), except as provided in paragraphs (b)(7)(ii) and (b)(7)(iii) of this section. The

actual exit velocity of a flare shall be determined by dividing by the volumetric flow rate of gas being combusted (in units of emission standard temperature and pressure), as determined by Test Method 2, 2A, 2C, or 2D in appendix A to 40 CFR part 60 of this chapter, as appropriate, by the unobstructed (free) cross-sectional area of the flare tip.

(ii) Steam-assisted and nonassisted flares designed for and operated with an exit velocity, as determined by the method specified in paragraph (b)(7)(i) of this section, equal to or greater than 18.3 m/sec (60 ft/sec) but less than 122 m/sec (400 ft/sec), are allowed if the net heating value of the gas being combusted is greater than 37.3 MJ/scm (1,000 Btu/scf).

(iii) Steam-assisted and nonassisted flares designed for and operated with an exit velocity, as determined by the method specified in paragraph (b)(7)(i) of this section, less than the velocity V_{max}, as determined by the method specified in this paragraph, but less than 122 m/sec (400 ft/sec) are allowed. The maximum permitted velocity, V_{max}, for flares complying with this paragraph shall be determined by the following equation:

$$Log_{10}(V_{max}) = (H_T + 28.8)/31.7$$

Where:

V_{max} = Maximum permitted velocity, m/sec.

28.8 = Constant.

31.7 = Constant.

H_T = The net heating value as determined in paragraph (b)(6) of this section.

(8) Air-assisted flares shall be designed and operated with an exit velocity less than the velocity V_{max}. The maximum permitted velocity, V_{max}, for air-assisted flares shall be determined by the following equation:

$$V_{max} = 8.71 + 0.708(H_T)$$

Where:

V_{max} = Maximum permitted velocity, m/sec.

8.71 = Constant.

0.708 = Constant.

H_T = The net heating value as determined in paragraph (b)(6)(ii) of this section.

(c) *Alternative work practice for monitoring equipment for leaks.* Paragraphs (c), (d), and (e) of this section apply to all equipment for which the applicable subpart requires monitoring with a 40 CFR part 60, appendix A-7, Method 21 monitor, except for closed vent systems, equipment designated as leakless, and equipment identified in the applicable subpart as having no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background. An owner or operator may use an optical gas imaging instrument instead of a 40 CFR part 60, sppendix A-7, Method 21 monitor. Requirements in the existing subparts that are specific to the Method 21 instrument do not apply under this section. All other requirements in the applicable

subpart that are not addressed in paragraphs (c), (d), and (e) of this section continue to apply. For example, equipment specification requirements, and non-Method 21 instrument recordkeeping and reporting requirements in the applicable subpart continue to apply. The terms defined in paragraphs (c)(1) through (5) of this section have meanings that are specific to the alternative work practice standard in paragraphs (c), (d), and (e) of this section.

(1) *Applicable subpart* means the subpart in 40 CFR parts 60, 61, 63, and 65 that requires monitoring of equipment with a 40 CFR part 60, appendix A-7, Method 21 monitor.

(2) *Equipment* means pumps, valves, pressure relief valves, compressors, open-ended lines, flanges, connectors, and other equipment covered by the applicable subpart that require monitoring with a 40 CFR part 60, appendix A-7, Method 21 monitor.

(3) *Imaging* means making visible emissions that may otherwise be invisible to the naked eye.

(4) *Optical gas imaging instrument* means an instrument that makes visible emissions that may otherwise be invisible to the naked eye.

(5) *Repair* means that equipment is adjusted, or otherwise altered, in order to eliminate a leak.

(6) *Leak* means:

(i) Any emissions imaged by the optical gas instrument;

(ii) Indications of liquids dripping;

(iii) Indications by a sensor that a seal or barrier fluid system has failed; or

(iv) Screening results using a 40 CFR part 60, appendix A-7, Method 21 monitor that exceed the leak definition in the applicable subpart to which the equipment is subject.

(d) The alternative work practice standard for monitoring equipment for leaks is available to all subparts in 40 CFR parts 60, 61, 63, and 65 that require monitoring of equipment with a 40 CFR part 60, appendix A-7, Method 21 monitor.

(1) An owner or operator of an affected source subject to 40 CFR parts 60, 61, 63, or 65 can choose to comply with the alternative work practice requirements in paragraph (e) of this section instead of using the 40 CFR part 60, appendix A-7, Method 21 monitor to identify leaking equipment. The owner or operator must document the equipment, process units, and facilities for which the alternative work practice will be used to identify leaks.

(2) Any leak detected when following the leak survey procedure in paragraph (e)(3) of this section must be identified for repair as required in the applicable subpart.

(3) If the alternative work practice is used to identify leaks, re-screening after an attempted repair of leaking equipment must be conducted using either the alternative work practice or the 40 CFR part 60, Appendix A-7, Method 21 monitor at the leak definition required in the applicable subparts to which the equipment is subject.

(4) The schedule for repair is as required in the applicable subpart.

(5) When this alternative work practice is used for detecting leaking equipment, choose one of the monitoring frequencies listed in Table 1 to subpart A of this part in lieu of the monitoring frequency specified for regulated equipment in the applicable subpart. Reduced monitoring frequencies for good performance are not applicable when using the alternative work practice.

(6) When this alternative work practice is used for detecting leaking equipment, the following are not applicable for the equipment being monitored:

(i) Skip period leak detection and repair;

(ii) Quality improvement plans; or

(iii) Complying with standards for allowable percentage of valves and pumps to leak.

(7) When the alternative work practice is used to detect leaking equipment, the regulated equipment in paragraph (d)(1)(i) of this section must also be monitored annually using a 40 CFR part 60, Appendix A-7, Method 21 monitor at the leak definition required in the applicable subpart. The owner or operator may choose the specific monitoring period (for example, first quarter) to conduct the annual monitoring. Subsequent monitoring must be conducted every 12 months from the initial period. Owners or operators must keep records of the annual Method 21 screening results, as specified in paragraph (i)(4)(vii) of this section.

(e) An owner or operator of an affected source who chooses to use the alternative work practice must comply with the requirements of paragraphs (e)(1) through (e)(5) of this section.

(1) *Instrument specifications.* The optical gas imaging instrument must comply with the requirements specified in paragraphs (e)(1)(i) and (e)(1)(ii) of this section.

(i) Provide the operator with an image of the potential leak points for each piece of equipment at both the detection sensitivity level and within the distance used in the daily instrument check described in paragraph (e)(2) of this section. The detection sensitivity level depends upon the frequency at which leak monitoring is to be performed.

(ii) Provide a date and time stamp for video records of every monitoring event.

(2) *Daily instrument check.* On a daily basis, and prior to beginning any leak monitoring work, test the optical gas imaging instrument at the mass flow rate determined in paragraph (e)(2)(i) of this section in accordance with the procedure specified in paragraphs (e)(2)(ii) through (e)(2)(iv) of this section for each camera configuration used during monitoring (for example, different lenses used), unless an alternative method to demonstrate daily instrument checks has been approved in accordance with paragraph (e)(2)(v) of this section.

(i) Calculate the mass flow rate to be used in the daily instrument check by following the procedures in paragraphs (e)(2)(i)(A) and (e)(2)(i)(B) of this section.

(A) For a specified population of equipment to be imaged by the instrument, determine the piece of equipment in contact with the lowest mass fraction of chemicals that are

detectable, within the distance to be used in paragraph (e)(2)(iv)(B) of this section, at or below the standard detection sensitivity level.

(B) Multiply the standard detection sensitivity level, corresponding to the selected monitoring frequency in Table 1 of subpart A of this part, by the mass fraction of detectable chemicals from the stream identified in paragraph (e)(2)(i)(A) of this section to determine the mass flow rate to be used in the daily instrument check, using the following equation.

$$E_{dic} = (E_{sds}) \sum_{i=1}^{k} x_i$$

Where:

E_{dic} = Mass flow rate for the daily instrument check, grams per hour

x_i = Mass fraction of detectable chemical(s) i seen by the optical gas imaging instrument, within the distance to be used in paragraph (e)(2)(iv)(B) of this section, at or below the standard detection sensitivity level, E_{sds}.

E_{sds} = Standard detection sensitivity level from Table 1 to subpart A, grams per hour

k = Total number of detectable chemicals emitted from the leaking equipment and seen by the optical gas imaging instrument.

(ii) Start the optical gas imaging instrument according to the manufacturer's instructions, ensuring that all appropriate settings conform to the manufacturer's instructions.

(iii) Use any gas chosen by the user that can be viewed by the optical gas imaging instrument and that has a purity of no less than 98 percent.

(iv) Establish a mass flow rate by using the following procedures:

(A) Provide a source of gas where it will be in the field of view of the optical gas imaging instrument.

(B) Set up the optical gas imaging instrument at a recorded distance from the outlet or leak orifice of the flow meter that will not be exceeded in the actual performance of the leak survey. Do not exceed the operating parameters of the flow meter.

(C) Open the valve on the flow meter to set a flow rate that will create a mass emission rate equal to the mass rate calculated in paragraph (e)(2)(i) of this section while observing the gas flow through the optical gas imaging instrument viewfinder. When an image of the gas emission is seen through the viewfinder at the required emission rate, make a record of the reading on the flow meter.

(v) Repeat the procedures specified in paragraphs (e)(2)(ii) through (e)(2)(iv) of this section for each configuration of the optical gas imaging instrument used during the leak survey.

(vi) To use an alternative method to demonstrate daily instrument checks, apply to the Administrator for approval of the alternative under §63.177 or §63.178, whichever is applicable.

(3) *Leak survey procedure.* Operate the optical gas imaging instrument to image every regulated piece of equipment selected for this work practice in accordance with the instrument manufacturer's operating parameters. All emissions imaged by the optical gas imaging instrument are considered to be leaks and are subject to repair. All emissions visible to the naked eye are also considered to be leaks and are subject to repair.

(4) *Recordkeeping.* Keep the records described in paragraphs (e)(4)(i) through (e)(4)(vii) of this section:

(i) The equipment, processes, and facilities for which the owner or operator chooses to use the alternative work practice.

(ii) The detection sensitivity level selected from Table 1 to subpart A of this part for the optical gas imaging instrument.

(iii) The analysis to determine the piece of equipment in contact with the lowest mass fraction of chemicals that are detectable, as specified in paragraph (e)(2)(i)(A) of this section.

(iv) The technical basis for the mass fraction of detectable chemicals used in the equation in paragraph (e)(2)(i)(B) of this section.

(v) The daily instrument check. Record the distance, per paragraph (e)(2)(iv)(B) of this section, and the flow meter reading, per paragraph (e)(2)(iv)(C) of this section, at which the leak was imaged. Keep a video record of the daily instrument check for each configuration of the optical gas imaging instrument used during the leak survey (for example, the daily instrument check must be conducted for each lens used). The video record must include a time and date stamp for each daily instrument check. The video record must be kept for 5 years.

(vi) *Recordkeeping requirements in the applicable subpart.* A video record must be used to document the leak survey results. The video record must include a time and date stamp for each monitoring event. A video record can be used to meet the recordkeeping requirements of the applicable subparts if each piece of regulated equipment selected for this work practice can be identified in the video record. The video record must be kept for 5 years.

(vii) The results of the annual Method 21 screening required in paragraph (h)(7) of this section. Records must be kept for all regulated equipment specified in paragraph (h)(1) of this section. Records must identify the equipment screened, the screening value measured by Method 21, the time and date of the screening, and calibration information required in the existing applicable subparts.

(5) *Reporting.* Submit the reports required in the applicable subpart. Submit the records of the annual Method 21 screening required in paragraph (h)(7) of this section to the Administrator via e-mail to *CCG-AWP@EPA.GOV*.

§63.12 State authority and delegations.

(a) The provisions of this part shall not be construed in any manner to preclude any State or political subdivision thereof from—

(1) Adopting and enforcing any standard, limitation, prohibition, or other regulation applicable to an affected source subject to the requirements of this part, provided that such standard, limitation, prohibition, or regulation is not less stringent than any requirement applicable to such source established under this part;

(2) Requiring the owner or operator of an affected source to obtain permits, licenses, or approvals prior to initiating construction, reconstruction, modification, or operation of such source; or

(3) Requiring emission reductions in excess of those specified in subpart D of this part as a condition for granting the extension of compliance authorized by section 112(i)(5) of the Act.

(b)(1) Section 112(l) of the Act directs the Administrator to delegate to each State, when appropriate, the authority to implement and enforce standards and other requirements pursuant to section 112 for stationary sources located in that State. Because of the unique nature of radioactive material, delegation of authority to implement and enforce standards that control radionuclides may require separate approval.

(2) Subpart E of this part establishes procedures consistent with section 112(l) for the approval of State rules or programs to implement and enforce applicable Federal rules promulgated under the authority of section 112. Subpart E also establishes procedures for the review and withdrawal of section 112 implementation and enforcement authorities granted through a section 112(l) approval.

(c) All information required to be submitted to the EPA under this part also shall be submitted to the appropriate State agency of any State to which authority has been delegated under section 112(l) of the Act, provided that each specific delegation may exempt sources from a certain Federal or State reporting requirement. The Administrator may permit all or some of the information to be submitted to the appropriate State agency only, instead of to the EPA and the State agency.

§63.13 Addresses of State air pollution control agencies and EPA Regional Offices.

(a) All requests, reports, applications, submittals, and other communications to the Administrator pursuant to this part shall be submitted to the appropriate Regional Office of the U.S. Environmental Protection Agency indicated in the following list of EPA Regional Offices.

EPA Region I (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont), Director, Office of Ecosystem Protection, 5 Post Office Square—Suite 100, Boston, MA 02109-3912.

EPA Region II (New Jersey, New York, Puerto Rico, Virgin Islands), Director, Air and Waste Management Division, 26 Federal Plaza, New York, NY 10278.

EPA Region III (Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, West Virginia), Director, Air Protection Division, 1650 Arch Street, Philadelphia, PA 19103.

EPA Region IV (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee). Director, Air, Pesticides and Toxics Management Division, Atlanta Federal Center, 61 Forsyth Street, Atlanta, GA 30303-3104.

EPA Region V (Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin), Director, Air and Radiation Division, 77 West Jackson Blvd., Chicago, IL 60604-3507.

EPA Region VI (Arkansas, Louisiana, New Mexico, Oklahoma, Texas), Director, Air, Pesticides and Toxics, 1445 Ross Avenue, Dallas, TX 75202-2733.

EPA Region VII (Iowa, Kansas, Missouri, Nebraska), Director, Air and Waste Management Division, 11201 Renner Boulevard, Lenexa, Kansas 66219.

EPA Region VIII (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming) Director, Air and Toxics Technical Enforcement Program, Office of Enforcement, Compliance and Environmental Justice, Mail Code 8ENF-AT, 1595 Wynkoop Street, Denver, CO 80202-1129.

EPA Region IX (Arizona, California, Hawaii, Nevada; the territories of American Samoa and Guam; the Commonwealth of the Northern Mariana Islands; the territories of Baker Island, Howland Island, Jarvis Island, Johnston Atoll, Kingman Reef, Midway Atoll, Palmyra Atoll, and Wake Islands; and certain U.S. Government activities in the freely associated states of the Republic of the Marshall Islands, the Federated States of Micronesia, and the Republic of Palau), Director, Air Division, 75 Hawthorne Street, San Francisco, CA 94105.

EPA Region X (Alaska, Idaho, Oregon, Washington), Director, Office of Air Quality, 1200 Sixth Avenue (OAQ-107), Seattle, WA 98101.

(b) All information required to be submitted to the Administrator under this part also shall be submitted to the appropriate State agency of any State to which authority has been delegated under section 112(l) of the Act. The owner or operator of an affected source may contact the appropriate EPA Regional Office for the mailing addresses for those States whose delegation requests have been approved.

(c) If any State requires a submittal that contains all the information required in an application, notification, request, report, statement, or other communication required in this part, an owner or operator may send the appropriate Regional Office of the EPA a copy of that submittal to satisfy the requirements of this part for that communication.

§63.14 Incorporations by reference.

Link to an amendment published at 83 FR 9218, Mar. 5, 2018.

(a) Certain material is incorporated by reference into this part with the approval of the Director of the Federal Register under 5 U.S.C. 552(a) and 1 CFR part 51. To enforce any edition other than that specified in this section, the EPA must publish notice of change in the FEDERAL REGISTER and the material must be available to the public. All approved material is available for inspection at the Air and Radiation Docket and Information Center, U.S. EPA, 401 M St. SW., Washington, DC, telephone number 202-566,

and is available from the sources listed below. It is also available for inspection at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030 or go to *http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.*

(b) American Conference of Governmental Industrial Hygienists (ACGIH), Customer Service Department, 1330 Kemper Meadow Drive, Cincinnati, Ohio 45240, telephone number (513) 742-2020.

(1) Industrial Ventilation: A Manual of Recommended Practice, 22nd Edition, 1995, Chapter 3, "Local Exhaust Hoods" and Chapter 5, "Exhaust System Design Procedure." IBR approved for §§63.843(b) and 63.844(b).

(2) Industrial Ventilation: A Manual of Recommended Practice, 23rd Edition, 1998, Chapter 3, "Local Exhaust Hoods" and Chapter 5, "Exhaust System Design Procedure." IBR approved for §§63.1503, 63.1506(c), 63.1512(e), Table 2 to Subpart RRR, Table 3 to Subpart RRR, and Appendix A to Subpart RRR.

(3) Industrial Ventilation: A Manual of Recommended Practice for Design, 27th Edition, 2010. IBR approved for §§63.1503, 63.1506(c), 63.1512(e), Table 2 to Subpart RRR, Table 3 to Subpart RRR, and Appendix A to Subpart RRR.

(c) The Association of Florida Phosphate Chemists, P.O. Box 1645, Bartow, Florida 33830.

(1) Book of Methods Used and Adopted By The Association of Florida Phosphate Chemists, Seventh Edition 1991:

(i) Section IX, Methods of Analysis for Phosphate Rock, No. 1 Preparation of Sample, IBR approved for §63.606(f), §63.626(f).

(ii) Section IX, Methods of Analysis for Phosphate Rock, No. 3 Phosphorus-P2O5 or Ca3(PO4)2, Method A—Volumetric Method, IBR approved for §63.606(f), §63.626(f).

(iii) Section IX, Methods of Analysis for Phosphate Rock, No. 3 Phosphorus-P2O5 or Ca3(PO4)2, Method B—Gravimetric Quimociac Method, IBR approved for §63.606(f), §63.626(f).

(iv) Section IX, Methods of Analysis For Phosphate Rock, No. 3 Phosphorus-P2O5 or Ca3(PO4)2, Method C—Spectrophotometric Method, IBR approved for §63.606(f), §63.626(f).

(v) Section XI, Methods of Analysis for Phosphoric Acid, Superphosphate, Triple Superphosphate, and Ammonium Phosphates, No. 3 Total Phosphorus-P2O5, Method A—Volumetric Method, IBR approved for §63.606(f), §63.626(f), and (g).

(vi) Section XI, Methods of Analysis for Phosphoric Acid, Superphosphate, Triple Superphosphate, and Ammonium Phosphates, No. 3 Total Phosphorus-P2O5, Method B—Gravimetric Quimociac Method, IBR approved for §63.606(f), §63.626(f), and (g).

(vii) Section XI, Methods of Analysis for Phosphoric Acid, Superphosphate, Triple Superphosphate, and Ammonium Phosphates, No. 3 Total Phosphorus-P2O5, Method C—Spectrophotometric Method, IBR approved for §63.606(f), §63.626(f), and (g).

(2) [Reserved]

(d) Association of Official Analytical Chemists (AOAC) International, Customer Services, Suite 400, 2200 Wilson Boulevard, Arlington, Virginia 22201-3301, Telephone (703) 522-3032, Fax (703) 522-5468.

(1) AOAC Official Method 929.01 Sampling of Solid Fertilizers, Sixteenth edition, 1995, IBR approved for §63.626(g).

(2) AOAC Official Method 929.02 Preparation of Fertilizer Sample, Sixteenth edition, 1995, IBR approved for §63.626(g).

(3) AOAC Official Method 957.02 Phosphorus (Total) in Fertilizers, Preparation of Sample Solution, Sixteenth edition, 1995, IBR approved for §63.626(g).

(4) AOAC Official Method 958.01 Phosphorus (Total) in Fertilizers, Spectrophotometric Molybdovanadophosphate Method, Sixteenth edition, 1995, IBR approved for §63.626(g).

(5) AOAC Official Method 962.02 Phosphorus (Total) in Fertilizers, Gravimetric Quinolinium Molybdophosphate Method, Sixteenth edition, 1995, IBR approved for §63.626(g).

(6) AOAC Official Method 969.02 Phosphorus (Total) in Fertilizers, Alkalimetric Quinolinium Molybdophosphate Method, Sixteenth edition, 1995, IBR approved for §63.626(g).

(7) AOAC Official Method 978.01 Phosphorus (Total) in Fertilizers, Automated Method, Sixteenth edition, 1995, IBR approved for §63.626(g).

(e) American Petroleum Institute (API), 1220 L Street NW., Washington, DC 20005.

(1) API Publication 2517, Evaporative Loss from External Floating-Roof Tanks, Third Edition, February 1989, IBR approved for §§63.111 and 63.2406.

(2) API Publication 2518, Evaporative Loss from Fixed-roof Tanks, Second Edition, October 1991, IBR approved for §63.150(g).

(3) API Manual of Petroleum Measurement Specifications (MPMS) Chapter 19.2 (API MPMS 19.2), Evaporative Loss From Floating-Roof Tanks, First Edition, April 1997, IBR approved for §§63.1251 and 63.12005.

(f) American Society of Heating, Refrigerating, and Air-Conditioning Engineers at 1791 Tullie Circle, NE., Atlanta, GA 30329 *orders@ashrae.org.*

(1) American Society of Heating, Refrigerating, and Air Conditioning Engineers Method 52.1, "Gravimetric and Dust-Spot Procedures for Testing Air-Cleaning Devices Used in General Ventilation for Removing Particulate Matter, June 4, 1992," IBR approved for §§63.11173(e) and 63.11516(d).

(2) [Reserved]

(g) American Society of Mechanical Engineers (ASME), Three Park Avenue, New York, NY 10016-5990, Telephone (800) 843-2763, *http://www.asme.org;* also available from HIS, Incorporated, 15 Inverness Way East, Englewood, CO 80112, Telephone (877) 413-5184, *http://global.ihs.com.*

(1) ANSI/ASME PTC 19.10-1981, Flue and Exhaust Gas Analyses [Part 10, Instruments and Apparatus], issued August 31, 1981, IBR approved for §§63.309(k), 63.457(k), 63.772(e) and (h), 63.865(b), 63.1282(d) and (g), 63.1625(b), 63.3166(a), 63.3360(e), 63.3545(a), 63.3555(a), 63.4166(a), 63.4362(a), 63.4766(a), 63.4965(a), 63.5160(d), table 4 to subpart UUUU, 63.9307(c), 63.9323(a), 63.11148(e), 63.11155(e), 63.11162(f), 63.11163(g), 63.11410(j), 63.11551(a), 63.11646(a), and 63.11945, table 5 to subpart DDDDD, table 4 to subpart JJJJJ, table 4 to subpart KKKKK, tables 4 and 5 of subpart UUUUU, table 1 to subpart ZZZZZ, and table 4 to subpart JJJJJJ.

(2) [Reserved]

(h) American Society for Testing and Materials (ASTM), 100 Barr Harbor Drive, Post Office Box C700, West Conshohocken, PA 19428-2959, Telephone (610) 832-9585, *http://www.astm.org;* also available from ProQuest, 789 East Eisenhower Parkway, Ann Arbor, MI 48106-1346, Telephone (734) 761-4700, *http://www.proquest.com.*

(1) ASTM D95-05 (Reapproved 2010), Standard Test Method for Water in Petroleum Products and Bituminous Materials by Distillation, approved May 1, 2010, IBR approved for §63.10005(i) and table 6 to subpart DDDDD.

(2) ASTM D240-09 Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter, approved July 1, 2009, IBR approved for table 6 to subpart DDDDD.

(3) ASTM Method D388-05, Standard Classification of Coals by Rank, approved September 15, 2005, IBR approved for §§63.7575, 63.10042, and 63.11237.

(4) ASTM Method D396-10, Standard Specification for Fuel Oils, including Appendix X1, approved October 1, 2010, IBR approved for §63.10042.

(5) ASTM D396-10, Standard Specification for Fuel Oils, approved October 1, 2010, IBR approved for §§63.7575 and 63.11237.

(6) ASTM D523-89, Standard Test Method for Specular Gloss, IBR approved for §63.782.

(7) ASTM D975-11b, Standard Specification for Diesel Fuel Oils, approved December 1, 2011, IBR approved for §63.7575.

(8) ASTM D1193-77, Standard Specification for Reagent Water, IBR approved for appendix A to part 63: Method 306, Sections 7.1.1 and 7.4.2.

(9) ASTM D1193-91, Standard Specification for Reagent Water, IBR approved for appendix A to part 63: Method 306, Sections 7.1.1 and 7.4.2.

(10) ASTM D1331-89, Standard Test Methods for Surface and Interfacial Tension of Solutions of Surface Active Agents, IBR approved for appendix A to part 63: Method 306B, Sections 6.2, 11.1, and 12.2.2.

(11) ASTM D1475-90, Standard Test Method for Density of Paint, Varnish Lacquer, and Related Products, IBR approved for appendix A to subpart II.

(12) ASTM D1475-98 (Reapproved 2003), "Standard Test Method for Density of Liquid Coatings, Inks, and Related Products," IBR approved for §§63.3151(b), 63.3941(b) and (c), 63.3951(c), 63.4141(b) and (c), and 63.4551(c).

(13) ASTM Method D1835-05, Standard Specification for Liquefied Petroleum (LP) Gases, approved April 1, 2005, IBR approved for §§63.7575 and 63.11237.

(14) ASTM D1945-03 (Reapproved 2010), Standard Test Method for Analysis of Natural Gas by Gas Chromatography, Approved January 1, 2010, IBR approved for §§63.670(j), 63.772(h), and 63.1282(g).

(15) ASTM D1945-14, Standard Test Method for Analysis of Natural Gas by Gas Chromatography, Approved November 1, 2014, IBR approved for §63.670(j).

(16) ASTM D1946-77, Standard Method for Analysis of Reformed Gas by Gas Chromatography, IBR approved for §63.11(b).

(17) ASTM D1946-90 (Reapproved 1994), Standard Method for Analysis of Reformed Gas by Gas Chromatography, IBR approved for §63.11(b).

(18) ASTM D2013/D2013M-09, Standard Practice for Preparing Coal Samples for Analysis, (Approved November 1, 2009), IBR approved for table 6 to subpart DDDDD and table 5 to subpart JJJJJJ.

(19) ASTM D2099-00, Standard Test Method for Dynamic Water Resistance of Shoe Upper Leather by the Maeser Water Penetration Tester, IBR approved for §63.5350.

(20) ASTM D2216-05, Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass, IBR approved for the definition of "Free organic liquids" in §63.10692.

(21) ASTM D2234/D2234M-10, Standard Practice for Collection of a Gross Sample of Coal, approved January 1, 2010, IBR approved for table 6 to subpart DDDDD and table 5 to subpart JJJJJJ .

(22) ASTM D2369-93, Standard Test Method for Volatile Content of Coatings, IBR approved for appendix A to subpart II.

(23) ASTM D2369-95, Standard Test Method for Volatile Content of Coatings, IBR approved for appendix A to subpart II.

(24) ASTM D2382-76, Heat of Combustion of Hydrocarbon Fuels by Bomb Calorimeter (High-Precision Method), IBR approved for §63.11(b).

(25) ASTM D2382-88, Heat of Combustion of Hydrocarbon Fuels by Bomb Calorimeter (High-Precision Method), IBR approved for §63.11(b).

(26) ASTM D2697-86 (Reapproved 1998), Standard Test Method for Volume Nonvolatile Matter in Clear or Pigmented Coatings, IBR approved for §§63.3161(f), 63.3521(b), 63.3941(b), 63.4141(b), 63.4741(b), 63.4941(b), and 63.5160(c).

(27) ASTM D2879-83, Standard Method for Vapor Pressure-Temperature Relationship and Initial Decomposition Temperature of Liquids by Isoteniscope, IBR approved for §§63.111, 63.2406, and 63.12005.

(28) ASTM D2879-96, Test Method for Vapor Pressure-Temperature Relationship and Initial Decomposition Temperature of Liquids by Isoteniscope, (Approved 1996), IBR approved for §§63.111, 63.2406, and 63.12005.

(29) ASTM D2908-74, Standard Practice for Measuring Volatile Organic Matter in Water by Aqueous-Injection Gas Chromatography, Approved June 27, 1974, IBR approved for §63.1329(c).

(30) ASTM D2908-91, Standard Practice for Measuring Volatile Organic Matter in Water by Aqueous-Injection Gas Chromatography, Approved December 15, 1991, IBR approved for §63.1329(c).

(31) ASTM D2908-91(Reapproved 2001), Standard Practice for Measuring Volatile Organic Matter in Water by Aqueous-Injection Gas Chromatography, Approved December 15, 1991, IBR approved for §63.1329(c).

(32) ASTM D2908-91(Reapproved 2005), Standard Practice for Measuring Volatile Organic Matter in Water by Aqueous-Injection Gas Chromatography, Approved December 1, 2005, IBR approved for §63.1329(c).

(33) ASTM D2908-91(Reapproved 2011), Standard Practice for Measuring Volatile Organic Matter in Water by Aqueous-Injection Gas Chromatography, Approved May 1, 2011, IBR approved for §63.1329(c).

(34) ASTM D2986-95A, "Standard Practice for Evaluation of Air Assay Media by the Monodisperse DOP (Dioctyl Phthalate) Smoke Test," approved September 10, 1995, IBR approved for section 7.1.1 of Method 315 in appendix A to this part.

(35) ASTM D3173-03 (Reapproved 2008), Standard Test Method for Moisture in the Analysis Sample of Coal and Coke, (Approved February 1, 2008), IBR approved for table 6 to subpart DDDDD and table 5 to subpart JJJJJJ.

(36) ASTM D3257-93, Standard Test Methods for Aromatics in Mineral Spirits by Gas Chromatography, IBR approved for §63.786(b).

(37) ASTM D3370-76, Standard Practices for Sampling Water, Approved August 27, 1976, IBR approved for §63.1329(c).

(38) ASTM D3370-95a, Standard Practices for Sampling Water from Closed Conduits, Approved September 10, 1995, IBR approved for §63.1329(c).

(39) ASTM D3370-07, Standard Practices for Sampling Water from Closed Conduits, Approved December 1, 2007, IBR approved for §63.1329(c).

(40) ASTM D3370-08, Standard Practices for Sampling Water from Closed Conduits, Approved October 1, 2008, IBR approved for §63.1329(c).

(41) ASTM D3370-10, Standard Practices for Sampling Water from Closed Conduits, Approved December 1, 2010, IBR approved for §63.1329(c).

(42) ASTM D3588-98 (Reapproved 2003), Standard Practice for Calculating Heat Value, Compressibility Factor, and Relative Density of Gaseous Fuels, (Approved May 10, 2003), IBR approved for §§63.772(h) and 63.1282(g).

(43) ASTM D3695-88, Standard Test Method for Volatile Alcohols in Water by Direct Aqueous-Injection Gas Chromatography, IBR approved for §63.365(e).

(44) ASTM D3792-91, Standard Method for Water Content of Water-Reducible Paints by Direct Injection into a Gas Chromatograph, IBR approved for appendix A to subpart II.

(45) ASTM D3912-80, Standard Test Method for Chemical Resistance of Coatings Used in Light-Water Nuclear Power Plants, IBR approved for §63.782.

(46) ASTM D4006-11, Standard Test Method for Water in Crude Oil by Distillation, including Annex A1 and Appendix X1, (Approved June 1, 2011), IBR approved for §63.10005(i) and table 6 to subpart DDDDD.

(47) ASTM D4017-81, Standard Test Method for Water in Paints and Paint Materials by the Karl Fischer Titration Method, IBR approved for appendix A to subpart II.

(48) ASTM D4017-90, Standard Test Method for Water in Paints and Paint Materials by the Karl Fischer Titration Method, IBR approved for appendix A to subpart II.

(49) ASTM D4017-96a, Standard Test Method for Water in Paints and Paint Materials by the Karl Fischer Titration Method, IBR approved for appendix A to subpart II.

(50) ASTM D4057-06 (Reapproved 2011), Standard Practice for Manual Sampling of Petroleum and Petroleum Products, including Annex A1, (Approved June 1, 2011), IBR approved for §63.10005(i) and table 6 to subpart DDDDD.

(51) ASTM D4082-89, Standard Test Method for Effects of Gamma Radiation on Coatings for Use in Light-Water Nuclear Power Plants, IBR approved for §63.782.

(52) ASTM D4084-07, Standard Test Method for Analysis of Hydrogen Sulfide in Gaseous Fuels (Lead Acetate Reaction Rate Method), (Approved June 1, 2007), IBR approved for table 6 to subpart DDDDD.

(53) ASTM D4177-95 (Reapproved 2010), Standard Practice for Automatic Sampling of Petroleum and Petroleum Products, including Annexes A1 through A6 and Appendices X1 and X2, (Approved May 1, 2010), IBR approved for §63.10005(i) and table 6 to subpart DDDDD.

(54) ASTM D4208-02 (Reapproved 2007), Standard Test Method for Total Chlorine in Coal by the Oxygen Bomb Combustion/Ion Selective Electrode Method, approved May 1, 2007, IBR approved for table 6 to subpart DDDDD.

(55) ASTM D4239-14e1, "Standard Test Method for Sulfur in the Analysis Sample of Coal and Coke Using High-Temperature Tube Furnace Combustion," approved March 1, 2014, IBR approved for §63.849(f).

(56) ASTM D4256-89, Standard Test Method for Determination of the Decontaminability of Coatings Used in Light-Water Nuclear Power Plants, IBR approved for §63.782.

(57) ASTM D4256-89 (Reapproved 94), Standard Test Method for Determination of the Decontaminability of Coatings Used in Light-Water Nuclear Power Plants, IBR approved for §63.782.

(58) ASTM D4606-03 (Reapproved 2007), Standard Test Method for Determination of Arsenic and Selenium in Coal by the Hydride Generation/Atomic Absorption Method, (Approved October 1, 2007), IBR approved for table 6 to subpart DDDDD.

(59) ASTM D4809-95, Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter (Precision Method), IBR approved for §63.11(b).

(60) ASTM D4891-89 (Reapproved 2006), Standard Test Method for Heating Value of Gases in Natural Gas Range by Stoichiometric Combustion, (Approved June 1, 2006), IBR approved for §§63.772(h) and 63.1282(g).

(61) ASTM D5066-91 (Reapproved 2001), Standard Test Method for Determination of the Transfer Efficiency Under Production Conditions for Spray Application of Automotive Paints-Weight Basis, IBR approved for §63.3161(g).

(62) ASTM D5087-02, Standard Test Method for Determining Amount of Volatile Organic Compound (VOC) Released from Solventborne Automotive Coatings and Available for Removal in a VOC Control Device (Abatement), IBR approved for §63.3165(e) and appendix A to subpart IIII.

(63) ASTM D5192-09, Standard Practice for Collection of Coal Samples from Core, (Approved June 1, 2009), IBR approved for table 6 to subpart DDDDD.

(64) ASTM D5198-09, Standard Practice for Nitric Acid Digestion of Solid Waste, (Approved February 1, 2009), IBR approved for table 6 to subpart DDDDD and table 5 to subpart JJJJJJ.

(65) ASTM D5228-92, Standard Test Method for Determination of Butane Working Capacity of Activated Carbon, (Reapproved 2005), IBR approved for §63.11092(b).

(66) ASTM D5291-02, Standard Test Methods for Instrumental Determination of Carbon, Hydrogen, and Nitrogen in Petroleum Products and Lubricants, IBR approved for appendix A to subpart MMMM.

(67) ASTM D5790-95, Standard Test Method for Measurement of Purgeable Organic Compounds in Water by Capillary Column Gas Chromatography/Mass Spectrometry, IBR approved for Table 4 to subpart UUUU.

(68) ASTM D5864-11, Standard Test Method for Determining Aerobic Aquatic Biodegradation of Lubricants or Their Components, (Approved March 1, 2011), IBR approved for table 6 to subpart DDDDD.

(69) ASTM D5865-10a, Standard Test Method for Gross Calorific Value of Coal and Coke, (Approved May 1, 2010), IBR approved for table 6 to subpart DDDDD and table 5 to subpart JJJJJJ.

(70) ASTM D5954-98 (Reapproved 2006), Test Method for Mercury Sampling and Measurement in Natural Gas by Atomic Absorption Spectroscopy, (Approved December 1, 2006), IBR approved for table 6 to subpart DDDDD.

(71) ASTM D5965-02, Standard Test Methods for Specific Gravity of Coating Powders, IBR approved for §§63.3151(b) and 63.3951(c).

(72) ASTM D6053-00, Standard Test Method for Determination of Volatile Organic Compound (VOC) Content of Electrical Insulating Varnishes, IBR approved for appendix A to subpart MMMM.

(73 ASTM D6093-97 (Reapproved 2003), Standard Test Method for Percent Volume Nonvolatile Matter in Clear or Pigmented Coatings Using a Helium Gas Pycnometer, IBR approved for §§63.3161, 63.3521, 63.3941, 63.4141, 63.4741(b), 63.4941(b), and 63.5160(c).

(74) ASTM D6196-03 (Reapproved 2009), Standard Practice for Selection of Sorbents, Sampling, and Thermal Desorption Analysis Procedures for Volatile Organic Compounds in Air, Approved March 1, 2009, IBR approved for appendix A to this part: Method 325A and Method 325B.

(75) ASTM D6266-00a, Test Method for Determining the Amount of Volatile Organic Compound (VOC) Released from Waterborne Automotive Coatings and Available for Removal in a VOC Control Device (Abatement), IBR approved for §63.3165(e).

(76) ASTM D6323-98 (Reapproved 2003), Standard Guide for Laboratory Subsampling of Media Related to Waste Management Activities, (Approved August 10, 2003), IBR approved for table 6 to subpart DDDDD and table 5 to subpart JJJJJJ.

(77) ASTM D6348-03, Standard Test Method for Determination of Gaseous Compounds by Extractive Direct Interface Fourier Transform Infrared (FTIR) Spectroscopy, IBR approved for §§63.457(b) and 63.1349, table 4 to subpart DDDD, table 4 to subpart ZZZZ, and table 8 to subpart HHHHHHH.

(78) ASTM D6348-03 (Reapproved 2010), Standard Test Method for Determination of Gaseous Compounds by Extractive Direct Interface Fourier Transform Infrared (FTIR) Spectroscopy, including Annexes A1 through A8, Approved October 1, 2010, IBR approved for §63.1571(a), tables 4 and 5 to subpart JJJJJ, tables 4 and 6 to subpart KKKKK, tables 1, 2, and 5 to subpart UUUUU and appendix B to subpart UUUUU.

(79) ASTM D6348-12e1, Standard Test Method for Determination of Gaseous Compounds by Extractive Direct Interface Fourier Transform Infrared (FTIR) Spectroscopy, Approved February 1, 2012, IBR approved for §63.1571(a).

(80) ASTM D6350-98 (Reapproved 2003), Standard Test Method for Mercury Sampling and Analysis in Natural Gas by Atomic Fluorescence Spectroscopy, (Approved May 10, 2003), IBR approved for table 6 to subpart DDDDD.

(81) ASTM D6357-11, Test Methods for Determination of Trace Elements in Coal, Coke, and Combustion Residues from Coal Utilization Processes by Inductively Coupled Plasma Atomic Emission Spectrometry, (Approved April 1, 2011), IBR approved for table 6 to subpart DDDDD.

(82) ASTM D6376-10, "Standard Test Method for Determination of Trace Metals in Petroleum Coke by Wavelength Dispersive X-Ray Fluorescence Spectroscopy," Approved July 1, 2010, IBR approved for §63.849(f).

(83) ASTM D6420-99, Standard Test Method for Determination of Gaseous Organic Compounds by Direct Interface Gas Chromatography-Mass Spectrometry, IBR approved for §§63.5799, 63.5850, and Table 4 of Subpart UUUU.

(84) ASTM D6420-99 (Reapproved 2004), Standard Test Method for Determination of Gaseous Organic Compounds by Direct Interface Gas Chromatography-Mass Spectrometry, (Approved October 1, 2004), IBR approved for §§63.457(b), 63.485(g), 60.485a(g), 63.772(a), 63.772(e), 63.1282(a) and (d), 63.2351(b), and 63.2354(b), and table 8 to subpart HHHHHHH.

(85) ASTM D6420-99 (Reapproved 2010), Standard Test Method for Determination of Gaseous Organic Compounds by Direct Interface Gas Chromatography-Mass Spectrometry, Approved October 1, 2010, IBR approved for §63.670(j) and appendix A to this part: Method 325B.

(86) ASTM D6522-00, Standard Test Method for Determination of Nitrogen Oxides, Carbon Monoxide, and Oxygen Concentrations in Emissions from Natural Gas Fired Reciprocating Engines, Combustion Turbines, Boilers, and Process Heaters Using Portable Analyzers, IBR approved for §63.9307(c).

(87) ASTM D6522-00 (Reapproved 2005), Standard Test Method for Determination of Nitrogen Oxides, Carbon Monoxide, and Oxygen Concentrations in Emissions from Natural Gas Fired Reciprocating Engines, Combustion Turbines, Boilers, and Process Heaters Using Portable Analyzers, (Approved October 1, 2005), IBR approved for table 4 to subpart ZZZZ, table 5 to subpart DDDDDD, table 4 to subpart JJJJJJ, and §§63.772(e) and (h)) and 63.1282(d) and (g).

(88) ASTM D6721-01 (Reapproved 2006), Standard Test Method for Determination of Chlorine in Coal by Oxidative Hydrolysis Microcoulometry, (Approved April 1, 2006), IBR approved for table 6 to subpart DDDDD.

(89) ASTM D6722-01 (Reapproved 2006), Standard Test Method for Total Mercury in Coal and Coal Combustion Residues by the Direct Combustion Analysis, (Approved April 1, 2006), IBR approved for Table 6 to subpart DDDDD and Table 5 to subpart JJJJJJ.

(90) ASTM D6735-01 (Reapproved 2009), Standard Test Method for Measurement of Gaseous Chlorides and Fluorides from Mineral Calcining Exhaust Sources—Impinger Method, IBR approved for tables 4 and 5 to subpart JJJJJ and tables 4 and 6 to subpart KKKKK.

(91) ASTM D6751-11b, Standard Specification for Biodiesel Fuel Blend Stock (B100) for Middle Distillate Fuels, (Approved July 15, 2011), IBR approved for §§63.7575 and 63.11237.

(92) ASTM D6784-02 (Reapproved 2008), Standard Test Method for Elemental, Oxidized, Particle-Bound and Total Mercury in Flue Gas Generated from Coal-Fired Stationary Sources (Ontario Hydro Method), (Approved April 1, 2008), IBR approved for §§63.11646(a), 63.11647(a) and (d), tables 1, 2, 5, 11, 12t, and 13 to subpart DDDDD, tables 4 and 5 to subpart JJJJJ, tables 4 and 6 to subpart KKKKK, table 4 to subpart JJJJJJ, table 5 to subpart UUUUU, and appendix A to subpart UUUUU.

(93) ASTM D6883-04, Standard Practice for Manual Sampling of Stationary Coal from Railroad Cars, Barges, Trucks, or Stockpiles, (Approved June 1, 2004), IBR approved for table 6 to subpart DDDDD.

(94) ASTM D7430-11ae1, Standard Practice for Mechanical Sampling of Coal, (Approved October 1, 2011), IBR approved for table 6 to subpart DDDDD.

(95) ASTM D7520-13, Standard Test Method for Determining the Opacity of a Plume in an Outdoor Ambient Atmosphere, approved December 1, 2013. IBR approved for §§63.1510(f), 63.1511(d), 63.1512(a), 63.1517(b) and 63.1625(b).

(96) ASTM D7520-16, Standard Test Method for Determining the Opacity of a Plume in the Outdoor Ambient Atmosphere, approved April 1, 2016, IBR approved for §§63.1625(b).

(97) ASTM E145-94 (Reapproved 2001), Standard Specification for Gravity-Convection and Forced-Ventilation Ovens, IBR approved for appendix A to subpart PPPP.

(98) ASTM E180-93, Standard Practice for Determining the Precision of ASTM Methods for Analysis and Testing of Industrial Chemicals, IBR approved for §63.786(b).

(99) ASTM E260-91, General Practice for Packed Column Gas Chromatography, IBR approved for §§63.750(b) and 63.786(b).

(100) ASTM E260-96, General Practice for Packed Column Gas Chromatography, IBR approved for §§63.750(b) and 63.786(b).

(101) ASTM E515-95 (Reapproved 2000), Standard Test Method for Leaks Using Bubble Emission Techniques, IBR approved for §63.425(i).

(102) ASTM E711-87 (Reapproved 2004), Standard Test Method for Gross Calorific Value of Refuse-Derived Fuel by the Bomb Calorimeter, (Approved August 28, 1987), IBR approved for table 6 to subpart DDDDD and table 5 to subpart JJJJJJ.

(103) ASTM E776-87 (Reapproved 2009), Standard Test Method for Forms of Chlorine in Refuse-Derived Fuel, (Approved July 1, 2009), IBR approved for table 6 to subpart DDDDD.

(104) ASTM E871-82 (Reapproved 2006), Standard Test Method for Moisture Analysis of Particulate Wood Fuels, (Approved November 1, 2006), IBR approved for table 6 to subpart DDDDD and table 5 to subpart JJJJJJ.

(105) ASTM UOP539-12, Refinery Gas Analysis by GC, Copyright 2012 (to UOP), IBR approved for §63.670(j).

(i) Bay Area Air Quality Management District (BAAQMD), 939 Ellis Street, San Francisco, California 94109, *http://www.arb.ca.gov/DRDB/BA/CURHTML/ST/st30.pdf.*

(1) "BAAQMD Source Test Procedure ST-30—Static Pressure Integrity Test, Underground Storage Tanks," adopted November 30, 1983, and amended December 21, 1994, IBR approved for §63.11120(a).

(2) [Reserved]

(j) British Standards Institute, 389 Chiswick High Road, London W4 4AL, United Kingdom.

(1) BS EN 1593:1999, Non-destructive Testing: Leak Testing—Bubble Emission Techniques, IBR approved for §63.425(i).

(2) BS EN 14662-4:2005, Ambient air quality standard method for the measurement of benzene concentrations—Part 4: Diffusive sampling followed by thermal desorption and gas chromatography, Published June 27, 2005, IBR approved for appendix A to this part: Method 325A and Method 325B.

(k) California Air Resources Board (CARB), 1001 I Street, P.O. Box 2815, Sacramento, CA 95812-2815, Telephone (916) 327-0900, *http://www.arb.ca.gov/*.

(1) Method 428, "Determination Of Polychlorinated Dibenzo-P-Dioxin (PCDD), Polychlorinated Dibenzofuran (PCDF), and Polychlorinated Biphenyle Emissions from Stationary Sources," amended September 12, 1990, IBR approved for §63.849(a)(13) and (14).

(2) Method 429, Determination of Polycyclic Aromatic Hydrocarbon (PAH) Emissions from Stationary Sources, Adopted September 12, 1989, Amended July 28, 1997, IBR approved for §63.1625(b).

(3) California Air Resources Board Vapor Recovery Test Procedure TP-201.1—"Volumetric Efficiency for Phase I Vapor Recovery Systems," adopted April 12, 1996, and amended February 1, 2001 and October 8, 2003, IBR approved for §63.11120(b).

(4) California Air Resources Board Vapor Recovery Test Procedure TP-201.1E—"Leak Rate and Cracking Pressure of Pressure/Vacuum Vent Valves," adopted October 8, 2003, IBR approved for §63.11120(a).

(5) California Air Resources Board Vapor Recovery Test Procedure TP-201.3—"Determination of 2-Inch WC Static Pressure Performance of Vapor Recovery Systems of Dispensing Facilities," adopted April 12, 1996 and amended March 17, 1999, IBR approved for §63.11120(a).

(l) Environmental Protection Agency. Air and Radiation Docket and Information Center, 1200 Pennsylvania Avenue NW., Washington, DC 20460, telephone number (202) 566-1745.

(1) *California Regulatory Requirements Applicable to the Air Toxics Program,* November 16, 2010, IBR approved for §63.99(a).

(2) New Jersey's *Toxic Catastrophe Prevention Act Program,* (July 20, 1998), IBR approved for §63.99(a).

(3) Delaware Department of Natural Resources and Environmental Control, Division of Air and Waste Management, Accidental Release Prevention Regulation, sections 1 through 5 and sections 7 through 14, effective January 11, 1999, IBR approved for §63.99(a).

(4) State of Delaware Regulations Governing the Control of Air Pollution (October 2000), IBR approved for §63.99(a).

(5) Massachusetts Department of Environmental Protection regulations at 310 CMR 7.26(10)-(16), Air Pollution Control, effective as of September 5, 2008, corrected March 6, 2009, and 310 CMR 70.00, Environmental Results Program Certification, effective as of December 28, 2007. IBR approved for §63.99(a).

(6)(i) New Hampshire Regulations Applicable to Hazardous Air Pollutants, March, 2003. IBR approved for §63.99(a).

(ii) New Hampshire Regulations Applicable to Hazardous Air Pollutants, September 2006. IBR approved for §63.99(a).

(7) Maine Department of Environmental Protection regulations at Chapter 125, Perchloroethylene Dry Cleaner Regulation, effective as of June 2, 1991, last amended on June 24, 2009. IBR approved for §63.99(a).

(8) California South Coast Air Quality Management District's "Spray Equipment Transfer Efficiency Test Procedure for Equipment User, May 24, 1989," IBR approved for §§63.11173(e) and 63.11516(d).

(9) California South Coast Air Quality Management District's "Guidelines for Demonstrating Equivalency with District Approved Transfer Efficient Spray Guns, September 26, 2002," Revision 0, IBR approved for §§63.11173(e) and 63.11516(d).

(10) Rhode Island Department of Environmental Management regulations at Air Pollution Control Regulation No. 36, Control of Emissions from Organic Solvent Cleaning, effective April 8, 1996, last amended October 9, 2008, IBR approved for §63.99(a).

(11) Rhode Island Air Pollution Control, General Definitions Regulation, effective July 19, 2007, last amended October 9, 2008. IBR approved for §63.99(a).

(12) Alaska Statute 42.45.045. Renewable energy grant fund and recommendation program, available at *http://www.legis.state.ak.us/basis/folio.asp*, IBR approved for §63.6675.

(m) U.S. Environmental Protection Agency, 1200 Pennsylvania Avenue NW., Washington, DC 20460, (202) 272-0167, *http://www.epa.gov.*

(1) EPA-453/R-01-005, National Emission Standards for Hazardous Air Pollutants (NESHAP) for Integrated Iron and Steel Plants—Background Information for Proposed Standards, Final Report, January 2001, IBR approved for §63.7491(g).

(2) EPA-454/B-08-002, Office of Air Quality Planning and Standards (OAQPS), Quality Assurance Handbook for Air Pollution Measurement Systems, Volume IV: Meteorological Measurements, Version 2.0 (Final), March 24, 2008, IBR approved for §63.658(d) and appendix A to this part: Method 325A.

(3) EPA-454/R-98-015, Office of Air Quality Planning and Standards (OAQPS), Fabric Filter Bag Leak Detection Guidance, September 1997, *https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=2000D5T6.PDF,* IBR approved for §§63.548(e), 63.864(e), 63.7525(j), 63.8450(e), 63.8600(e), and 63.11224(f).

(4) EPA-454/R-99-005, Office of Air Quality Planning and Standards (OAQPS), Meteorological Monitoring Guidance for Regulatory Modeling Applications, February 2000, IBR approved for appendix A to this part: Method 325A.

(5) EPA/600/R-12/531, EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards, May 2012, IBR approved for §63.2163(b).

(6) EPA-625/3-89-016, Interim Procedures for Estimating Risks Associated with Exposures to Mixtures of Chlorinated Dibenzo-p-Dioxins and -Dibenzofurans (CDDs and CDFs) and 1989 Update, March 1989. IBR approved for §63.1513(d).

(7) SW-846-3020A, Acid Digestion of Aqueous Samples And Extracts For Total Metals For Analysis By GFAA Spectroscopy, Revision 1, July 1992, in EPA Publication No. SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for table 6 to subpart DDDDD and table 5 to subpart JJJJJJ.

(8) SW-846-3050B, Acid Digestion of Sediments, Sludges, and Soils, Revision 2, December 1996, in EPA Publication No. SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for table 6 to subpart DDDDD and table 5 to subpart JJJJJJ.

(9) SW-846-7470A, Mercury In Liquid Waste (Manual Cold-Vapor Technique), Revision 1, September 1994, in EPA Publication No. SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for table 6 to subpart DDDDD and table 5 to subpart JJJJJJ.

(10) SW-846-7471B, Mercury In Solid Or Semisolid Waste (Manual Cold-Vapor Technique), Revision 2, February 2007, in EPA Publication No. SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for table 6 to subpart DDDDD and table 5 to subpart JJJJJJ.

(11) SW-846-8015C, Nonhalogenated Organics by Gas Chromatography, Revision 3, February 2007, in EPA Publication No. SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for §§63.11960, 63.11980, and table 10 to subpart HHHHHHH.

(12) SW-846-8260B, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS), Revision 2, December 1996, in EPA Publication No. SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for §§63.11960, 63.11980, and table 10 to subpart HHHHHHH.

(13) SW-846-8270D, Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS), Revision 4, February 2007, in EPA Publication No. SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for §§63.11960, 63.11980, and table 10 to subpart HHHHHHH.

(14) SW-846-8315A, Determination of Carbonyl Compounds by High Performance Liquid Chromatography (HPLC), Revision 1, December 1996, in EPA Publication No. SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for §§63.11960 and 63.11980, and table 10 to subpart HHHHHHH.

(15) SW-846-5050, Bomb Preparation Method for Solid Waste, Revision 0, September 1994, in EPA Publication No. SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition IBR approved for table 6 to subpart DDDDD.

(16) SW-846-6010C, Inductively Coupled Plasma-Atomic Emission Spectrometry, Revision 3, February 2007, in EPA Publication No. SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for table 6 to subpart DDDDD.

(17) SW-846-6020A, Inductively Coupled Plasma-Mass Spectrometry, Revision 1, February 2007, in EPA Publication No. SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for table 6 to subpart DDDDD.

(18) SW-846-7060A, Arsenic (Atomic Absorption, Furnace Technique), Revision 1, September 1994, in EPA Publication No. SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for table 6 to subpart DDDDD.

(19) SW-846-7740, Selenium (Atomic Absorption, Furnace Technique), Revision 0, September 1986, in EPA Publication No. SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for table 6 to subpart DDDDD.

(20) SW-846-9056, Determination of Inorganic Anions by Ion Chromatography, Revision 1, February 2007, in EPA Publication No. SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for table 6 to subpart DDDDD.

(21) SW-846-9076, Test Method for Total Chlorine in New and Used Petroleum Products by Oxidative Combustion and Microcoulometry, Revision 0, September 1994, in EPA Publication No. SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for table 6 to subpart DDDDD.

(22) SW-846-9250, Chloride (Colorimetric, Automated Ferricyanide AAI), Revision 0, September 1986, in EPA Publication No. SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for table 6 to subpart DDDDD.

(23) Method 200.8, Determination of Trace Elements in Waters and Wastes by Inductively Coupled Plasma—Mass Spectrometry, Revision 5.4, 1994, IBR approved for table 6 to subpart DDDDD.

(24) Method 1631 Revision E, Mercury in Water by Oxidation, Purge and Trap, and Cold Vapor Atomic Absorption Fluorescence Spectrometry, Revision E, EPA-821-R-02-019, August 2002, IBR approved for table 6 to subpart DDDDD.

(n) International Standards Organization (ISO), 1, ch. de la Voie-Creuse, Case postale 56, CH-1211 Geneva 20, Switzerland, + 41 22 749 01 11, *http://www.iso.org/iso/home.htm.*

(1) ISO 6978-1:2003(E), Natural Gas—Determination of Mercury—Part 1: Sampling of Mercury by Chemisorption on Iodine, First edition, October 15, 2003, IBR approved for table 6 to subpart DDDDD.

(2) ISO 6978-2:2003(E), Natural gas—Determination of Mercury—Part 2: Sampling of Mercury by Amalgamation on Gold/Platinum Alloy, First edition, October 15, 2003, IBR approved for table 6 to subpart DDDDD.

(3) ISO 16017-2:2003(E): Indoor, ambient and workplace air—sampling and analysis of volatile organic compounds by sorbent tube/thermal desorption/capillary gas chromatography—Part 2: Diffusive sampling, May 15, 2003, IBR approved for appendix A to this part: Method 325A and Method 325B.

(o) National Council of the Paper Industry for Air and Stream Improvement, Inc. (NCASI), P.O. Box 133318, Research Triangle Park, NC 27709-3318 or at *http://www.ncasi.org.*

(1) NCASI Method DI/MEOH-94.03, Methanol in Process Liquids and Wastewaters by GC/FID, Issued May 2000, IBR approved for §§63.457 and 63.459.

(2) NCASI Method CI/WP-98.01, Chilled Impinger Method For Use At Wood Products Mills to Measure Formaldehyde, Methanol, and Phenol, 1998, Methods Manual, IBR approved for table 4 to subpart DDDD.

(3) NCASI Method DI/HAPS-99.01, Selected HAPs In Condensates by GC/FID, Issued February 2000, IBR approved for §63.459(b).

(4) NCASI Method IM/CAN/WP-99.02, Impinger/Canister Source Sampling Method for Selected HAPs and Other Compounds at Wood Products Facilities, January 2004, Methods Manual, IBR approved for table 4 to subpart DDDD.

(5) NCASI Method ISS/FP A105.01, Impinger Source Sampling Method for Selected Aldehydes, Ketones, and Polar Compounds, December 2005, Methods Manual, IBR approved for table 4 to subpart DDDD.

(p) National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161, (703) 605-6000 or (800) 553-6847; or for purchase from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402, (202) 512-1800.

(1) Handbook 44, Specificiations, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices 1998, IBR approved for §63.1303(e).

(2) "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication SW-846, Third Edition. (A suffix of "A" in the method number indicates revision one (the method has been revised once). A suffix of "B" in the method number indicates revision two (the method has been revised twice).

(i) Method 0023A, "Sampling Method for Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofuran Emissions from Stationary Sources," dated December 1996, IBR approved for §63.1208(b).

(ii) Method 9071B, "n-Hexane Extractable Material (HEM) for Sludge, Sediment, and Solid Samples," dated April 1998, IBR approved for §63.7824(e).

(iii) Method 9095A, "Paint Filter Liquids Test," dated December 1996, IBR approved for §§63.7700(b) and 63.7765.

(iv) Method 9095B, "Paint Filter Liquids Test," (revision 2), dated November 2004, IBR approved for the definition of "Free organic liquids" in §§63.10692, 63.10885(a), and the definition of "Free liquids" in §63.10906.

(v) SW-846 74741B, Revision 2, "Mercury in Solid or Semisolid Waste (Manual Cold-Vapor Technique)," February 2007, IBR approved for §63.11647(f).

(3) National Institute of Occupational Safety and Health (NIOSH) test method compendium, "NIOSH Manual of Analytical Methods," NIOSH publication no. 94-113, Fourth Edition, August 15, 1994.

(i) NIOSH Method 2010, "Amines, Aliphatic," Issue 2, August 15, 1994, IBR approved for §63.7732(g).

(ii) [Reserved]

(q) North American Electric Reliability Corporation, 1325 G Street, NW., Suite 600, Washington, DC 20005-3801, *http://www.nerc.com, http://www.nerc.com/files/EOP0002-3_1.pdf.*

(1) North American Electric Reliability Corporation Reliability Standard EOP-002-3, Capacity and Energy Emergencies, adopted August 5, 2010, IBR approved for §63.6640(f).

(2)[Reserved]

(r) Technical Association of the Pulp and Paper Industry (TAPPI), 15 Technology Parkway South, Norcross, GA 30092, (800) 332-8686, *http://www.tappi.org.*

(1) TAPPI T 266, Determination of Sodium, Calcium, Copper, Iron, and Manganese in Pulp and Paper by Atomic Absorption Spectroscopy (Reaffirmation of T 266 om-02), Draft No. 2, July 2006, IBR approved for table 6 to subpart DDDDD.

(2) [Reserved]

(s) Texas Commission on Environmental Quality (TCEQ) Library, Post Office Box 13087, Austin, Texas 78711-3087, telephone number (512) 239-0028,

http://www.tceq.state.tx.us/assets/public/implementation/air/sip/sipdocs/2002-12-HGB/02046sipapp_ado.pdf.

(1) "Air Stripping Method (Modified El Paso Method) for Determination of Volatile Organic Compound Emissions from Water Sources," Revision Number One, dated January 2003, Sampling Procedures Manual, Appendix P: Cooling Tower Monitoring, January 31, 2003, IBR approved for §§63.654(c) and (g), 63.655(i), and 63.11920.

(2) [Reserved]

§63.15 Availability of information and confidentiality.

(a) *Availability of information.*

(1) With the exception of information protected through part 2 of this chapter, all reports, records, and other information collected by the Administrator under this part are available to the public. In addition, a copy of each permit application, compliance plan (including the schedule of compliance), notification of compliance status, excess emissions and continuous monitoring systems performance report, and title V permit is available to the public, consistent with protections recognized in section 503(e) of the Act.

(2) The availability to the public of information provided to or otherwise obtained by the Administrator under this part shall be governed by part 2 of this chapter.

(b) *Confidentiality.*

(1) If an owner or operator is required to submit information entitled to protection from disclosure under section 114(c) of the Act, the owner or operator may submit such information separately. The requirements of section 114(c) shall apply to such information.

(2) The contents of a title V permit shall not be entitled to protection under section 114(c) of the Act; however, information submitted as part of an application for a title V permit may be entitled to protection from disclosure.

§63.16 Performance Track Provisions.

(a) Notwithstanding any other requirements in this part, an affected source at any major source or any area source at a Performance Track member facility, which is subject to regular periodic reporting under any subpart of this part, may submit such periodic reports at an interval that is twice the length of the regular period specified in the applicable subparts; provided, that for sources subject to permits under 40 CFR part 70 or 71 no interval so calculated for any report of the results of any required monitoring may be less frequent than once in every six months.

(b) Notwithstanding any other requirements in this part, the modifications of reporting requirements in paragraph (c) of this section apply to any major source at a Performance Track member facility which is subject to requirements under any of the subparts of this part and which has:

(1) Reduced its total HAP emissions to less than 25 tons per year;

(2) Reduced its emissions of each individual HAP to less than 10 tons per year; and

(3) Reduced emissions of all HAPs covered by each MACT standard to at least the level required for full compliance with the applicable emission standard.

(c) For affected sources at any area source at a Performance Track member facility and which meet the requirements of paragraph (b)(3) of this section, or for affected sources at any major source that meet the requirements of paragraph (b) of this section:

(1) If the emission standard to which the affected source is subject is based on add-on control technology, and the affected source complies by using add-on control technology, then all required reporting elements in the periodic report may be met through an annual certification that the affected source is meeting the emission standard by continuing to use that control technology. The affected source must continue to meet all relevant monitoring and recordkeeping requirements. The compliance certification must meet the requirements delineated in Clean Air Act section 114(a)(3).

(2) If the emission standard to which the affected source is subject is based on add-on control technology, and the affected source complies by using pollution prevention, then all required reporting elements in the periodic report may be met through an annual certification that the affected source is continuing to use pollution prevention to reduce HAP emissions to levels at or below those required by the applicable emission standard. The affected source must maintain records of all calculations that demonstrate the level of HAP emissions required by the emission standard as well as the level of HAP emissions achieved by the affected source. The affected source must continue to meet all relevant monitoring and recordkeeping requirements. The compliance certification must meet the requirements delineated in Clean Air Act section 114(a)(3).

(3) If the emission standard to which the affected source is subject is based on pollution prevention, and the affected source complies by using pollution prevention and reduces emissions by an additional 50 percent or greater than required by the applicable emission standard, then all required reporting elements in the periodic report may be met through an annual certification that the affected source is continuing to use pollution prevention to reduce HAP emissions by an additional 50 percent or greater than required by the applicable emission standard. The affected source must maintain records of all calculations that demonstrate the level of HAP emissions required by the emission standard as well as the level of HAP emissions achieved by the affected source. The affected source must continue to meet all relevant monitoring and recordkeeping requirements. The compliance certification must meet the requirements delineated in Clean Air Act section 114(a)(3).

(4) Notwithstanding the provisions of paragraphs (c)(1) through (3), of this section, for sources subject to permits under 40 CFR part 70 or 71, the results of any required monitoring and recordkeeping must be reported not less frequently than once in every six months.

Table 1 to Subpart A of Part 63—Detection Sensitivity Levels (grams per hour)

Monitoring frequency per subpart[a]	Detection sensitivity level
Bi-Monthly	60
Semi-Quarterly	85
Monthly	100

[a]When this alternative work practice is used to identify leaking equipment, the owner or operator must choose one of the monitoring frequencies listed in this table, in lieu of the monitoring frequency specified in the applicable subpart. Bi-monthly means every other month. Semi-quarterly means twice per quarter. Monthly means once per month.

Appendix H: Best Management Practices for Emergency Generator

Best Management Practices for Predictable Operation
Maintenance Testing Schedule of the Emergency Generator

Frequency	Bi-Weekly
Duration	1 hour
Day of Week	Friday
Time of Day	Between 12:00 pm and 4:00 pm
Operating Rates	Idle
Operating Conditions	Idle the engine for a period of one hour.
Fuel	No. 2 Fuel Oil
Tested at the same time of the day with other engine	No
Tested on the same date as other engines	No
Air Quality Index (AQI)	If possible, defer testing if AQI or forecast AQI>90.
Preventative Maintenance	Change oil and filter every 500 hours of operation or annually, whichever comes first. Inspect spark plugs every 1,000 hours of operation or annually, whichever comes first, and replace as necessary. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.

Appendix I: Fugitive Dust Control Plan



Fugitive Dust Control Plan

Rev: October 29, 2018

Attachments:

(1) 40 CFR Part 60 Appendix A-7: Method 22 – Visual Determination of Fugitive Emissions from Material Sources and Smoke Emissions from Flares

(2) Duluth Energy Systems Daily Fugitive Dust Site Inspection & Observation Log

1. Introduction

Duluth Energy Systems (DES) operates boilers to produce steam and hot water for a district heating system under Minnesota Pollution Control Agency (MPCA) air permit number 13700022-005 (Permit). Permit condition 5.1.3 requires compliance with the facility's Fugitive Emission Control Plan. This plan identifies control measures and practices required to minimize the generation of fugitive dust and to contain any fugitive dust which is generated in accordance with Minn R. 7011.0150 and 7011.0710.

This plan revision updates the "Duluth Steam Cooperative Association Fugitive Dust Control Plan" of January, 2006 (The Duluth Steam Cooperative Association is the previous system operator). The revision reflects improvements made to the facility and to the procedures used to reduce and control fugitive dust.

2. Fugitive Emission Sources and Control Measures

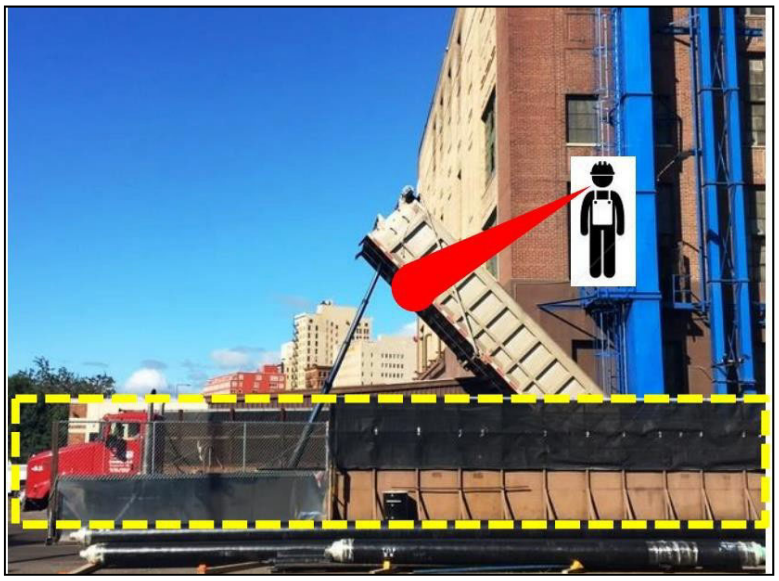
The sources of fugitive dust emissions and their respective control measures and procedures are as follows:

2.1 – Coal Receiving. Coal is delivered to Duluth Steam Plant 1 by end-dump trucks. Trucks utilize a paved turn-around driveway to align themselves for backing into the coal receiving stall.

a. Primary Controls: The coal receiving stall is enclosed on three sides by wind-break walls. A hinged wind-break serves to fully enclose the coal receiving stall when closed and provides a lee from Easterly winds when open. The gate shall be closed during the period between the last coal delivery of the day and the first coal delivery of the following day. Coal purchase and delivery agreements shall require supplier-provided coal

delivery trailers to be covered enroute from the coal terminal to the Duluth Energy Systems receiving stall. One Method 22 observation of a

randomly selected coal delivery evolution will be made each month. Coal delivery evolutions shall be suspended, and corrective actions taken if the Accumulated Emission Time exceeds 15% of the Total Observation Time. The observation shall be made from the Operating Floor level coal elevator platform. Emissions shall be considered to be occurring whenever coal dust is visible outside of the cube-shaped volume formed by the receiving stall windbreak.

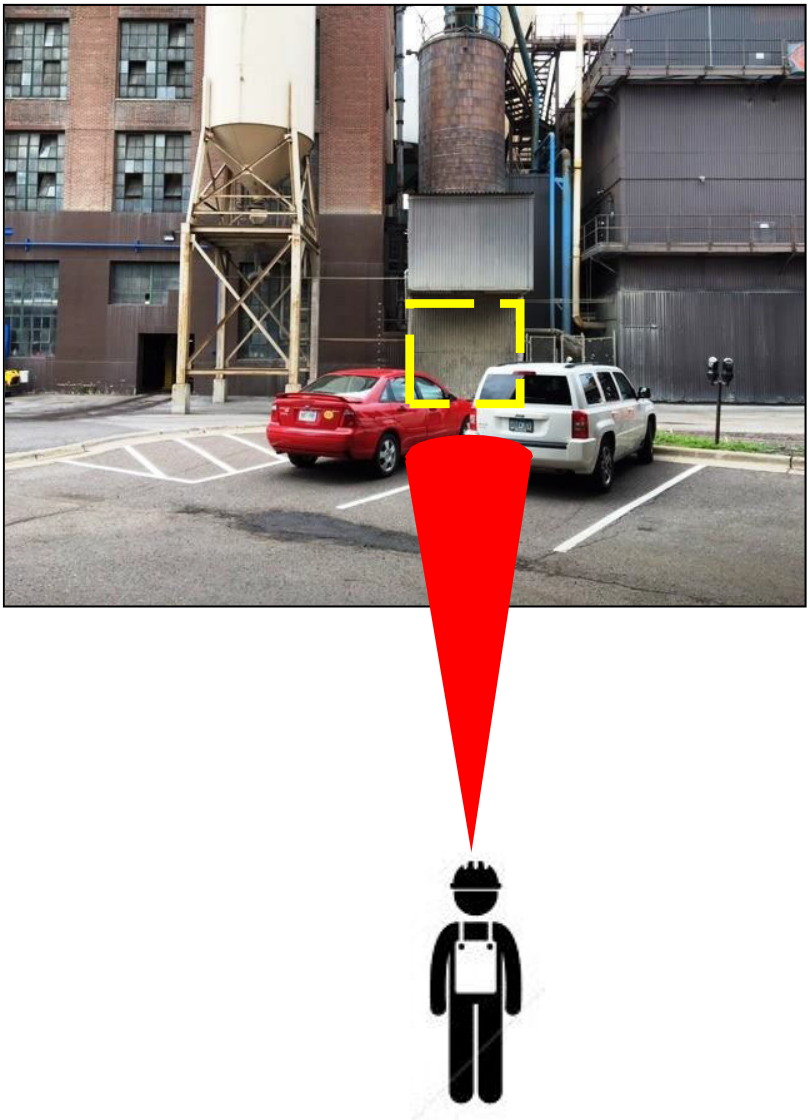


b. Secondary Controls: Duluth Energy Systems staff shall conduct daily inspections of the coal unloading area (including the truck turn-around driveway), the coal elevator and the surrounding area (the Duluth Energy Systems parking lot, driveway and the section of Lake Place Drive West of to the West of the turn-around driveway (to include street, sidewalk, and gutter). The coal elevator shall be in operation when it is inspected. Weather permitting, any coal fines or residuals discovered on and around the Duluth Energy Systems lot shall be collected and deposited into the coal receiving area hopper.

2.2 – Ash Handling. Boiler bottom and fly ash are collected in boiler ash pits, in boiler multi-clone hoppers and in fabric filter (bag house) hoppers inside the plant. Ash is then pneumatically conveyed to a central storage silo on the East side of the plant. This stored ash is periodically fed into a mixer where wateris added (to control dust) before being loaded into trucks for disposal.

Coal slag and clinkers which are too large to be pneumatically conveyed are transported to an on-site storage container via loader or wheelbarrow on the East side of the property.

a. Primary Controls: Ash shall be sufficiently wetted to minimize the creation of fugitive dust during loading into trucks. Ash truck loading shall not normally be accomplished if wind speed in the ash loading area exceeds 15 mph. If ash loading must be accomplished when wind speed exceeds 15 mph, approval from the Chief of the Plant or the Plant Operations Manager must be obtained before proceeding with the evolution. A Method 22 Observation, Attachment (a), shall be performed during all ash loading evolutions. The evolution shall be suspended, and corrective actions taken if the Accumulated Emission Time exceeds 15% of the Total Observation Time.



The ash loading Method 22 observations shall be made from east of the plant (under the Lake Ave exit bridge) so that the ash trailer and ash

unloading station is in clear view. Emissions shall be considered to be occurring whenever ash dust is visible outside of the cube-shaped volume under the unloading room. Loaded ash trailers are to be covered before leaving the Duluth Energy Systems facility.

Upon the completion of an ash loading evolution or ash movement (moving ash and slag from the plant to the on-site storage container) evolution, Duluth Energy System staff shall clean up any ash on or around the Duluth Energy Systems lot.

b. Secondary Controls: Duluth Energy Systems staff shall conduct a daily inspection of the pneumatic ash handing system components exterior to the plant to identify leaks or malfunctions resulting in ash discharge. The ash handling system shall be in operation, conveying ash, when these inspections are conducted. In the event ash discharge is observed, the system shall immediately be shut down and follow-up actions taken.

The on-site ash storage container doors shall remain closed except when loading material into the container.

2.3 – Paved Roads. In addition to coal, both renewable fuel oil (RFO) and distillate oil are delivered to Duluth Steam Plant 1 by trucks. Trucks utilize a paved turn- around driveway for RFO fuel delivery. Distillate delivery is at the emergency diesel tank, which is located near the emergency generator on the other side of the facility.

a. Primary Controls: Paved roads will be watered or swept as needed. Due to the size of the fuel delivery trucks, and limited space for fuel delivery, speed limit of trucks is inherently limited to less than 10 miles per hour.

b. Secondary Controls: Duluth Energy Systems staff shall conduct daily (only days when fuel deliveries are expected) inspections of the fuel truck delivery area(including the truck turn-around driveway). If fugitive emissions are observed on the facility paved roadways, Duluth Energy Systems staff will sweep the area or apply water. Records of sweeping or watering of paved haul roads will be retained.

3. Recordkeeping

A site inspection shall be completed daily, and the results recorded on the Daily Fugitive Dust Emission Site Inspection Form, (Attachment 2). The results of Method 22 observations of all ash loading evolutions and at least one coal delivery evolution per month shall be recorded on the Method 22 Fugitive Dust Observation Form and retained by Duluth Energy Systems in accordance with general record retention requirements specified in the Permit.

4. Training

Duluth Energy Systems management shall conduct annual air emission permit training for all operations staff. The air permit requirements concerning fugitive dust as well as the content of this Fugitive Dust Control Plan shall be included in the air emission training.

METHOD 22 -- VISUAL DETERMINATION OF FUGITIVE EMISSIONS FROM MATERIAL SOURCES AND SMOKE EMISSIONS FROM FLARES (40 CFR Part 60 Appendix A)

1. Introduction

This method involves the visual determination of fugitive emissions, i.e., emissions not emitted directly from a process stack or duct. Fugitive emissions include emissions that (1) escape capture by process equipment exhaust hoods; (2) are emitted during material transfer; (3) are emitted from buildings housing material processing or handling equipment; and (4) are emitted directly from process equipment. This method is used also to determine visible smoke emissions from flares used for combustion of waste process materials. This method determines the amount of time that any visible emissions occur during the observation period, i.e., the accumulated emission time. This method does not require that the opacity of emissions be determined. Since this procedure requires only the determination of whether a visible emission occurs and does not require the determination of opacity levels, observer certification according to the procedures of Method 9 are not required. However, it is necessary that the observer is educated on the general procedures for determining the presence of visible emissions. As a minimum, the observer must be trained and knowledgeable regarding the effects on the visibility of emissions caused by background contrast, ambient lighting, observer position relative to lighting, wind, and the presence of uncombined water (condensing water vapor).

2. Applicability and Principle

2.1 Applicability. This method applies to the determination of the frequency of fugitive emissions from stationary sources (located indoors or outdoors) when specified as the test method for determining compliance with new source performance standards. This method also is applicable for the determination of the frequency of visible smoke emissions from flares. 2.2 Principle. Fugitive emissions produced during material processing, handling, and transfer operations or smoke emissions from flares are visually determined by an observer without the aid of instruments.

3. Definitions

3.1 Emission Frequency. Percentage of time that emissions are visible during the observation period.

3.2 Emission Time. Accumulated amount of time that emissions are visible during the observation period.

3.3 Fugitive Emissions. Pollutant generated by an affected facility which is not collected by a

capture system and is released to the atmosphere.

3.4 Smoke Emissions. Pollutant generated by combustion in a flare and occurring immediately downstream of the flame. Smoke occurring within the flame, but not downstream of the flame, is not considered a smoke emission.

3.5 Observation Period. Accumulated time period during which observations are conducted, not to be less than the period specified in the applicable regulation.

4. Equipment

4.1 Stopwatches. Accumulative type with unit divisions of at least 0.5 seconds; two required.

4.2 Light Meter. Light meter capable of measuring illuminance in the 50- to 200-lux range; required for indoor observations only.

5. Procedure

5.1 Position. Survey the affected facility or building or structure housing the process to be observed and determine the locations of potential emissions. If the affected facility is located inside a building, determine an observation location that is consistent with the requirements of the applicable regulation (i.e., outside observation of emissions escaping the building/structure or inside observation of emissions directly emitted from the affected facility process unit). Then select a position that enables a clear view of the potential emission point(s) of the affected facility or of the building or structure housing the affected facility, as appropriate for the applicable subpart. A position at least 15 feet, but not more than 0.25 miles, from the emission source is recommended. For outdoor locations, select a position where the sun is not directly in the observer's eyes.

5.2 Field Records.

5.2.1 Outdoor Location. Record the following information on the field data sheet: company name, industry, process unit, observer's name, observer's affiliation, and date. Record also the estimated wind speed, wind direction, and sky condition. Sketch the process unit being observed and note the observer location relative to the source and the sun. Indicate the potential and actual emission points on the sketch.

5.2.2 Indoor Location. Record the following information on the field data sheet: company name, industry, process unit, observer's name, observer's affiliation, and date. Record as appropriate the type, location, and intensity of lighting on the data sheet. Sketch the process unit being observed and note observer location relative to the source. Indicate the potential and actual fugitive emission points on the sketch.

5.3 Indoor Lighting Requirements. For indoor locations, use a light meter to measure the level of illumination at a location as close to the emission source(s) as is feasible. An illumination of greater than 100 lux (10 foot candles) is considered necessary for proper application of this method.

5.4 Observations. Record the clock time when observations begin. Use one stopwatch to monitor the duration of the observation period; start this stopwatch when the observation period begins. If the observation period is divided into two or more segments by process shutdowns or observer rest breaks, stop the stopwatch when a break begins and restart it

without resetting when the break ends. Stop the stopwatch at the end of the observation period. The accumulated time indicated by this stopwatch is the duration of the observation period. When the observation period is completed, record the clock time. During the observation period, continuously watch the emission source. Upon observing an emission (condensed water vapor is not considered an emission), start the second accumulative stopwatch; stop the watch when the emission stops. Continue this procedure for the entire observation period. The accumulated elapsed time on this stopwatch is the total time emissions were visible during the observation period, i.e., the emission time.

5.4.1 Observation Period. Choose an observation period of sufficient length to meet the requirements for determining compliance with the emission regulation in the applicable subpart. When the length of the observation period is specifically stated in the applicable subpart, it may not be necessary to observe the source for this entire period if the emission time required to indicate noncompliance (based on the specified observation period) is observed in a shorter time period. In other words, if the regulation prohibits emissions for more than 6 minutes in any hour, then observations may (optional) be stopped after an emission time of 6 minutes is exceeded. Similarly, when the regulation is expressed as an emission frequency and the regulation prohibits emissions for greater than 10 percent of the time in any hour, then observations may (optional) be terminated after 6 minutes of emissions are observed since 6 minutes is 10 percent of an hour. In any case, the observation period shall not be less than 6 minutes in duration. In some cases, the process operation may be intermittent or cyclic. In such cases, it may be convenient for the observation period to coincide with the length of the process cycle.

5.4.2 Observer Rest Breaks. Do not observe emissions continuously for a period of more than 15 to 20 minutes without taking a rest break. For sources requiring observation periods of greater than 20 minutes, the observer shall take a break of not less than 5 minutes and not more than 10 minutes after every 15 to 20 minutes of observation. If continuous observations are desired for extended time periods, two observers can alternate between making observations and taking breaks.

5.4.3 Visual Interference. Occasionally, fugitive emissions from sources other than the affected facility (e.g., road dust) may prevent a clear view of the affected facility. This may particularly be a problem during periods of high wind. If the view of the potential emission points is obscured to such a degree that the observer questions the validity of continuing observations, then the observations are terminated, and the observer clearly notes this fact on the data form.

5.5 Recording Observations. Record the accumulated time of the observation period on the data sheet as the observation period duration. Record the accumulated time emissions were observed on the data sheet as the emission time. Record the clock time the observation period began and ended, as well as the clock time any observer breaks began and ended.

6. Calculations

If the applicable subpart requires that the emission rate be expressed as an emission frequency (in percent), determine this value as follows: Divide the accumulated emission time (in seconds) by the duration of the observation period (in seconds) or by any minimum observation period required in the applicable subpart, if the actual observation period is less than the required period and multiply this quotient by 100.

Daily Fugitive Dust Emission Inspection / Observation
Duluth Energy Systems - One Lake Place Drive – Duluth, MN 55802

Site Inspection

Date:		**Inspector:**
Location	**Result**	**Comments / Follow-up Action**
Coal Elevator[1]	OK Dust	
Coal Receiving Gate[2]	OK Dust	
Parking Lot[3]	OK Dust	
Truck Turn-Around[4]	OK Dust	
Lake Place Drive[5]	OK Dust	
Ash System[6]	OK Dust	
Ash Unloading Area[7]	OK Dust	
Ash Storage Container[8]	OK Dust	

Notes:

1. Inspect elevator while in operation. Check for coal dust leaking from elevatorenclosure.
2. Gate closed after last coal delivery of the day.
3. Inspect lot for residual coal or ash dust, sweep or water up as required.
4. Inspect truck turn-around driveway for residual coal or ash dust, sweep up or water as required.
5. Inspect Lake Place Drive, bike path and street gutters west of turn-around driveway for residual coal or ash dust, sweep up as required.
6. Inspect external piping, valves, cyclone separator, small baghouse and other ash handling system components for dust leakage while the system is in operation. Stop ash handling system and repair if leakage observed.
7. Inspect lot, storm water swale, and driveway on East side of plant for residual coal and ash. Sweep up as required.
8. Container doors closed.

DULUTH ENERGY SYSTEMS

Method 22 Fugitive Dust Observation[1] Date:

_____

Ash Loading or Coal Delivery		**Observer[2]:**	
Sky: Clear Partly Overcast		**Precipitation:** None Snow Rain Mix	
Wind Direction:		**Wind Speed[3]:** mph (max allowed = 15 mph)	
Observation Start Time (clock)	**Observation End Time (clock)**	**Total Observation Time [4] (seconds)**	**Accumulated Emission Time[6] (seconds)**
% of Observation Time with emissions occurring: (15% Max)[6]			

7. Chief of the Plant / Operations Manager Approval: _____

(Required if wind speed >15 mph or Accumulated Emission Time > 15% of Observation Time)

Notes:

1. A Method 22 observation shall be made during all ash loading evolutions and one coal delivery evolution per month.
2. All Ash loading observations shall be made from the under the Lake Ave bridge, East of the plant. All Coal Delivery observations shall be made from the Operation Floor coal elevator platform.
3. Ash loading shall not be performed without Chief of the Plant or Operations Manager approval if wind speed exceeds 15 mph.
4. The Total Observation Time for ash loading evolutions shall be the lessor of 10 minutes (600 seconds) or the duration of the ash loading evolution. The Total Observation Time for coal deliveries will start when the trailer cover is first removed and end when the truck turns out of the DES lot and onto Lake Place Drive.
5. Emissions shall be considered to be occurring whenever ash dust is visible outside the cubic shaped volume under the unloading room (see photo below) or when coal dust is observed outside of the receiving stall.
6. Stop the ash loading evolution and notify The Chief of the Plant if any observation results in accumulated emission time (measured with second stopwatch) > 15% of Total Observation Time. *(Divide Accumulated Emission Time by Total Observation Time and multiply by 100%)*

Comments: _____

_____

_____

_____

Technical Support Document
For
Air Emission Permit No. 13700022-101

This technical support document (TSD) is intended for all parties interested in the permit and to meet the requirements that have been set forth by the federal and state regulations (40 CFR § 70.7(a)(5) and Minn. R. 7007.0850, subp. 1). The purpose of this document is to provide the legal and factual justification for each applicable requirement or policy decision considered in the determination to issue the draft permit.

1. General information

1.1 Applicant and stationary source location:

Table 1. Applicant and source address

Applicant/Address	**Stationary source/Address** (SIC Code: 4961 - Steam and Air-Conditioning Supply)
City of Duluth 1 Lake Place Drive Duluth, Minnesota 55802-2324	Duluth Steam Plant 1 1 Lake Place Drive Duluth, MN 55802-2324
Contact: Terry Nanti Phone: 218-723-3602	

1.2 Facility description

Duluth Steam Plant 1 is a district heating system for the City of Duluth. This facility was built in 1932 and it consists of four steam boilers that each burn multiple fuels, a pneumatic ash handling system, and an emergency generator. Each boiler can produce 100,000 pounds of steam per hour and each has a heat input capacity of 115 MMBtu/hr. The fugitive emission sources at the facility consist of coal truck unloading, coal transfer to bunker, ash truck loading, and fugitive dust from paved roads. Insignificant sources at the facility consists of four welders, cleaning solvents, paint spray cans, and a renewable fuel oil (RFO) tank. There are two fabric filters at the facility used to control the boilers and ash system. The facility Part 70 Operating Permit (No. 13700022-005) was last reissued on October 28, 2015.

The primary fuel for the steam boilers is pulverized subbituminous coal. Natural gas is used as the principal backup fuel for boilers 2 and 3 (EQUI 8 and EQUI 6, respectively), and No. 2 fuel oil is used for startup and flame stabilization when combusting coal. As part of the City of Duluth's plan to generate 20% of its energy through renewable resources, the Permittee added wood, and RFO as allowable fuels. The addition of RFO is intended to reduce coal combustion, and will add the flexibility necessary for the facility to move towards the ultimate goal of eliminating coal use. While wood is an allowable fuel, the boilers have not been modified to accommodate wood combustion, and there are no longer any plans to do so.

Coal is delivered to the location by trucks, and is conveyed by an enclosed bucket elevator to a belt conveyor. The belt conveyor discharges coal into the storage bunkers. Coal is then fed from the bunkers through pulverizers to the boilers. Ash from the coal combustion is pneumatically conveyed to storage silos.

Baghouses are the only pollution control equipment at the facility. Baghouse TREA 1 controls particulate emissions from the boilers when combusting wood, No. 2 fuel oil, or coal. Emissions are not required to be controlled by TREA 1 if the boilers are only combusting RFO or natural gas unless the facility wishes to receive credit for emissions inventory purposes. Baghouse TREA 2 controls particulate emissions from the ash handling system at all times.

The main pollutants of concern are particulate matter (PM), particulate matter 10 micrometers or less (PM10), particulate matter 2.5 micrometers or less (PM2.5), sulfur dioxide (SO2), nitrogen oxides (NOx), carbon monoxide (CO), and hazardous air pollutants (HAPs). The facility is a major source under the federal New Source Review program and the federal Part 70 operating permit program.

The facility is a synthetic minor source under the federal National Emission Standards for Hazardous Air Pollutants (NESHAP) program. The highest single HAP emissions are hydrochloric acid (HCl). In addition, HCl is by far the largest contributor to Total HAP emissions from any fuel, accounting for almost 90% of the Total HAPs emitted. HCl is only emitted from the boilers when combusting coal or wood. The facility has accepted boiler limits on heat input, steam output, and amount of coal and wood used in addition to limits on Total/Single HAPs. The facility is also required to track the HCl content of coal and wood used. By limiting fuel use, tracking the HCl content of the fuel, and limiting HCl emissions to 9.5 tons per year (tpy), the single HAP major source threshold cannot be exceeded because there are no other sources of HCl emissions. These limits also effectively prevent the Total HAP major source threshold from being exceeded because HCl is such a significant portion of the Total HAPs emitted and there is no other HAP emitted in a large enough quantity to cause Total HAP emissions to exceed the Total HAP major source threshold. This combination of limits keep the potential emissions of HAPs below the major source thresholds. Additional discussion between the MPCA and EPA regarding this can be found as Attachment 7 to this TSD.

The facility is also subject to several emission limits derived from air dispersion modeling used to demonstrate compliance with the National Ambient Air Quality Standards (NAAQS) for particulate matter less than 10 microns (PM10), sulfur dioxide (SO2) and nitrogen dioxide (NO2).

1.3 Description of the activities allowed by this permit action

This permit action is a Major Amendment. There are four amendments associated with this permit action:

Major Amendment (IND20180001 received 6/22/18) – Construction is being authorized. This amendment authorizes the addition of RFO as an allowable fuel, and new dual-fuel burners in Boilers 1 and 4 (EQUI 5 and 7). These new burners will each have a heat input capacity of 115 MMBtu/hr, of which 60 MMBtu/hr is from RFO combustion (physical limitation of the burner) with the remainder from natural gas. The facility will construct a stainless steel outdoor storage tank to store RFO. Adding this new fuel allows the facility to reduce their reliance on coal combustion with an overall net reduction in air emissions.

The main pollutant of concern with this permit action is PM10. Along with the new fuel and burners, the facility would like to bypass the baghouse when only combusting RFO and/or natural gas as the baghouse is not necessary for compliance with emission limits when combusting those fuels. When RFO is combusted uncontrolled, it represents a new hourly worst-case scenario for PM10. In order to ensure that PM10 group modeling limits are not exceeded by this new scenario, PM10 performance testing has been added to the permit with this permit action.

In addition, the facility has requested that some limits in the permit be changed to specify which fuels they apply to. During the last permit action, baghouse control was unintentionally changed from applying only when combusting coal to applying at all times. This permit action corrects this mistake by requiring control when wood, No. 2 fuel oil, or coal is combusted. Control is not required for the combustion of natural gas or RFO, unless the facility wishes to take credit for emissions inventory purposes. Steam output and heat input limits have also been clarified to only apply when combusting wood, No. 2 fuel oil, or coal. Since these limit changes represent a relaxation of limits they have been included in the PSD emissions increase analysis discussed in section 3.1 of this TSD.

Major Amendment (IND20170001 received 5/25/17) – This amendment was submitted to incorporate SO2 emission rates used in the dispersion modeling for the 1-hour sulfur dioxide ambient standard as permit limits.

The permit was amended in 2014 to allow for clean cellulosic biomass as an allowable fuel in the facility's boilers. During the public notice period for that permit amendment, the Fond du Lac Band of Lake Superior Chippewa expressed concern over the cumulative impacts of several large sources in the Duluth/Superior area, and requested Duluth Steam Plant 1 to complete SO2 sulfur dioxide dispersion modeling to demonstrate compliance with the 1-hour SO2 NAAQS. The dispersion modeling showed that Duluth Steam Plant 1 does not cause or contribute to an exceedance of the ambient SO2 standard at SO2 rates of 425 lb/hr or less. The SO2 emission rate in the permit was 680 lb/hr. This reduced emission rate of 425 lb/hr is achieved by eliminating bituminous coal from the list of allowable fuels. This amendment requests that the limit be lowered from 680 lb/hr to 425 lb/hr, and that bituminous coal be removed throughout the permit as an allowable fuel.

Administrative Amendment (IND20160004 received 12/5/16) – This amendment was to extend a stack test deadline for Boiler #3 (EQUI 6) by no more than 120 days. The test was originally due December 15th, 2016, and the test was completed within the 120 day extension on March 7, 2017.

Minor Amendment (IND20160003 received 6/2/16) – This amendment will remove (without replacement) two diesel emergency generators, and replace a third diesel emergency generator with a similar diesel emergency generator (EQUI 9). All three generators were previously classified as insignificant activities. EQUI 9 is classified as an emission unit, and is included in the permit.

The MPCA has a combined operating and construction permitting program under Minn. R. ch. 7007, and under Minn. R. 7007.0800. Under that authority, this permit action authorizes construction.

1.4 Description of notifications and applications included in this action

Table 2. Notifications and applications included in this action

Date received	Application/notification type and description
10/25/2016	Administrative Amendment (IND20160004)
12/05/2016	Administrative Amendment (IND20160004)
04/11/2017	Major Amendment (IND20170001)
06/22/2018	Major Amendment (IND20180001)
05/25/2017	Major Amendment (IND20170001)
06/02/2016	Minor Amendment (IND20160003)

1.5 Facility emissions:

Table 3. Title I emissions summary for new and existing units combined

Pollutant	Emissions increase from modified, replacement, or debottlenecked units (tpy)	Potential Emissions from new units (tpy)	Source-wide contemporaneous increases and decreases* (tpy)	Emissions increase**** (tpy)	NSR/112(g) Significant thresholds for major sources (tpy)	NSR/ 112(g) review required? (yes/no)
PM	0.00	0.13	NA	0.13	25	No
PM_{10}	0.00	0.03	NA	0.03	15	No

Pollutant	Emissions increase from modified, replacement, or debottlenecked units (tpy)	Potential Emissions from new units (tpy)	Source-wide contemporaneous increases and decreases* (tpy)	Emissions increase**** (tpy)	NSR/112(g) Significant thresholds for major sources (tpy)	NSR/ 112(g) review required? (yes/no)
$PM_{2.5}$	0.00	0.01	NA	0.01	10	No
NO_x	0.00	0.00	NA	0.00	40	No
SO_2	0.00	0.00	NA	0.00	40	No
CO	0.00	0.00	NA	0.00	100	No
Ozone (VOC***)	0.00	0.09	NA	0.09	40	No
Lead	0.04	0.00	NA	0.04	0.6	No
CO_2e**	0.00	0.00	NA	0.00	75,000	No
Fluorides	0.00	0.00	NA	0.00	3	No
Sulfuric Acid Mist	0.00	0.00	NA	0.00	7	No

*Other emission changes during the contemporaneous period as defined by 40 CFR § 52.21, 40 CFR § 52.24 or 40 CFR pt. 51.
**Carbon dioxide equivalents as defined in Minn. R. 7007.0100.
***Volatile Organic Compounds
****Source-wide netting was not conducted so negative emissions increase are valued as 0.

Table 5. Facility classification

Classification	Major	Synthetic minor/area	Minor/area
PSD	X		
Part 70 Permit Program	X		
Part 63 NESHAP		X	

1.6 Changes to permit

TFAC:
-Removed 1-hour SO2 modeling requirements. This was completed.
-Updated Total Facility General Comments to reflect updated standard language changes.

COMG1:
-Updated allowable fuels to include RFO, and removed bituminous coal. Removed note that only boilers 2 & 3 combust natural gas, the new burners on boilers 1 & 4 will allow the combusting of natural gas.
-Removed throughput, coal ash content, and sulfur content limits on bituminous coal. It is no longer an allowable fuel.
-Hourly heat input limit and steam flow limit have been changed to apply only when combusting wood, No. 2 fuel oil, or coal.
-Modeling-based SO_2 limits have been changed from 680 pounds per hour to 425 pounds per hour due to the removal of bituminous coal as an allowable fuel.
-Changed total heat input and steam flow limits so that they clearly state they only apply for wood, No. 2 fuel oil, or coal combustion.
-Removed references to bituminous coal in recordkeeping and monitoring requirements.

EQUI 5, 6, 7, 8:
-Updated Minn. R. 7011.0510 requirements so the PM limit applies to filterable particulate matter. Also updated the PTE value due to equipment design and allowable fuels to account for fuel changes.
-Added new venting language to make sure it is clear what fuels can be vented controlled/uncontrolled. Wood, No. 2 fuel oil, and coal combustion must always be controlled. RFO and natural gas combustion emissions may be vented to the atmosphere uncontrolled.
-Added PM10 testing to determine compliance with the COMG 1 modeling-based limit. This was supposed to be added during the last permit action, but was not.

EQUI 9:
- Added EQUI 9 to the permit. This generator replaced an existing generator that was incorrectly classified as insignificant. Tempo profiles for 40 CFR Part 63, Subp. ZZZZ, and Minn. R. 7011.2300 were loaded. Referenced requirements can be found as Appendix F and G to the permit.

TREA 1:
-Updated CAM fabric filter profile to reflect updated standard requirements and language.
-Added AOS #2 for uncontrolled operations when boilers are combusting only natural gas or RFO. Daily recordkeeping hours is also required.
-Changed monitoring requirement from a daily visible emissions check to a pressure drop check once every 24 hours. It was determined that a visible emissions check is not appropriate for a high temperature fabric filter due to the likeliness of condensed water vapor being reported as visible emissions. The change from daily to once every 24 hours is done in accordance with CAM requirements.

TREA 2:
-Updated requirements to reflect current MPCA language. It was determined during the last permit action (reissuance) that CAM does not apply to this unit, but CAM requirements were not removed. This has been updated to reflect that as well.

EQUI 2:
-Updated PM2.5 limit from 99.9% collection efficiency to 99.9% control efficiency. This was an error from the previous permit action.
-Removed CAM requirements as it was determined that CAM does not apply to this unit.

Appendix:
-Updated modeled SO2 parameters in Appendix B and C to reflect the new lower limit of 425 lb/hr.
-Removed Paved Roads from modeled parameters in Appendix B as paved roads (including new emissions from RFO delivery) are included in the fugitive dust control plan, and are no longer required to be included in modeling.

Miscellaneous:
-Removed bypass stacks STRU 10 and STRU 11 from the permit. There are no bypass stacks at the facility. When the boilers bypass the fabric filter emissions are still vented to the only stack STRU 8.

2. Regulatory and/or statutory basis

2.1 New source review (NSR)
The facility is an existing major source under New Source Review regulations. Changes are authorized by this permit and the source will remain a major NSR source after the changes.

2.2 Part 70 permit program
The facility is a major source under the Part 70 permit program and this permit does not change this status.

2.3 New source performance standards (NSPS)

The Permittee has stated that no New Source Performance Standards apply to the operations at this facility.

EQUI 9 is a used emergency generator (manufactured in 1999) purchased by the City of Duluth and installed at Duluth Energy Systems. 40 CFR pt. 60, subp. IIII does not apply to EQUI 9 because EQUI 9 was manufactured before 2007 (as stated at 60.4200(a)(1)(i)), and § 63.2 defines *Construction a*s not including equipment relocation.

2.4 National emission standards for hazardous air pollutants (NESHAP)

The facility has accepted limits on HAP emissions such that it is an area source under 40 CFR pt. 63. Thus, no major source NESHAPs apply.

The emergency generator (EQUI 9) is classified as an existing, stationary, emergency, CI RICE, located at an area source of HAP emissions, with a site rating of more than 500 brake HP. As a result, EQUI 9 is subject to 40 CFR pt. 63 subp. ZZZZ – National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines.

2.5 Compliance assurance monitoring (CAM)

The table below lists the sources subject to CAM, the control equipment used, whether the source is a large or other pollutant specific emission unit (PSEU), and the pollutants triggering CAM.

Table 6. CAM summary

Unit	Control	CAM applicability	Pollutant	Emission Limitation Basis
EQUI 5, 6, 7, 8 (Boilers 1-4)	TREA 1 – Baghouse	Other	PM/PM_{10}	Minn. R. 7011.0510; Modeling

CAM only applies when combusting any amount of wood, No. 2 fuel oil, or coal. TREA 1 is only relied upon for compliance purposes when controlling emissions from wood, No. 2 fuel oil, or coal combustion. Controlling emissions from RFO or natural gas combustion is not required except for emissions inventory purposes.

For large pollutant specific emission units, records of the monitored parameter must be made at a minimum of four times per hour, or once every 15 minutes. For other PSEUs (not large), records must be made at a minimum of once per 24 hours. See Attachment 5 to this document for the CAM Plan submitted by the applicant.

2.6 Regulatory Overview

Table 7. Regulatory overview of units affected by the modification/permit amendment

Subject item*	Applicable regulations	Rationale

Subject item*	Applicable regulations	Rationale
COMG 1 (Boilers)	Minn. Stat. Section 116.07, subd. 4a; Minn. R. 7007.0800, subp. 2 and 5	Ambient Air Quality Standards. Limits on Maximum Capacity of Heat Input (≤ 345 mmBtu/hr) into the boilers and Steam Output (≤ 300,000 lbs/hr) when combusting wood, No. 2 fuel oil, or coal. These requirements have been specified to only apply when wood, No. 2 fuel oil, or coal is being combusted. The facility will now be able to operate a fourth boiler combusting either natural gas or RFO in addition to three boilers combusting wood, No. 2 fuel oil, or coal. Previously, these limits prevented the facility from operating all four boilers at any given time. The new fuel, RFO, represents a new worst-case scenario for PM10 on an hourly basis for Boilers 1 and 4, when uncontrolled. Performance testing for PM10 has been added to ensure compliance with the group PM10 modeling limits, and to ensure Ambient Air Quality Standards are not exceeded with this new operating scenario.
	Title I Condition: Avoid Major source under 40 CFR pt. 63.2	Limit on subbituminous coal throughput is relied upon to avoid major source NESHAP classification. The throughput limit on bituminous coal has been removed as it is no longer an allowable fuel.
	Minn. R. 7007.0100, subp. 7(A), Minn. R. 7007.0100, subp. 7(L), Minn. R. 7007.0100, subp. 7(M), Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0010-0090, Minn. Stat. 116.07, subd. 4a, Minn. Stat. 116.07, subd. 9	Ambient Air Quality Standards. Limits resulting from dispersion modeling to ensure emissions do not cause a violation of the National Ambient Air Quality Standards (NAAQS). Limits for sulfur content and coal ash content for bituminous coal have been removed as it is no longer an allowable fuel. Allowable fuels requirement has been modified to include the new fuel RFO, and to remove bituminous coal. Modeling-based limit for sulfur dioxide revised from 680 lbs/hr to 425 lbs/hr. This was the result of completed one-hour SO2 modeling and reflects the removal of bituminous coal as a permitted fuel.

Subject item*	Applicable regulations	Rationale
	40 CFR pt. 63, subp. JJJJJJ	National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources. The boilers in COMG 1 are considered to be existing industrial boilers because they were constructed before June 4, 2010. The permit contains requirements for both boilers in the Coal Subcategory and Biomass Subcategory, as defined in 40 CFR § 63.11237. At this time, the boilers are classified as being the in the Coal Subcategory. At a time when the boilers can be classified as being in the Biomass Subcategory, as defined in 40 CFR Section 63.11237, the Permittee shall follow the 40 CFR pt. 63, subp. JJJJJJ requirements for boilers in the Biomass Subcategory listed in the permit. In accordance with the definitions under 40 CFR Section 63.11237, combusting the new fuel RFO will not change the subcategory for the boiler until coal is no longer combusted or permitted at the facility. The oil subcategory cannot apply if the boilers are in either the biomass or coal subcategories.
EQUI 5, 6, 7, 8 (Boilers 1-4)	Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000	A requirement has been added to the EQUI level to specify that venting boiler emissions to control equipment is required when a boiler combusts coal, wood, or No. 2 fuel oil. Requiring that emissions be controlled while combusting coal was previously established to avoid major modification classification under NSR. The last permit action unintentionally changed the control requirements in the permit from only applying when combusting coal, to applying at all times. This new venting requirement corrects that error, and makes explicitly clear when emissions must be controlled.
	Minn. R. 7017.2020 subp. 1	Performance testing to measure PM10 emissions has been added to the permit to determine compliance with the COMG 1 PM10 limits. It was previously determined in the last permit action that PM10 performance testing should be added to the permit as a compliance method for the COMG 1 modeling limits, but it was not. The compliance method will now be established with this permit action. A requirement to test at worst-case operating conditions has also been added to the testing requirements.
EQUI 9 (Emergency Gen)	40 CFR pt. 63, subp. ZZZZ Minn. R. 7011.8150	National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines. EQUI 9 is existing, stationary, emergency, CI RICE, located at an area source of HAP emissions, with a site rating of more than 500 brake HP.
	Minn. R. 7011.2300	Minnesota Standards of Performance for Stationary Internal Combustion Engines. EQUI 9 is a stationary internal combustion engine.

Subject item*	Applicable regulations	Rationale
TREA 1 (Boiler Baghouse)	Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000	Control efficiency limits were previously established in the permit to avoid major modification classification under NSR. The last permit action unintentionally changed the control requirements in the permit from only applying when combusting coal, to applying at all times. These requirements have been updated to specific that control is required when combusting wood, No. 2 fuel oil, or coal. Control will not be required for the new fuel RFO or natural gas. The facility would like to take credit for emissions inventory purposes when operating TREA 1 while combusting RFO or natural gas. Two operating scenarios have been set up to handle that. AOS #1 – Vent to Baghouse contains CAM requirements, and includes control efficiency limits, operation and maintenance requirements, pressure drop and visible emissions monitoring, and corrective actions. AOS # 1 applies at all times when any amount of wood, No. 2 fuel oil, or coal is combusted. AOS #2 – Baghouse Bypass applies when combusting RFO or natural gas. If the facility would like to take credit for controls while combusting RFO or natural gas, AOS #2 indicates that the facility must comply with AOS #1 in order to do so. The facility will be required to track their movement between operating scenarios to ensure that emissions are being appropriately controlled.
	40 CFR pt. 64	TREA 1 is subject to CAM when operating under AOS #1. TREA 1 is used to meet PM, and PM10 emission limits. There are no PM2.5 emission limits in the permit. Uncontrolled PTE for PM, and PM10 is greater than the major source level of 100 tpy. CAM does not apply when the facility is operating under AOS #2 when emissions are not required to be controlled.
TREA 2 (Ash Baghouse)	Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000	Control efficiency limits were previously established in the permit to avoid major modification classification under NSR. During the last permit action it was determined that CAM does not apply. Pre-control PTE for PM/PM10/PM2.5 remains below 100 tpy, and CAM requirements have been removed from the permit.

*Location of the requirement in the permit (e.g., EQUI 1, STRU 2, etc.).

3. Technical information

3.1 Emissions increase analysis

Baseline Actual Emissions (BA)

The baseline years selected were 2009 and 2010 from which annual emissions data from the annual Air Emissions Inventory Reports (AEIR) was extracted for criteria pollutants and an average was calculated for Boilers 1, 2, 3, 4, the ash handling system, and fugitive emissions from coal handling and paved roads.

-Past operations included the heat input limit of 345 MMBtu/hr and the steam production limit of 300,000 lb/hr for all fuels.

-The subbituminous coal heating value used in calculating the heat input for PM and PM10 emissions for the 2009 AEIR was inconsistent with what was used in years 2010 through 2012. To get a more accurate value, a ratio of the average heating value from 2010 through 2012 to the heating value from 2009 was applied.
-PM2.5 emissions were not included in the AEIR until 2012 so PM2.5 was calculated for years 2009 and 2010 using size distribution data in the relevant AP-42 chapters for each fuel as referenced in the 2012 AEIR.

- For subbituminous and bituminous coal a speciation of 53 percent of Total PM (AP-42, Table 1.1-6);
- For No. 2 fuel oil a particulate speciation of 12 percent of total PM (AP-42 Table 1.3-6);
- For waste oil a ratio of 0.5647 lb/lb of PM10 (webfire factor)

-The emissions for lead were adjusted to remove a control factor of 79 percent which was applied in the 2009 AIER, but has not been applied since that time.

Because greenhouse gases, fluorides, and sulfuric acid were not reported in the 2009 and 2010 inventories, actual emissions for these pollutants are calculated separately.

- Greenhouse gas emissions were calculated using factors taken from 40 CFR Part 98, Subp. C for the relevant fuel types and the fuel throughput data from the 2009 and 2010 AEIRs.
- Fluoride emissions were calculated using the factor from AP-42 Section 1.1 and AEIR data for boiler throughputs for subbituminous and bituminous coal.
- Sulfuric Acid Mist was calculated using the equation to convert SO_2 emissions to H_2SO_4 emissions in, *An Updated Method for Estimating Total Sulfuric Acid Emissions from Stationary Power Plants* published by Research and Environmental Affairs Department, Southern Company Generation and Energy Marketing (2003).

Future Projected Actual Emissions (FPA)
Emission factors from the PTE calculations for Boilers 1, 2, 3, and 4 were used along with the projected future fuel use to determine the FPA. Emission factors for RFO combustion were provided from the fuel supplier, Ensyn. The heat input limit of 345 MMBtu/hr and the steam production limit of 300,000 lb/hr were not included in the projected RFO and natural gas combustion.

The quantity of steam generated each year for the past five years (2013-2017) was evaluated. Future projected actual steam production was assumed to be equal to 10% greater than the highest quantity of steam generated by all four boilers during the previous five-year period. The additional 10% steam demand is assumed as a conservative measure. There is no anticipated increase in steam demand associated with the proposed combustion of RFO or the proposed limit changes associated with this PSD analysis.

The fuel input required to generate the highest quantity of steam produced in the previous five-year period was calculated and was used to determine the fuel requirements for the future projected actual steam demand. Steam from Boiler 1 and Boiler 4 was assumed to be generated by RFO, with natural gas as a supplemental fuel due to the physical limitations of the RFO burner.

The addition of RFO is intended to reduce coal combustion by the facility. Subbituminous coal would only be combusted in Boilers 1 and 4 if it were driven by fuel supply and economics, which is the same as the current operating plan. Adding RFO as a fuel will add the flexibility necessary for the facility to move towards the ultimate goal of eliminating coal use. The facility does expect to combust up to 22,000 tons per year of subbituminous coal in Boilers 1, 2, 3, and 4 in the future.

While currently permitted to do so, the boilers have not yet been modified to accommodate wood combustion, and there are no longer any plans to combust wood in the future. No. 2 fuel oil is only combusted to supplement coal combustion during flame stabilization in minimal amounts, and therefore is not a worst-case fuel. These two fuel were not included in the future projected actual emission calculations.

Excludable Emissions

Emissions attributed to the combustion of subbituminous coal when comparing baseline actuals to projected actuals for the proposed project are able to be excluded under 40 CFR 52.21(b)(41)(ii)(c) as these emissions were possible pre-project and will continue to be possible post-project. Similar to the baseline actual emission calculations, emission factors from 2009-2010 AEIR reports used in the BA calculations were used in the excluded emission calculations. The previous PM10 and SO_2 emission factors (from 2009-2010 AEIR) resulted in emissions which were greater than the permitted amount, and therefore the excluded emissions were capped at the group boiler permit limits of 19.9 tons per year for PM10 and 1039 tons per year for SO_2. The amount of subbituminous coal burned in Boilers 1, 2 ,3, and 4 during the highest month in the baseline period, December 2010, was multiplied by 12 months to obtain an annual fuel use from which associated annual emissions were calculated and excluded from FPA emissions.

In several instances for PM10 and lead, excludable emissions resulted in a negative value. This is due to baseline actual emissions being greater than what is considered the allowable emissions. The allowable emissions were defined as the COMG 1 group limits for PM10 emissions and coal throughput being evenly split amongst the four boilers. In reality, coal throughput and the resulting emissions are not evenly split amongst the four boilers. To correct this, baseline actual emissions were set at the limited allowable emissions value which results in zero excludable emissions for those instances. In addition, the MPCA has not yet made a decision regarding implementation of EPA's March 18, 2018 project netting policy memorandum. As a result, all negative values (calculated from the future projected actual emissions minus the sum of baseline actual and excludable emissions) are changed to zero in the PSD applicability calculations because source-wide netting was not conducted for this project.

As a result of the Title I Emissions increase analysis, it has been found that there is not a reasonable possibility (as defined at 40 CFR § 52.21(r)(6)(vi)) that the increase in emissions could be significant.

Attachment 1 to this TSD contains a summary of the PTE of the Facility, and contains detailed spreadsheets and supporting information prepared by the MPCA and the Permittee.

Attachment 2 to this TSD contains the Title I net emissions increase calculations for this modification, and detailed spreadsheets and supporting information prepared by the MPCA and the Permittee. This demonstrates that this modification is not a major modification for PSD.

RFO

RFO is a sustainable liquid fuel produced by Ensyn Technologies, Inc. (Ensyn). RFO is produced via a thermal process known as fast pyrolysis which is a rapid heating process in the absence of oxygen. The feedstock is wood harvest and sawmill residuals. The new burners being added to Boilers 1 (EQUI 5) and 4 (EQUI 7) will be capable of combusting 115 MMBtu/hr total, of which 60 MMBtu/hr is RFO combustion capability and the remaining is natural gas. Emission factors for RFO are based on test data from RFO combustion at other sources and can be found as Attachment 6 to this TSD.

3.2 Monitoring

In accordance with the Clean Air Act, it is the responsibility of the owner or operator of a facility to have sufficient knowledge of the facility to certify that the facility is in compliance with all applicable requirements.

For CAM, the Permittee submitted a CAM proposal as required by 40 CFR § 64.3. It can be found in Attachment 5 to this TSD. Further discussion of decisions about CAM can be found in Table 8.

In evaluating the monitoring included in the permit, the MPCA considered the following:

- The likelihood of the facility violating the applicable requirements.

- Whether add-on controls are necessary to meet the emission limits.
- The variability of emissions over time.
- The type of monitoring, process, maintenance, or control equipment data already available for the emission unit.
- The technical and economic feasibility of possible periodic monitoring methods.
- The kind of monitoring found on similar units elsewhere.

The table below summarizes the monitoring requirements associated with this amendment.

Table 8. Monitoring

Subject item*	Requirement (rule basis)	What is the monitoring	Why is this monitoring adequate?
COMG 1 (Boilers)	Modeling Limits: PM_{10}: ≤ 7.7 lbs/hr based on 24-hour rolling average (limit to avoid the PM_{10} NAAQS) PM_{10}: ≤ 19.9 tons/yr based on 12-month rolling average (limit to avoid the PM_{10} NAAQS) SO_2: ≤ 425 lbs/hr based on 3-hour rolling average and 24-hour rolling average (limit to avoid the SO_2 NAAQS)	Fuel sampling and analysis, proper operation and maintenance of the baghouse, performance testing	Performance testing for PM_{10} will be required 180 days after issuance of this permit, and every 60 months thereafter. It has been specified that for boilers 1 and 4 (EQUI 5 and 7) RFO with natural gas must be combusted and uncontrolled during testing. Boilers 2 and 3 (EQUI 6 and 8) must combust coal and be controlled. The test results of the individual boilers will be summed together to determine compliance with the limits. This combination of fuels and control during testing will ensure that the hourly worst-case scenario for PM_{10} is tested to ensure that it does not exceed the modeling limits. PM_{10} performance testing directly measures emissions to determine compliance with the modeling-based limits, and operating, maintaining, and monitoring the baghouse ensures ongoing PM_{10} compliance between performance tests. SO_2 performance testing required every 48 months directly measures emissions to determine compliance with the modeling-based limit. Fuel sampling and analysis determines fuel sulfur content to ensure ongoing SO_2 compliance between performance tests.
	Maximum Heat Input Capacity from Wood, No. 2 Fuel Oil, or Coal: ≤ 345 mmBtu/hr; (Minn. R. 7007.0800) Maximum Steam Output from Wood, No. 2 Fuel Oil, or Coal: ≤ 300,000 lbs/hr (Minn. R. 7007.0800)	Continuous heat input and steam output records	The permit contains requirements to keep a continuous record of the maximum hourly heat input and steam production rate of the boilers to ensure that these limits are not exceeded. Measurement of heat input and steam output provides a direct determination of compliance with the heat input and steam production limits.

Subject item*	Requirement (rule basis)	What is the monitoring	Why is this monitoring adequate?
EQUI 9 (Emergency Gen)	SO2 ≤ 0.0015 lb/MMBtu; Opacity ≤ 20% (Minn. R. 7011.2300)	Fuel type usage recordkeeping, fuel supplier certification	The potential to emit from the generator is 0.0015 lb/MMBtu due to equipment design and allowable fuels. This is the maximum emission rate that can result from burning ultra low sulfur diesel. It is unlikely the opacity limit will be exceeded due to the decreased particle formation of ultra low sulfur diesel. Therefore no additional monitoring is warranted other than recordkeeping of fuel type and fuel sulfur content.
TREA 1 (Boiler Baghouse)	**AOS #1 – Controlled by Baghouse:** Overall PM control efficiency: ≥ 99.0 %; (limit to avoid NSR) Overall $PM_{2.5}/PM_{10}$ control efficiency: ≥ 98.0%; (limit to avoid NSR) Overall HAP-Metal control efficiency: ≥ 79.0%; (limit to avoid NESHAP) Pressure drop: 1 to 10 inches of water (limit to avoid NSR) **AOS #2 Baghouse Bypass:** No control required when combusting RFO or natural gas. The Permittee must comply with requirements of AOS #1 in order to receive control credit for emissions inventory purposes.	Daily pressure drop check, periodic inspections, AOS recordkeeping, performance testing	Once every 24-hr CAM requirements that include monitoring, recordkeeping, and reporting requirements are sufficient to ensure the baghouse is properly operated and maintained. Proper operation of the baghouse based on pressure drop is adequate to show continuous compliance with the limits. AOS recordkeeping will also ensure that the correct control scenario is being used for all fuel scenarios.

Subject item*	Requirement (rule basis)	What is the monitoring	Why is this monitoring adequate?
TREA 2 (Ash Baghouse)	Overall $PM/PM_{2.5}/PM_{10}$ control efficiency: ≥ 99.9%; Pressure drop: 0.5 to 10 inches of mercury (limits to avoid NSR)	Daily visible emissions or pressure drop check, periodic inspection	Daily visible emissions check, pressure drop monitoring, and periodic inspections ensure the control device is properly operated and maintained. Proper operation of the control equipment is adequate to show continuous compliance with the limits.

*Location of the requirement in the permit (e.g., EQUI 1, STRU 2, etc.).

3.3 Insignificant activities

Duluth Steam Plant 1 has several operations which are classified as insignificant activities under the MPCA's permitting rules. These are listed in Appendix A to the permit. The following insignificant activities are included in this modification.

Table 9. Insignificant activities

Insignificant activity	General applicable emission limit	Discussion
Individual units with potential emissions less than 2000 lb/year of certain pollutants	PM, variable depending on airflow Opacity <= 20% Minn. R. 7011.0715	40,000 gallon tank for the new RFO fuel with a PTE for VOC of .09 tpy.
Individual units with potential emissions less than 2000 lb/year of certain pollutants	Prevent avoidable amounts of particulate matter from becoming airborne Minn. R. 7011.0150	Paved road emissions from delivery of the new RFO fuel with a PTE for PM of .40 tpy.

3.4 Permit organization

This permit meets the MPCA Tempo Guidance for ordering and grouping of requirements as well as the use of permit appendices.

In this permit, federal requirements from NESHAPs are included in two different formats. The requirements for 40 CFR pt. 63, subp. JJJJJJ is incorporated into the permit as individual permit requirements, which has historically been MPCA's standard practice. However, the requirements for 40 CFR pt. 63, subp. ZZZZ and the associated General Provisions in 40 CFR pt. 63, subp. A are included in a different way.

For these rules, limits and submittal/actions are included individually in the permit like the other standards. For the remaining portions of the rule, a requirement in Section 5 of the permit lists the citations of all of the applicable parts of the standard along with a reference to the permit appendix where the full text of the standard is included. 40 CFR pt. 63, subp. ZZZZ and 40 CFR pt. 63, subp. A are included in Appendices F and G, respectively.

3.5 Comments received

Public Notice Period: 02/12/2019 – 03/13/2019
EPA Review Period: 03/14/2019 – 03/29/2019

No comments were received from the public during the public notice period.

The proposed permit was sent to EPA for their review on 03/14/2019. Per the current Implementation Agreement between MPCA and EPA, the EPA review period ended 15 days after it was sent to EPA.

Comments were not received from EPA during their review period. No changes were made to the permit as a result.

4. Permit fee assessment

Attachment 4 to this TSD contains the MPCA's assessment of Application and Additional Points used to determine the permit application fee for this permit action as required by Minn. R. 7002.0019. The permit action includes four permit applications. 40 CFR pt. 63, subp. ZZZZ applies to the new emergency generator, but since the NESHAP requirements were already in the permit, and there were no changes to the applicability of emissions limits or standards, no additional fees were determined to apply.

5. Conclusion

Based on the information provided by Duluth Steam Plant 1 the MPCA has reasonable assurance that the proposed operation of the emission facility, as described in the Air Emission Permit No. 13700022-101 and this TSD, will not cause or contribute to a violation of applicable federal regulations and Minnesota Rules.

Staff members on permit team: Robert Little (permit engineer)
Marshall Cole (peer reviewer)
Steven Palzkill (enforcement)
Marc Severin (compliance)
Laurie O'Brien (administrative support)

TEMPO360 Activities: Administrative Amendment (IND20160004), Major Amendment (IND20170001), Major Amendment (IND20180001), Minor Amendment (IND20160003)

Attachments:
1. PTE summary and Calculation Spreadsheets
2. Title I Emissions Summary and Calculation Spreadsheets
3. SI Inventory and Requirements Report
4. Points Calculator
5. CAM Plan
6. RFO Emission Factors
7. EPA-MPCA HAP Discussion

Duluth Steam Plant 1
13700022-101

Attachment 1
PTE Summary and Calculation Spreadsheets

Limited Potentail Emissions of Four Boilers Combined; Includes All permitted fuel types.

Duluth Steam Plant No. 1 Emissions Summary

	PM[3]	PM_{10}	$PM_{2.5}$	SO_2	NOx	CO[4]	VOC[4]	Pb	Single HAP	Total HAP	CH_4	N_2O	CO_2	CO_2e	
EQUI 5	5.70	3.41	2.99	140.00	80.00	55.20	1.56	0.11	8.00	8.67	2.78	0.73	24,584.01	24,774.22	lb/hr (1, 3, and 24 hour average)
(Boiler 1)	2497.11	585.97	164.03	613.20	350.40	241.78	6.85	0.49	35.04	36.62	12.19	3.19	107,677.96	108,511.06	uncontrolled tpy
	24.97	14.92	13.08	613.20	350.40	235.00	6.85	0.49	35.04	36.52	12.19	3.19	107,677.96	108,511.06	tpy
EQUI 8	5.70	2.68	0.85	140.00	80.00	55.20	1.56	0.00	8.00	8.36	2.78	0.73	24584.01	24,774.22	lb/hr (1, 3, and 24 hour average)
(Boiler 2)	2497.11	585.97	164.03	613.20	350.40	241.78	6.85	0.02	35.04	36.62	12.19	3.19	107,677.96	108,511.06	uncontrolled tpy
	24.97	11.72	3.73	613.20	350.40	235.00	6.85	0.02	35.04	36.51	12.19	3.19	107677.96	108,511.06	tpy controlled
EQUI 6	5.70	2.68	0.85	140.00	80.00	55.20	1.56	0.00	8.00	8.36	2.78	0.73	24584.01	24,774.22	lb/hr (1, 3, and 24 hour average)
(Boiler 3)	2497.11	585.97	164.03	613.20	350.40	241.78	6.85	0.02	35.04	36.62	12.19	3.19	107,677.96	108,511.06	uncontrolled tpy
	24.97	11.72	3.73	613.20	350.40	235.00	6.85	0.02	35.04	36.51	12.19	3.19	107677.96	108,511.06	tpy controlled
EQUI 7	5.70	3.41	2.99	140.00	80.00	55.20	1.56	0.11	8.00	8.67	2.78	0.73	24584.01	24,774.22	lb/hr (1, 3, and 24 hour average)
(Boiler 4)	2497.11	585.97	164.03	613.20	350.40	241.78	6.85	0.49	35.04	36.62	12.19	3.19	107,677.96	108,511.06	uncontrolled tpy
	24.97	14.92	13.08	613.20	350.40	235.00	6.85	0.49	35.04	36.52	12.19	3.19	107677.96	108,511.06	tpy
COMG 1 Boilers Limited[1, 2]	**17.10**	**7.70**	**7.25**	**425.00**	**240.00**	**165.60**	**4.69**	**0.23**	**24.00**	**29.88**	**8.35**	**2.19**	**73752.03**	**74322.65**	**lb/hour all boilers operating [5,6]**
				24.34	**g/s**										
	9,988.44	**2,343.88**	**656.12**	**2,452.80**	**1,401.60**	**967.10**	**26.97**	**1.03**	**140.16**	**146.49**	**48.76**	**12.77**	**430,711.86**	**434,044.25**	**uncontrolled tpy for COMG 1**
= limits	**86.76**	**19.90**	**31.77**	**1039.00**	**594.00**	**331.69**	**12.91**	**1.02**	**9.50**	**24.00**	**36.57**	**9.57**	**323,033.89**	**325,533.19**	**COMG 1 limited tpy[7]**
														323,080.03	**ton (mass sum of GHG)**
Paved Roads	0.39	0.08	0.02												tpy
Pneumatic Ash Hnd.	2.09	2.09													lb/hr
	9.54	9.54													tpy
Fugitive Particulate	1.66	0.78	0.12												tpy
RFO TANK tpy							0.09								tpy
EQUI 9 (Gen)	0.62	0.51	0.50	0.01356	28.64	7.61	0.73	0.00	0.01		0.06	0.01	1,456.27	1,461.27	lb/hr (1, 3, and 24 hour average)
	0.16	0.13	0.12	0.00339	7.16	1.90	0.18	0.00	0.00		0.01	0.00	364.07	365.32	tpy

	PM	PM_{10}	$PM_{2.5}$	SO_2	NOx	CO	VOC	Pb	HAP	CH_4	N_2O	CO_2	CO_2e	
	19.82	**10.30**	**7.75**	**425.01**	**268.64**	**173.21**	**5.43**	**0.23**	**24.01**	**8.41**	**2.20**	**75,208.30**	**75,783.92**	lb/hr
	9,998.14	**2,346.10**	**656.25**	**2,452.80**	**1,408.76**	**969.01**	**27.16**	**1.03**	**140.16**	**48.77**	**12.77**	**431,075.92**	**434,409.57**	**unc. Tpy**
TOTAL	**98.51**	**30.43**	**32.03**	**1039.00**	**601.16**	**333.59**	**13.19**	**1.02**	**24.00**	**36.58**	**9.58**	**323,397.96**	**325,898.51**	**lim. tpy**
												323,444.12	**mass sum of GHG**	

Notes

1 Several boiler limits given for PM10, SO2, Nox, and CO on "Parameters" tab

2 Boilers in total limited to 1039 tpy SO2

3 MPCA policy is to use the lesser of the legal or physically possible.

4 Fossil Fuel VOC and CO highest potentials are from natural gas. CO emissions = 235 tpy CO from wood + 0.4(x2) tpy CO from coal x (1 - mmBtu from wood / mmBtu potential) + 0.62(x2) tpy CO from gas x (1 - mmBtu from wood / mmBtu potential). VOC similar calculation.

5 There are annual emissions on the Parameter's tab that are from the permit for Nox and SO2 taken into account.

6 Most restrictive COMG 1 hourly limit for combined boilers taken into account. The most restrictive limit is 345 mmbtu/hr for coal and wood fuels as demonstrated in parameters tab.

7 Current permit limits in tpy for the boilers are listed in the parameters tab and taken into account along with the following annual limits.

On an annual basis the 95,000 ton/year limit on coal is more restrictive than the 345 mmbtu/hr projected out. This has been taken into account for the pollutant without an annual permit limit where coal is the worst case fuel, PM. After the emissions associated with the 95,000 ton/yr of coal are accounted for (Boilers 2&3), Boilers 1&4 are assumed to be made operated at capacity on the second worst case fuel for PM, RFO + NG (only for Boilers 1 & 4). This is a worst case and assumes coal is combusted in Boilers 2 & 3, and RFO + NG are combusted in Boilers 1 & 4.

There is also a group limit for CO tpy from wood combustion which is limiting on an individual boiler basis (CO PTE from one boiler > annual limit for all boilers). This limit is considered in combination with the 92 mmbtu/hr physical limitation for wood combustion. After limited emissions from wood combustion are accounted for the remaining mmbtu amount of unit capacity is assumed to be made up of the next worst case fuel for for CO, RFO + NG for Boilers 1 & 4. This assumes the annual capacity for Boilers 1 & 4 is combusted as RFO + NG. The remaining capacity after wood use for Boilers 2 &3 is then assumed as NG combustion. This will result in the worst case emissions and assumes Boilers 1 & 4 combust only RFO + NG, and Boilers 2 & 3 combust the allowed amount of wood with the remainder of NG.

The CO tpy limit and the 92 mmbtu/hr physical limits also restict the wood combustion in respect to the annual VOC PTE. Wood is the worst case fuel for VOC. After limited wood combustion is accounted for coal is the next worst case pollutant and is added on considering the 95,000 ton/yr limit. The equates to Boilers 2 & 3 running on wood and coal. The remaining Boilers 1 & 4 are added on combusting RFO + NG as this is the third worst case fuel.

Calculation of maximum fuel use possible, listing of all current permit limits, and Exhaust gas exit velocities

COMG 1 Boiler Permit Limits

PM10	7.7	lb/hour SV001					
PM10	19.9	tons per year 12 month rollingsum basis SV001					
SO2	425	lb per hour 1 and 3-hour average					
SO2	425	lb per hour 24-hour average					
SO2	1039	tons per year 12 month rolling sum basis	237.21	lb/hour annual average			
Nox	594	tons per year 12 month rolling sum basis					
CO (wood combustion only)	235	tons per year 12 month rolling sum basis (wood combustion)			=	783,333	**mmbtu/yr from wood only** **** Most restrictive annual limit for wood (92 mmbtu/hr physical restriction)**
						2,238,867	mmbtu/yr left under 345 mmbtu/hr limit projected to annual basis
						3,246,267	mmbtu/yr left under capacity for 4 boilers **for other fuel types with the annual wood limit taken off**
						1,607,517	mmbtu/yr left under capacity for 4 boilers **for other fuel types with the annual wood and coal taken off**

COMG 1 Boiler Operating Limits

	95,000	**tons subbit/year 12 mo rolling sum basis**	=	**1,638,750**	**MMBtu/yr**	**** Most restrictive annual Group 1 limit for subbit coal**	
				1,383,450	mmbtu/yr left under 345 mmbtu/hr limit projected to annual basis		
				2,390,850	mmbtu/yr left under capacity for 4 boilers **for other fuel types with the annual coal limit taken off**		
	345	**mmbtu/hr 24 hr avg (Coal and Wood)***	=	243,989	lb steam/hr	= 3,022,200 MMBtu/yr	**** Most restrictive hourly Group 1 Limit for coal**
	300,000	lb steam/hr (Coal and Wood)*	=	398.4	MMBtu/hr	= 3,489,984 MMBtu/yr	
		*Limits do not apply to fuels for which the baghouse is not required, distillate and RFO fuels are more restrictively limited by burner capacity					
	92	mmbtu/hr 24 hr avg (Wood)	=			805,920 mmbtu/yr from wood	**** Most restrictive hourly and annual limit for wood**
		Site specific conversion =	1414	Btu/lb Steam based on highest measured annual average from years 2013 - 2018 (ytd)			**- accounted for in 235 ton CO/yr limit as well**
			1328	Btu/lb Steam based on lowest measured annual average from years 2013 - 2018 (ytd)			

Coal Max Calculation

Sulfur Content	1.4	percent sulfur for bituminous coal
Sulfur Content	0.60	percent sulfur for subbituminous coal
Maximum ash sub.	8.5	percent by weight
Limit from modeling = 425 lb/hr	1.23	lb/mmBtu - new permit limit (1-hour SO2 standard model derived) (Assume 9000 Btu/lb)
Sulfur Content Limit from model =	0.6522	percent
425 lb /hr =	53.55	g/s

Modeling Paramters	**Emission Rates**		lb/hr eq. check
53.5500	**gSO2/s 1 and 24 hour at sul = 680 lb per hr x 453.6 g per lb / 3600 s per hr (3-hour and 24-hour)**		425
29.9000	**g SO2/s coal annual based on limit [5] = 1039 x 2000 x 453.6 / 8760 / 3600**	Note: 29.9 used in model as previously	237.3016
24.02	**g SO2/s annual, coal and wood burning, =29.8990 g/s coal limit x (20% x wood tpy SO2 emission ratae + 80% coal tpy AP42 SO2 emission rate) / coal tpy AP42 SO2 emission rate**		190.621
0.9600	**g PM10/s 24 hour average, = 7.7 lb per hour x 453.6 g per lb / 3600 s per hr[10]**	Note: 0.96 used in model as previously	7.619048
0.5725	**gPM10/s annual average = 19.9 t per yr x 2000 lb per ton x 453.6 g per lb / 8760 hr per yr / 3600 s per hr**		4.543379
0.8340	**gPM10/s 24 hour average, = 0.96 g/s limit x (hourly 20% wood AP42 pte + hourly 80% x coal AP42 emission rate) / houly coal AP42 lb PM10/hr**		6.619184
0.4973	**gPM10/s annual average = 0.57 gPM10/s annual average x (20% AP42 wood rate tpy + 80% AP42 Coal Rate tpy) / AP42 Coal Rate tpy**		3.947142
17.0877	**gNOX/s, annualized 1 hour average, = 594 tpy x 2000 lb per ton x 453.6 g per lb / 3600 s per hr / 8760 hr per yr**		135.6164
12.8000	**g/s NO2, = 17.09 x 0.75 lb NO2 per lb Nox**	12.8 used in model	101.5873
14.5348	**g Nox/s annualized 1 hour average, = 17.09 g/s annual limit x (annual 20% wood AP42 rate tpy + 80% coal AP42 factor) / annual coal AP42 factor tpy**		115.3553
10.89	**g/s NO2, = 14.75 x 0.75 lb NO2 per lb Nox**		86.41016

Please note: The same fuel was used as in the previous modeling: bituminous coal for 1, 3 and 24 hour SO2 subbituminous coal for PM10 and NO2.

Maximum Wood Heat Input =	783,333	mmBtu/yr, =	50,932 tpy Limited Wood x Wood Htg Value (see Blr. 1 and 4 worksheet)
Boilers Limited Potential Heat Input =	3,022,200	mmBtu/yr, =	345 mmBtu/hr limit x 8760 hrs/yr
Boilers Past Actual Heat Input =	957,829	mmBtu/yr	
Wood Heat Input Ratio to Coal Heat Input =	**0.82**	= Maximum Wood Heat Input / (Boilers Past Actual Heat Input)	
Boiler's Physical Potential Heat Input =	4,029,600	mmBtu/yr, =	115 mmBtu/hr per boiler x 4 boilers x 8760 hrs per year
Permit Limit Exhaust Gas =	191,028	acfm	

Stack Exit Velocity Changes

F Factor	10,640	wcf/mmBtu (bituminous, 40 CFR Part 60, Appendix A, Method 19)
F Factor	9,780	dscf/mmBtu (bituminous, 40 CFR Part 60, Appendix A, Method 19)
F Factor	11,950	wcf/mmBtu (lignite, 40 CFR Part 60, Appendix A, Method 19)
F Factor	9,860	dscf/mmBtu (lignite, 40 CFR Part 60, Appendix A, Method 19)
F Factor	9,240	dscf/mmBtu (wood 40 CFR Part 60, Appendix A, Method 19)
F Factor	9,600	dscf/mmBtu (wood bark, 40 CFR Part 60, Appendix A, Method 19)
Wood Wet F fator	10,248	wcf/mmBtu, = (Bit wscf/Bit dscf) x wood average dscf

Calculations of exit gas flow rates

Heat Input	345.00	mmBtu/hr	
Excess Air	77	%, determined from Fw factors and permit limited gas flow rate	
Exhaust Temperature (coal)	487	F	(from stack testing when burning only coal, August 19, 2010)
Exhaust Temperature (coal)	511	K	(511 K is the temperature given in permit, 526 F is measured temperature during test.)
Exhaust Temperature (wood)	468	F	(from stack testing when burning 1500 lb/hr wood, remainder coal, August 19, 2010)
Exhaust Temperature (wood)	516	K	459.8 (equivlent F to K) height = 240 ft 73.152 m 897

Coal Burning Stack Parameters

Actual exhaust Flow[4]	191,028	acfm, coal burning	(using previous modeling)
Actual exhaust Flow	90.16	m3/s, = 90.40 x (0.3048 m^3/cf/60s per min)	
Diameter =	13	feet	
Diameter =	3.962	m	
Area = 3.14*D^2/4	12.325	m2	
Velocity =	7.315	m/s	=(m3/s)/Areastack(m^2)= m/s

Wood Burning Stack Parameters

Actual exhaust Flow[4]	184,495	acfm, wood burning	(using stack temperature of 526K)
Actual exhaust Flow	87.07	m3/s	
Diameter =	13	feet	
Diameter =	3.962	m	
Area = 3.14*D^2/4	12.325	m2	
Velocity =	7.065	m/s	=(m3/s)/Areastack(m^2)= m/s

Combined Stack Parameters (80% coal, 20% wood)

Actual exhaust Flow[4]	189,721	acfm, coal and wood burning	
Actual exhaust Flow	89.54	m3/s	
Diameter =	13	feet	
Diameter =	3.962	m	
Area = 3.14*D^2/4	12.325	m2	
Velocity =	7.265	m/s	=(m3/s)/Areastack(m^2)= m/s

Notes:

1 Table 6, Properties of US Coals, STEAM, Its Generation and Use, B and W (air dried) (Ilionois)
2 Table 6, Properties of US Coals, STEAM, Its Generation and Use, B and W (air dried) (Srping Creek)
3 Average of information given in Table 16, Analyses of Wood and Wood Ash, STEAM, Its Generation and Use, B&W (dry)
4 Flow rate = F factor (wscfm/mmBtu) x mmBtu/hr x (1 + Excess air(%)) x (degree F + 460)/460
5 The annual limit is 1039 tpy.

Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

Alternate Format

GI-07- Spreadsheet

Air Quality Permit Program
Doc Type: Permit Application

1a) AQ Facility ID No.: 13700022 1b) Agency Interest ID No.: 4233

2) Facility Name: Duluth Steam Plant No. 1

You may use and submit this spreadsheet in place of the emissions tables on Form GI-07-R. Follow the instructions for Form GI-07-R to complete this spreadsheet. This spreadsheet can be copied into a tab for your emissions spreadsheet and must be submitted on a CD with your application. If you need to provide emissions information for more emissions units, add more sets of columns (a through e) to the right as needed in the Emissions by Source table. If you need to provide information for more pollutants, add rows as needed.

Emissions By Source Table

a) Delta ID No.:		EQUI 5 (Boiler 1)			**a)** Delta ID No.:		EQUI 8 (Boiler 2)			**a)** Delta ID No.:		EQUI 6 (Boiler 3)		
b) Tempo SI ID No.:					**b)** Tempo SI ID No.:					**b)** Tempo SI ID No.:				
c)	**d)**	**e)** Potential			**c)**	**d)**	**e)** Potential			**c)**	**d)**	**e)** Potential		
Pollutant Name	CAS #	Lbs per Hr	Unc tpy	Limited tpy	Pollutant Name	CAS #	Lbs per Hr	Unc tpy	Limited tpy	Pollutant Name	CAS #	Lbs per Hr	Unc tpy	Limited tpy
PM		5.70	2,497.11	24.97	PM		5.70	2,497.11	24.97	PM		5.70	2,497.11	24.97
PM_{10}		3.41	585.97	14.92	PM_{10}		2.68	585.97	11.72	PM_{10}		2.68	585.97	11.72
$PM_{2.5}$		2.99	613.20	13.08	$PM_{2.5}$		0.85	164.03	3.73	$PM_{2.5}$		0.85	164.03	3.73
SO_2		140.00	613.20	613.20	SO_2		140.00	613.20	613.20	SO_2		140.00	613.20	613.20
NO_X		80.00	350.40	350.40	NO_X		80.00	350.40	350.40	NO_X		80.00	350.40	350.40
CO		55.20	241.78	235.00	CO		55.20	241.78	235.00	CO		55.20	241.78	235.00
VOC		1.56	6.85	6.85	VOC		1.56	6.85	6.85	VOC		1.56	6.85	6.85
Lead		0.11	0.49	0.49	Lead		0.00	0.02	0.02	Lead		0.00	0.02	0.02
CH_4		2.78	12.19	12.19	CH_4		2.78	12.19	12.19	CH_4		2.78	12.19	12.19
N_2O		0.73	3.19	3.19	N_2O		0.73	3.19	3.19	N_2O		0.73	3.19	3.19
CO_2		24,584	107,677.96	107,677.96	CO_2		24584.01	107,677.96	107,677.96	CO_2		24584.01	107,677.96	107,677.96
CO_2e		24,774	108,511.06	108,511.06	CO_2e		24774.22	108,511.06	108,511.06	CO_2e		24774.22	108,511.06	108,511.06
Total HAP		8.67	36.62	36.52	Total HAP		8.36	36.62	36.51	Total HAP		8.36	36.62	36.51
Single HAP	Hydrogen Cloride (7647-01-0)	8.00	35.04	35.04	Single HAP	Hydrogen Cloride (7647	8.00	35.04	35.04	Single HAP	Hydrogen Cloride (7647	8.00	35.04	35.04
2-Methylnaphthalene	91576	2.69E-06	1.18E-05	1.18E-05	2-Methylnaphthalene	91576	2.69E-06	1.18E-05	1.18E-05	2-Methylnaphthalene	91576	2.69E-06	1.18E-05	1.18E-05
3-Methylchloranthrene	56495	0.00E+00	0.00E+00	0.00E+00	3-Methylchloranthrene	56495	0.00E+00	0.00E+00	0.00E+00	3-Methylchloranthrene	56495	0.00E+00	0.00E+00	0.00E+00
5-Methyl chrysene	3697-24-3	1.47E-07	6.42E-07	6.42E-07	5-Methyl chrysene	3697-24-3	1.47E-07	6.42E-07	6.42E-07	5-Methyl chrysene	3697-24-3	1.47E-07	6.42E-07	6.42E-07
Acenapthene	83-32-9	4.79E-06	2.10E-05	2.04E-05	Acenapthene	83-32-9	4.79E-06	2.10E-05	2.04E-05	Acenapthene	83-32-9	4.79E-06	2.10E-05	2.04E-05
Acenaphthylene	208-96-8	2.63E-05	1.15E-04	1.12E-04	Acenaphthylene	208-96-8	2.63E-05	1.15E-04	1.12E-04	Acenaphthylene	208-96-8	2.63E-05	1.15E-04	1.12E-04
Acetaldehyde	75070	4.37E-03	1.91E-02	1.86E-02	Acetaldehyde	75070	4.37E-03	1.91E-02	1.86E-02	Acetaldehyde	75070	4.37E-03	1.91E-02	1.86E-02
Acetone	67-64-1	1.00E-03	4.38E-03	4.26E-03	Acetone	67-64-1	1.00E-03	4.38E-03	4.26E-03	Acetone	67-64-1	1.00E-03	4.38E-03	4.26E-03
Acetophenone	98862	1.00E-04	4.38E-04	4.38E-04	Acetophenone	98862	1.00E-04	4.38E-04	4.38E-04	Acetophenone	98862	1.00E-04	4.38E-04	4.38E-04
Acrolein	107028	2.11E-02	9.22E-02	8.96E-02	Acrolein	107028	2.11E-02	9.22E-02	8.96E-02	Acrolein	107028	2.11E-02	9.22E-02	8.96E-02
Arsenic	7440-38-2	5.74E-04	1.20E-02	2.51E-03	Arsenic	7440-38-2	5.74E-04	1.20E-02	2.51E-03	Arsenic	7440-38-2	5.74E-04	1.20E-02	2.51E-03
Anthracene	120-12-7	1.58E-05	6.92E-05	6.72E-05	Anthracene	120-12-7	1.58E-05	6.92E-05	6.72E-05	Anthracene	120-12-7	1.58E-05	6.92E-05	6.72E-05
Antimony	7440-36-0	4.23E-04	5.26E-04	1.10E-04	Antimony	7440-36-0	2.52E-05	5.26E-04	1.10E-04	Antimony	7440-36-0	2.52E-05	5.26E-04	1.10E-04
Benz(a)anthracene	56-55-3	5.33E-07	2.34E-06	2.34E-06	Benz(a)anthracene	56-55-3	5.33E-07	2.34E-06	2.34E-06	Benz(a)anthracene	56-55-3	5.33E-07	2.34E-06	2.34E-06
Benzaldehyde	100-52-7	0.00E+00	0.00E+00	0.00E+00	Benzaldehyde	100-52-7	0.00E+00	0.00E+00	0.00E+00	Benzaldehyde	100-52-7	0.00E+00	0.00E+00	0.00E+00
Benzene	71432	2.21E-02	9.68E-02	9.41E-02	Benzene	71432	2.21E-02	9.68E-02	9.41E-02	Benzene	71432	2.21E-02	9.68E-02	9.41E-02
Benzo(a)pyrene	50-32-8	1.37E-05	5.99E-05	5.83E-05	Benzo(a)pyrene	50-32-8	1.37E-05	5.99E-05	5.83E-05	Benzo(a)pyrene	50-32-8	1.37E-05	5.99E-05	5.83E-05
Benzo(b)fluoranthene	205-99-2	7.33E-07	3.21E-06	3.21E-06	Benzo(b)fluoranthene	205-99-2	7.33E-07	3.21E-06	3.21E-06	Benzo(b)fluoranthene	205-99-2	7.33E-07	3.21E-06	3.21E-06
Benzoic acid	65-85-0	2.47E-07	1.08E-06	1.05E-06	Benzoic acid	65-85-0	2.47E-07	1.08E-06	1.05E-06	Benzoic acid	65-85-0	2.47E-07	1.08E-06	1.05E-06
Benzo(b,k)fluoranthene	205-99-2	8.42E-07	3.69E-06	3.59E-06	Benzo(b,k)fluoranthene	205-99-2	8.42E-07	3.69E-06	3.59E-06	Benzo(b,k)fluoranthene	205-99-2	8.42E-07	3.69E-06	3.59E-06
Benzo(g,h,i)perylene	191-24-2	4.89E-07	2.14E-06	2.08E-06	Benzo(g,h,i)perylene	191-24-2	4.89E-07	2.14E-06	2.08E-06	Benzo(g,h,i)perylene	191-24-2	4.89E-07	2.14E-06	2.08E-06
Benzyl chloride	100447	4.67E-03	2.04E-02	2.04E-02	Benzyl chloride	100447	4.67E-03	2.04E-02	2.04E-02	Benzyl chloride	100447	4.67E-03	2.04E-02	2.04E-02
Beryllium	7440-41-7	3.45E-04	1.51E-03	1.51E-03	Beryllium	7440-41-7	7.25E-05	1.51E-03	3.17E-04	Beryllium	7440-41-7	7.25E-05	1.51E-03	3.17E-04
Biphenyl	92524	1.13E-05	4.96E-05	4.96E-05	Biphenyl	92524	1.13E-05	4.96E-05	4.96E-05	Biphenyl	92524	1.13E-05	4.96E-05	4.96E-05

Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

Alternate Format

GI-07- Spreadsheet

Air Quality Permit Program
Doc Type: Permit Application

1a) AQ Facility ID No.: 13700022

1b) Agency Interest ID No.: 4233

2) Facility Name: Duluth Steam Plant No. 1

You may use and submit this spreadsheet in place of the emissions tables on Form GI-07-R. Follow the instructions for Form GI-07-R to complete this spreadsheet. This spreadsheet can be copied into a tab for your emissions spreadsheet and must be submitted on a CD with your application. If you need to provide emissions information for more emissions units, add more sets of columns (a through e) to the right as needed in the Emissions by Source table. If you need to provide information for more pollutants, add rows as needed.

Emissions By Source Table

a) Delta ID No.:		EQUI 5 (Boiler 1)			**a)** Delta ID No.:		EQUI 8 (Boiler 2)			**a)** Delta ID No.:		EQUI 6 (Boiler 3)		
b) Tempo SI ID No.:					**b)** Tempo SI ID No.:					**b)** Tempo SI ID No.:				
c)	**d)**	**e)** Potential			**c)**	**d)**	**e)** Potential			**c)**	**d)**	**e)** Potential		
Pollutant Name	CAS #	Lbs per Hr	Unc tpy	Limited tpy	Pollutant Name	CAS #	Lbs per Hr	Unc tpy	Limited tpy	Pollutant Name	CAS #	Lbs per Hr	Unc tpy	Limited tpy
Bis(2-ethylhexyl)phthalate (DEHP)	117-81-7	4.87E-04	2.13E-03	2.13E-03	Bis(2-ethylhexyl)phthalate (DEHP)	117-81-7	4.87E-04	2.13E-03	2.13E-03	Bis(2-ethylhexyl)phthalate (DEHP)	117-81-7	4.87E-04	2.13E-03	2.13E-03
Bromoform	75252	2.60E-04	1.14E-03	1.14E-03	Bromoform	75252	2.60E-04	1.14E-03	1.14E-03	Bromoform	75252	2.60E-04	1.14E-03	1.14E-03
Bromomethane	74-83-9	7.89E-05	3.46E-04	3.36E-04	Bromomethane	74-83-9	7.89E-05	3.46E-04	3.36E-04	Bromomethane	74-83-9	7.89E-05	3.46E-04	3.36E-04
2-Butanone (MEK)	78-93-3	2.84E-05	1.24E-04	1.21E-04	2-Butanone (MEK)	78-93-3	2.84E-05	1.24E-04	1.21E-04	2-Butanone (MEK)	78-93-3	2.84E-05	1.24E-04	1.21E-04
Cadmium	7440-43-9	1.50E-04	1.51E-03	3.17E-04	Cadmium	7440-43-9	7.25E-05	1.51E-03	3.17E-04	Cadmium	7440-43-9	7.25E-05	1.51E-03	3.17E-04
Carbon disulfide	75150	8.67E-04	3.80E-03	3.80E-03	Carbon disulfide	75150	8.67E-04	3.80E-03	3.80E-03	Carbon disulfide	75150	8.67E-04	3.80E-03	3.80E-03
Carbon tetrachloride	56235	2.37E-04	1.04E-03	1.01E-03	Carbon tetrachloride	56235	2.37E-04	1.04E-03	1.01E-03	Carbon tetrachloride	56235	2.37E-04	1.04E-03	1.01E-03
Chlorine	7782505	4.16E-03	1.82E-02	1.77E-02	Chlorine	7782505	4.16E-03	1.82E-02	1.77E-02	Chlorine	7782505	4.16E-03	1.82E-02	1.77E-02
2-Chloroacetophenone	532274	4.67E-05	2.04E-04	2.04E-04	2-Chloroacetophenone	532274	4.67E-05	2.04E-04	2.04E-04	2-Chloroacetophenone	532274	4.67E-05	2.04E-04	2.04E-04
Chlorobenzene	108907	1.74E-04	7.61E-04	7.39E-04	Chlorobenzene	108907	1.74E-04	7.61E-04	7.39E-04	Chlorobenzene	108907	1.74E-04	7.61E-04	7.39E-04
Chloroform	67663	3.93E-04	1.72E-03	1.72E-03	Chloroform	67663	3.93E-04	1.72E-03	1.72E-03	Chloroform	67663	3.93E-04	1.72E-03	1.72E-03
Chloromethane	74873	1.21E-04	5.30E-04	5.15E-04	Chloromethane	74873	1.21E-04	5.30E-04	5.15E-04	Chloromethane	74873	1.21E-04	5.30E-04	5.15E-04
2-Chloronaphthalene	91-58-7	1.26E-08	5.53E-08	5.38E-08	2-Chloronaphthalene	91-58-7	1.26E-08	5.53E-08	5.38E-08	2-Chloronaphthalene	91-58-7	1.26E-08	5.53E-08	5.38E-08
2-Chlorophenol	95-57-8	1.26E-07	5.53E-07	5.38E-07	2-Chlorophenol	95-57-8	1.26E-07	5.53E-07	5.38E-07	2-Chlorophenol	95-57-8	1.26E-07	5.53E-07	5.38E-07
Chromium	7440-47-3	4.64E-04	7.59E-03	1.59E-03	Chromium	7440-47-3	3.64E-04	7.59E-03	1.59E-03	Chromium	7440-47-3	3.64E-04	7.59E-03	1.59E-03
Chromium VI	18540-29-9	1.11E-04	2.31E-03	4.84E-04	Chromium VI	18540-29-9	1.11E-04	2.31E-03	4.84E-04	Chromium VI	18540-29-9	1.11E-04	2.31E-03	4.84E-04
Chrysene	218-01-9	6.67E-07	2.92E-06	2.92E-06	Chrysene	218-01-9	6.67E-07	2.92E-06	2.92E-06	Chrysene	218-01-9	6.67E-07	2.92E-06	2.92E-06
Cobalt	7440-48-4	1.40E-04	2.92E-03	6.13E-04	Cobalt	7440-48-4	1.40E-04	2.92E-03	6.13E-04	Cobalt	7440-48-4	1.40E-04	2.92E-03	6.13E-04
Copper	7440-50-8	1.45E-04	3.02E-03	6.35E-04	Copper	7440-50-8	1.45E-04	3.02E-03	6.35E-04	Copper	7440-50-8	1.45E-04	3.02E-03	6.35E-04
Crotonaldehyde	4170-30-3	5.21E-05	2.28E-04	2.22E-04	Crotonaldehyde	4170-30-3	5.21E-05	2.28E-04	2.22E-04	Crotonaldehyde	4170-30-3	5.21E-05	2.28E-04	2.22E-04
Cumene	98828	3.53E-05	1.55E-04	1.55E-04	Cumene	98828	3.53E-05	1.55E-04	1.55E-04	Cumene	98828	3.53E-05	1.55E-04	1.55E-04
Cyanide	57-12-5	1.67E-02	7.30E-02	7.30E-02	Cyanide	57-12-5	1.67E-02	7.30E-02	7.30E-02	Cyanide	57-12-5	1.67E-02	7.30E-02	7.30E-02
Decachlorobiphenyl	2051-24-3	1.42E-09	6.22E-09	6.05E-09	Decachlorobiphenyl	2051-24-3	1.42E-09	6.22E-09	6.05E-09	Decachlorobiphenyl	2051-24-3	1.42E-09	6.22E-09	6.05E-09
Dibenzo(a,h)anthracene	53-70-3	1.08E-07	4.72E-07	4.72E-07	Dibenzo(a,h)anthracene	53-70-3	1.08E-07	4.72E-07	4.72E-07	Dibenzo(a,h)anthracene	53-70-3	1.08E-07	4.72E-07	4.72E-07
1,2 Dibromoethene	106-93-4	2.89E-04	1.27E-03	1.23E-03	1,2 Dibromoethene	106-93-4	2.89E-04	1.27E-03	1.23E-03	1,2 Dibromoethene	106-93-4	2.89E-04	1.27E-03	1.23E-03
Dichlorobenzene	106-46-7	1.47E-04	6.42E-04	6.42E-04	Dichlorobenzene	106-46-7	1.47E-04	6.42E-04	6.42E-04	Dichlorobenzene	106-46-7	1.47E-04	6.42E-04	6.42E-04
Dichlorobiphenyl	25569-80-6	3.89E-09	1.71E-08	1.66E-08	Dichlorobiphenyl	25569-80-6	3.89E-09	1.71E-08	1.66E-08	Dichlorobiphenyl	25569-80-6	3.89E-09	1.71E-08	1.66E-08
1,2 Dichloroethane	107-06-2	0.00E+00	0.00E+00	0.00E+00	1,2 Dichloroethane	107-06-2	0.00E+00	0.00E+00	0.00E+00	1,2 Dichloroethane	107-06-2	0.00E+00	0.00E+00	0.00E+00
Dichloromethane	75092	1.53E-03	6.69E-03	6.50E-03	Dichloromethane	75092	1.53E-03	6.69E-03	6.50E-03	Dichloromethane	75092	1.53E-03	6.69E-03	6.50E-03
1,2 Dichloropropane	78-87-5	1.74E-04	7.61E-04	7.39E-04	1,2 Dichloropropane	78-87-5	1.74E-04	7.61E-04	7.39E-04	1,2 Dichloropropane	78-87-5	1.74E-04	7.61E-04	7.39E-04
Dimethylbenz(s)anthracene 7,12	57-97-6	0.00E+00	0.00E+00	0.00E+00	Dimethylbenz(s)anthracene 7,12	57-97-6	0.00E+00	0.00E+00	0.00E+00	Dimethylbenz(s)anthracene 7,12	57-97-6	0.00E+00	0.00E+00	0.00E+00
Dimethyl sulfate	77781	3.20E-04	1.40E-03	1.40E-03	Dimethyl sulfate	77781	3.20E-04	1.40E-03	1.40E-03	Dimethyl sulfate	77781	3.20E-04	1.40E-03	1.40E-03
2,4 Dinitrophenol	51285	9.47E-07	4.15E-06	4.03E-06	2,4 Dinitrophenol	51285	9.47E-07	4.15E-06	4.03E-06	2,4 Dinitrophenol	51285	9.47E-07	4.15E-06	4.03E-06
2, 4-Dinitrotoluene	121142	1.87E-06	8.18E-06	8.18E-06	2, 4-Dinitrotoluene	121142	1.87E-06	8.18E-06	8.18E-06	2, 4-Dinitrotoluene	121142	1.87E-06	8.18E-06	8.18E-06
Ethylbenzene	100414	6.27E-04	2.74E-03	2.74E-03	Ethylbenzene	100414	6.27E-04	2.74E-03	2.74E-03	Ethylbenzene	100414	6.27E-04	2.74E-03	2.74E-03
Ethyl chloride	75003	2.80E-04	1.23E-03	1.23E-03	Ethyl chloride	75003	2.80E-04	1.23E-03	1.23E-03	Ethyl chloride	75003	2.80E-04	1.23E-03	1.23E-03
Ethylene dichloride	107062	2.67E-04	1.17E-03	1.17E-03	Ethylene dichloride	107062	2.67E-04	1.17E-03	1.17E-03	Ethylene dichloride	107062	2.67E-04	1.17E-03	1.17E-03
Ethylene dibromide	106934	8.00E-06	3.50E-05	3.50E-05	Ethylene dibromide	106934	8.00E-06	3.50E-05	3.50E-05	Ethylene dibromide	106934	8.00E-06	3.50E-05	3.50E-05
Fluoranthene	206-44-0	8.42E-06	3.69E-05	3.59E-05	Fluoranthene	206-44-0	8.42E-06	3.69E-05	3.59E-05	Fluoranthene	206-44-0	8.42E-06	3.69E-05	3.59E-05
Fluorene	86-73-7	1.79E-05	7.84E-05	7.62E-05	Fluorene	86-73-7	1.79E-05	7.84E-05	7.62E-05	Fluorene	86-73-7	1.79E-05	7.84E-05	7.62E-05
Formaldehyde	50000	2.32E-02	1.01E-01	9.86E-02	Formaldehyde	50000	2.32E-02	1.01E-01	9.86E-02	Formaldehyde	50000	2.32E-02	1.01E-01	9.86E-02
Heptachlorodibenzo-p-dioxins	35822-46-9	1.05E-08	4.61E-08	4.48E-08	Heptachlorodibenzo-p-dioxins	35822-46-9	1.05E-08	4.61E-08	4.48E-08	Heptachlorodibenzo-p-dioxins	35822-46-9	1.05E-08	4.61E-08	4.48E-08
Heptachlorodibenzo-p-furans	37871-00-4	1.26E-09	5.53E-09	5.38E-09	Heptachlorodibenzo-p-furans	37871-00-4	1.26E-09	5.53E-09	5.38E-09	Heptachlorodibenzo-p-furans	37871-00-4	1.26E-09	5.53E-09	5.38E-09
Heptachlorobiphenol	87-86-5	3.47E-10	1.52E-09	1.48E-09	Heptachlorobiphenol	87-86-5	3.47E-10	1.52E-09	1.48E-09	Heptachlorobiphenol	87-86-5	3.47E-10	1.52E-09	1.48E-09
Hexachlorobiphenol	35065-28-2	2.89E-09	1.27E-08	1.23E-08	Hexachlorobiphenol	35065-28-2	2.89E-09	1.27E-08	1.23E-08	Hexachlorobiphenol	35065-28-2	2.89E-09	1.27E-08	1.23E-08
Hexachlorodibenzo-p-dioxins	34465-46-8	1.05E-08	4.61E-08	4.48E-08	Hexachlorodibenzo-p-dioxins	34465-46-8	1.05E-08	4.61E-08	4.48E-08	Hexachlorodibenzo-p-dioxins	34465-46-8	1.05E-08	4.61E-08	4.48E-08
Hexachlorodibenzo-p-furans	87-86-5	1.26E-09	5.53E-09	5.38E-09	Hexachlorodibenzo-p-furans	87-86-5	1.26E-09	5.53E-09	5.38E-09	Hexachlorodibenzo-p-furans	87-86-5	1.26E-09	5.53E-09	5.38E-09
Hexane	110543	2.02E-01	8.84E-01	8.84E-01	Hexane	110543	2.02E-01	8.84E-01	8.84E-01	Hexane	110543	2.02E-01	8.84E-01	8.84E-01
Hexanal	110-54-3	3.68E-05	1.61E-04	1.57E-04	Hexanal	110-54-3	3.68E-05	1.61E-04	1.57E-04	Hexanal	110-54-3	3.68E-05	1.61E-04	1.57E-04
Hydrogen Chloride	7647-01-0	8.00E+00	3.50E+01	3.50E+01	Hydrogen Chloride	7647-01-0	8.00E+00	3.50E+01	3.50E+01	Hydrogen Chloride	7647-01-0	8.00E+00	3.50E+01	3.50E+01
Hydrogen Fluoride	7664393	1.00E+00	4.38E+00	4.38E+00	Hydrogen Fluoride	7664393	0.00E+00	0.00E+00	0.00E+00	Hydrogen Fluoride	7664393	0.00E+00	0.00E+00	0.00E+00
Indeno(1,2,3-cd)pyrene	193-39-5	4.58E-07	2.01E-06	1.95E-06	Indeno(1,2,3-cd)pyrene	193-39-5	4.58E-07	2.01E-06	1.95E-06	Indeno(1,2,3-cd)pyrene	193-39-5	4.58E-07	2.01E-06	1.95E-06
Isobutyraldehyde	78-84-2	6.32E-05	2.77E-04	2.69E-04	Isobutyraldehyde	78-84-2	6.32E-05	2.77E-04	2.69E-04	Isobutyraldehyde	78-84-2	6.32E-05	2.77E-04	2.69E-04

Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

Alternate Format

GI-07- Spreadsheet

Air Quality Permit Program
Doc Type: Permit Application

1a) AQ Facility ID No.: 13700022

1b) Agency Interest ID No.: 4233

2) Facility Name: Duluth Steam Plant No. 1

You may use and submit this spreadsheet in place of the emissions tables on Form GI-07-R. Follow the instructions for Form GI-07-R to complete this spreadsheet. This spreadsheet can be copied into a tab for your emissions spreadsheet and must be submitted on a CD with your application. If you need to provide emissions information for more emissions units, add more sets of columns (a through e) to the right as needed in the Emissions by Source table. If you need to provide information for more pollutants, add rows as needed.

Emissions By Source Table

a) Delta ID No.:		EQUI 5 (Boiler 1)			**a)** Delta ID No.:		EQUI 8 (Boiler 2)			**a)** Delta ID No.:		EQUI 6 (Boiler 3)		
b) Tempo SI ID No.:					**b)** Tempo SI ID No.:					**b)** Tempo SI ID No.:				
c)	**d)**	**e)** Potential			**c)**	**d)**	**e)** Potential			**c)**	**d)**	**e)** Potential		
Pollutant Name	CAS #	Lbs per Hr	Unc tpy	Limited tpy	Pollutant Name	CAS #	Lbs per Hr	Unc tpy	Limited tpy	Pollutant Name	CAS #	Lbs per Hr	Unc tpy	Limited tpy
Isophorone	78591	3.87E-03	1.69E-02	1.69E-02	Isophorone	78591	3.87E-03	1.69E-02	1.69E-02	Isophorone	78591	3.87E-03	1.69E-02	1.69E-02
Lead	7439-92-1	2.37E-02	1.23E-02	2.58E-03	Lead	7439-92-1	5.88E-04	1.23E-02	2.58E-03	Lead	7439-92-1	5.88E-04	1.23E-02	2.58E-03
Magnesium	7439-95-4	1.54E-02	3.21E-01	6.75E-02	Magnesium	7439-95-4	1.54E-02	3.21E-01	6.75E-02	Magnesium	7439-95-4	1.54E-02	3.21E-01	6.75E-02
Manganese	7439-96-5	2.38E-02	3.69E-02	7.53E-03	Manganese	7439-96-5	1.77E-03	3.69E-02	7.53E-03	Manganese	7439-96-5	1.77E-03	3.69E-02	7.53E-03
Mercury	7439-97-6	1.16E-04	2.42E-03	5.09E-04	Mercury	7439-97-6	1.16E-04	2.42E-03	5.09E-04	Mercury	7439-97-6	1.16E-04	2.42E-03	5.09E-04
Methane	74-82-8	#REF!	#REF!	#REF!	Methane	74-82-8	#REF!	#REF!	#REF!	Methane	74-82-8	#REF!	#REF!	#REF!
Methyl bromide	74839	1.07E-03	4.67E-03	4.67E-03	Methyl bromide	74839	1.07E-03	4.67E-03	4.67E-03	Methyl bromide	74839	1.07E-03	4.67E-03	4.67E-03
Methyl chloride	74873	3.53E-03	1.55E-02	1.55E-02	Methyl chloride	74873	3.53E-03	1.55E-02	1.55E-02	Methyl chloride	74873	3.53E-03	1.55E-02	1.55E-02
Methyl ethyl ketone	78933	2.60E-03	1.14E-02	1.14E-02	Methyl ethyl ketone	78933	2.60E-03	1.14E-02	1.14E-02	Methyl ethyl ketone	78933	2.60E-03	1.14E-02	1.14E-02
Methyl hydrazine	60344	1.13E-03	4.96E-03	4.96E-03	Methyl hydrazine	60344	1.13E-03	4.96E-03	4.96E-03	Methyl hydrazine	60344	1.13E-03	4.96E-03	4.96E-03
Methyl methacrylate	80626	1.33E-04	5.84E-04	5.84E-04	Methyl methacrylate	80626	1.33E-04	5.84E-04	5.84E-04	Methyl methacrylate	80626	1.33E-04	5.84E-04	5.84E-04
2 Methylnaphthalene	91-57-6	8.42E-07	3.69E-06	3.59E-06	2 Methylnaphthalene	91-57-6	8.42E-07	3.69E-06	3.59E-06	2 Methylnaphthalene	91-57-6	8.42E-07	3.69E-06	3.59E-06
Methyl tert butyl ether	1634044	2.33E-04	1.02E-03	1.02E-03	Methyl tert butyl ether	1634044	2.33E-04	1.02E-03	1.02E-03	Methyl tert butyl ether	1634044	2.33E-04	1.02E-03	1.02E-03
Methylene chloride	75092	1.93E-03	8.47E-03	8.47E-03	Methylene chloride	75092	1.93E-03	8.47E-03	8.47E-03	Methylene chloride	75092	1.93E-03	8.47E-03	8.47E-03
Molybdenum	7439-98-7	1.11E-05	4.84E-05	4.71E-05	Molybdenum	7439-98-7	1.11E-05	4.84E-05	4.71E-05	Molybdenum	7439-98-7	1.11E-05	4.84E-05	4.71E-05
Monochlorobiphenyl	27323-18-8	1.16E-09	5.07E-09	4.93E-09	Monochlorobiphenyl	27323-18-8	1.16E-09	5.07E-09	4.93E-09	Monochlorobiphenyl	27323-18-8	1.16E-09	5.07E-09	4.93E-09
Naphthalene	91203	5.11E-04	2.24E-03	2.17E-03	Naphthalene	91203	5.11E-04	2.24E-03	2.17E-03	Naphthalene	91203	5.11E-04	2.24E-03	2.17E-03
2 Nitrophenol	88-75-5	1.26E-06	5.53E-06	5.38E-06	2 Nitrophenol	88-75-5	1.26E-06	5.53E-06	5.38E-06	2 Nitrophenol	88-75-5	1.26E-06	5.53E-06	5.38E-06
4 Nitrophenol	100027	5.79E-07	2.54E-06	2.46E-06	4 Nitrophenol	100027	5.79E-07	2.54E-06	2.46E-06	4 Nitrophenol	100027	5.79E-07	2.54E-06	2.46E-06
Nickel	7440-02-0	6.40E-04	8.18E-03	1.72E-03	Nickel	7440-02-0	3.92E-04	8.18E-03	1.72E-03	Nickel	7440-02-0	3.92E-04	8.18E-03	1.72E-03
OCDD	3268-87-9	2.00E-10	8.76E-10	8.76E-10	OCDD	3268-87-9	2.00E-10	8.76E-10	8.76E-10	OCDD	3268-87-9	2.00E-10	8.76E-10	8.76E-10
Octachlorodibenzo-p-dioxins	3268-87-9	3.47E-07	1.52E-06	1.48E-06	Octachlorodibenzo-p-dioxins	3268-87-9	3.47E-07	1.52E-06	1.48E-06	Octachlorodibenzo-p-dioxins	3268-87-9	3.47E-07	1.52E-06	1.48E-06
Octachlorodibenzo-p-furans	39001-02-0	4.63E-10	2.03E-09	1.97E-09	Octachlorodibenzo-p-furans	39001-02-0	4.63E-10	2.03E-09	1.97E-09	Octachlorodibenzo-p-furans	39001-02-0	4.63E-10	2.03E-09	1.97E-09
Pentachlorodibenzo-p-dioxins	36088-22-9	7.89E-09	3.46E-08	3.36E-08	Pentachlorodibenzo-p-dioxins	36088-22-9	7.89E-09	3.46E-08	3.36E-08	Pentachlorodibenzo-p-dioxins	36088-22-9	7.89E-09	3.46E-08	3.36E-08
Pentachlorodibenzo-p-furans	40321-76-4	2.21E-09	9.68E-09	9.41E-09	Pentachlorodibenzo-p-furans	40321-76-4	2.21E-09	9.68E-09	9.41E-09	Pentachlorodibenzo-p-furans	40321-76-4	2.21E-09	9.68E-09	9.41E-09
Pentachlorophenol	87865	2.68E-07	1.18E-06	1.14E-06	Pentachlorophenol	87865	2.68E-07	1.18E-06	1.14E-06	Pentachlorophenol	87865	2.68E-07	1.18E-06	1.14E-06
Perylene	198-55-0	2.74E-09	1.20E-08	1.17E-08	Perylene	198-55-0	2.74E-09	1.20E-08	1.17E-08	Perylene	198-55-0	2.74E-09	1.20E-08	1.17E-08
Phenanathrene	85-01-8	3.68E-05	1.61E-04	1.57E-04	Phenanathrene	85-01-8	3.68E-05	1.61E-04	1.57E-04	Phenanathrene	85-01-8	3.68E-05	1.61E-04	1.57E-04
Phenol	108952	2.68E-04	1.18E-03	1.14E-03	Phenol	108952	2.68E-04	1.18E-03	1.14E-03	Phenol	108952	2.68E-04	1.18E-03	1.14E-03
Phosphorus	7723140	0.00E+00	0.00E+00	0.00E+00	Phosphorus	7723140	0.00E+00	0.00E+00	0.00E+00	Phosphorus	7723140	0.00E+00	0.00E+00	0.00E+00
POM	9002-81-7	2.02E-01	8.84E-01	8.84E-01	POM	9002-81-7	2.02E-01	8.84E-01	8.84E-01	POM	9002-81-7	2.02E-01	8.84E-01	8.84E-01
Propanal	123-38-6	1.68E-05	7.38E-05	7.17E-05	Propanal	123-38-6	1.68E-05	7.38E-05	7.17E-05	Propanal	123-38-6	1.68E-05	7.38E-05	7.17E-05
Propionaldehyde	123386	2.53E-03	1.11E-02	1.11E-02	Propionaldehyde	123386	2.53E-03	1.11E-02	1.11E-02	Propionaldehyde	123386	2.53E-03	1.11E-02	1.11E-02
Pyrene	129-00-0	1.95E-05	8.53E-05	8.29E-05	Pyrene	129-00-0	1.95E-05	8.53E-05	8.29E-05	Pyrene	129-00-0	1.95E-05	8.53E-05	8.29E-05
Selenium	7782-49-2	1.82E-03	3.80E-02	7.97E-03	Selenium	7782-49-2	1.82E-03	3.80E-02	7.97E-03	Selenium	7782-49-2	1.82E-03	3.80E-02	7.97E-03
Silver	7440-22-4	1.88E-03	3.92E-02	8.00E-03	Silver	7440-22-4	1.88E-03	3.92E-02	8.00E-03	Silver	7440-22-4	1.88E-03	3.92E-02	8.00E-03
Styrene	100425	1.00E-02	4.38E-02	4.26E-02	Styrene	100425	1.00E-02	4.38E-02	4.26E-02	Styrene	100425	1.00E-02	4.38E-02	4.26E-02
2,3,7,8 Tetrachlorodibenzo-p-dioxins	1746-01-6	4.53E-11	1.98E-10	1.93E-10	2,3,7,8 Tetrachlorodibenzo-p-dioxins	1746-01-6	4.53E-11	1.98E-10	1.93E-10	2,3,7,8 Tetrachlorodibenzo-p-dioxins	1746-01-6	4.53E-11	1.98E-10	1.93E-10
Tetrachlorodibenzo-p-dioxins	41903-57-5	2.47E-09	1.08E-08	1.05E-08	Tetrachlorodibenzo-p-dioxins	41903-57-5	2.47E-09	1.08E-08	1.05E-08	Tetrachlorodibenzo-p-dioxins	41903-57-5	2.47E-09	1.08E-08	1.05E-08
2,3,7,8 Tetrachlorodibenzo-p-furans	51207-31-9	4.74E-10	2.07E-09	2.02E-09	2,3,7,8 Tetrachlorodibenzo-p-furans	51207-31-9	4.74E-10	2.07E-09	2.02E-09	2,3,7,8 Tetrachlorodibenzo-p-furans	51207-31-9	4.74E-10	2.07E-09	2.02E-09
Tetrachlorodibenzo-p-furans	41903-57-5	3.95E-09	1.73E-08	1.68E-08	Tetrachlorodibenzo-p-furans	41903-57-5	3.95E-09	1.73E-08	1.68E-08	Tetrachlorodibenzo-p-furans	41903-57-5	3.95E-09	1.73E-08	1.68E-08
Tetrachlorobiphenyl	26914-33-0	1.32E-08	5.76E-08	5.60E-08	Tetrachlorobiphenyl	26914-33-0	1.32E-08	5.76E-08	5.60E-08	Tetrachlorobiphenyl	26914-33-0	1.32E-08	5.76E-08	5.60E-08
Tetrachloroethene	127-18-4	2.00E-04	8.76E-04	8.51E-04	Tetrachloroethene	127-18-4	2.00E-04	8.76E-04	8.51E-04	Tetrachloroethene	127-18-4	2.00E-04	8.76E-04	8.51E-04
Tetrachloroethylene	127184	2.87E-04	1.26E-03	1.26E-03	Tetrachloroethylene	127184	2.87E-04	1.26E-03	1.26E-03	Tetrachloroethylene	127184	2.87E-04	1.26E-03	1.26E-03
Trichloroethane, 1,1,1	71-55-6	1.33E-04	5.84E-04	5.84E-04	Trichloroethane, 1,1,1	71-55-6	1.33E-04	5.84E-04	5.84E-04	Trichloroethane, 1,1,1	71-55-6	1.33E-04	5.84E-04	5.84E-04
Toluene	108883	4.84E-03	2.12E-02	2.06E-02	Toluene	108883	4.84E-03	2.12E-02	2.06E-02	Toluene	108883	4.84E-03	2.12E-02	2.06E-02
o-Tolualdehyde	529-20-4	3.79E-05	1.66E-04	1.61E-04	o-Tolualdehyde	529-20-4	3.79E-05	1.66E-04	1.61E-04	o-Tolualdehyde	529-20-4	3.79E-05	1.66E-04	1.61E-04
p-Tolualdehyde	104-87-0	5.79E-05	2.54E-04	2.46E-04	p-Tolualdehyde	104-87-0	5.79E-05	2.54E-04	2.46E-04	p-Tolualdehyde	104-87-0	5.79E-05	2.54E-04	2.46E-04
Trichlorobiphenyl	7012-37-5	1.37E-08	5.99E-08	5.83E-08	Trichlorobiphenyl	7012-37-5	1.37E-08	5.99E-08	5.83E-08	Trichlorobiphenyl	7012-37-5	1.37E-08	5.99E-08	5.83E-08
1,1,1 Trichloroethane	71-55-6	1.63E-04	7.15E-04	6.95E-04	1,1,1 Trichloroethane	71-55-6	1.63E-04	7.15E-04	6.95E-04	1,1,1 Trichloroethane	71-55-6	1.63E-04	7.15E-04	6.95E-04
Trichloroethene	79-01-6	1.58E-04	6.92E-04	6.72E-04	Trichloroethene	79-01-6	1.58E-04	6.92E-04	6.72E-04	Trichloroethene	79-01-6	1.58E-04	6.92E-04	6.72E-04
Trichlorofluoromethane	75-69-4	2.16E-04	9.45E-04	9.19E-04	Trichlorofluoromethane	75-69-4	2.16E-04	9.45E-04	9.19E-04	Trichlorofluoromethane	75-69-4	2.16E-04	9.45E-04	9.19E-04
2,4,6 Trichlorophenol	88-06-2	0.00E+00	0.00E+00	0.00E+00	2,4,6 Trichlorophenol	88-06-2	0.00E+00	0.00E+00	0.00E+00	2,4,6 Trichlorophenol	88-06-2	0.00E+00	0.00E+00	0.00E+00
Vinyl acetate	108054	5.07E-05	2.22E-04	2.22E-04	Vinyl acetate	108054	5.07E-05	2.22E-04	2.22E-04	Vinyl acetate	108054	5.07E-05	2.22E-04	2.22E-04
Vinyl Chloride	75014	9.47E-05	4.15E-04	4.03E-04	Vinyl Chloride	75014	9.47E-05	4.15E-04	4.03E-04	Vinyl Chloride	75014	9.47E-05	4.15E-04	4.03E-04
Xylenes	1330-20-7]	2.47E-04	1.08E-03	1.08E-03	Xylenes	1330-20-7]	2.47E-04	1.08E-03	1.08E-03	Xylenes	1330-20-7]	2.47E-04	1.08E-03	1.08E-03
Xylene, O	95476	1.32E-04	5.76E-04	5.60E-04	Xylene, O	95476	1.32E-04	5.76E-04	5.60E-04	Xylene, O	95476	1.32E-04	5.76E-04	5.60E-04
Yttrium	7440-65-5	3.32E-07	6.92E-06	1.41E-06	Yttrium	7440-65-5	3.32E-07	6.92E-06	1.41E-06	Yttrium	7440-65-5	3.32E-07	6.92E-06	1.41E-06
Zinc	7440-66-6	6.83E-04	1.42E-02	2.99E-03	Zinc	7440-66-6	6.83E-04	1.42E-02	2.99E-03	Zinc	7440-66-6	6.83E-04	1.42E-02	2.99E-03

1. Total limited ton per year for all four boilers is shown with group limit which is listed under GP001 in the facility air permit.

Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

Alternate Format

GI-07 Spreadsheet

Air Quality Permit Program
Doc Type: Permit Application

1a) AQ Facility ID No.: 13700022

1b) Agency Interest ID No.: 4233

2) Facility Name: Duluth Steam Plant No. 1

Emissions By Source Table

a) Delta ID No.: EQUI 7 (Boiler 4)

b) Tempo SI ID No.:

c) Pollutant Name	**d)** CAS #	**e)** Potential Lbs per Hr	Unc tpy	Limited tpy
PM		5.70	2,497.11	24.97
PM_{10}		3.41	585.97	14.92
$PM_{2.5}$		2.99	164.03	13.08
SO_2		140.00	613.20	613.20
NO_x		80.00	350.40	350.40
CO		55.20	241.78	235.00
VOC		1.56	6.85	6.85
Lead		0.11	0.49	0.49
CH_4		2.78	12.19	12.19
N_2O		0.73	3.19	3.19
CO_2		24584.01	107,677.96	107,677.96
CO_2e		24774.22	108,511.06	108,511.06
Total HAP		8.67	36.62	36.52
Single HAP	Hydrogen Cloride (7647-	8.00	35.04	35.04
2-Methylnaphthalene	91576	2.69E-06	1.18E-05	1.18E-05
3-Methylchloranthrene	56495	0.00E+00	0.00E+00	0.00E+00
5-Methyl chrysene	3697-24-3	1.47E-07	6.42E-07	6.42E-07
Acenapthene	83-32-9	4.79E-06	2.10E-05	2.04E-05
Acenaphthylene	208-96-8	2.63E-05	1.15E-04	1.12E-04
Acetaldehyde	75070	4.37E-03	1.91E-02	1.86E-02
Acetone	67-64-1	1.00E-03	4.38E-03	4.26E-03
Acetophenone	98862	1.00E-04	4.38E-04	4.38E-04
Acrolein	107028	2.11E-02	9.22E-02	8.96E-02
Arsenic	7440-38-2	5.74E-04	1.20E-02	2.51E-03
Anthracene	120-12-7	1.58E-05	6.92E-05	6.72E-05
Antimony	7440-36-0	4.23E-04	5.26E-04	1.10E-04
Benz(a)anthracene	56-55-3	5.33E-07	2.34E-06	2.34E-06
Benzaldehyde	100-52-7	0.00E+00	0.00E+00	0.00E+00
Benzene	71432	2.21E-02	9.68E-02	9.41E-02
Benzo(a)pyrene	50-32-8	1.37E-05	5.99E-05	5.83E-05
Benzo(b)fluoranthene	205-99-2	7.33E-07	3.21E-06	3.21E-06
Benzoic acid	65-85-0	2.47E-07	1.08E-06	1.05E-06
Benzo(b,k)fluoranthene	205-99-2	8.42E-07	3.69E-06	3.59E-06
Benzo(g,h,i)perylene	191-24-2	4.89E-07	2.14E-06	2.08E-06
Benzyl chloride	100447	4.67E-03	2.04E-02	2.04E-02
Beryllium	7440-41-7	3.45E-04	1.51E-03	1.51E-03
Biphenyl	92524	1.13E-05	4.96E-05	4.96E-05

a) Delta ID No.: RFO TK (IA)

b) Tempo SI ID No.:

c) Pollutant Name	**d)** CAS #	**e)** Potential Lbs per Hr	Unc tpy	Limited tpy
PM				
PM10				
PM2.5				
SO2				
NOX				
CO				
VOC		0.02	0.09	0.09
Lead				
CH4				
N2O				
CO2				
CO2e				
Total HAP		0.02	0.09	0.09
Single HAP	Hydrogen Cloride (7647-01-0)			
2-Methylnaphthalene	91576			
3-Methylchloranthrene	56495			
5-Methyl chrysene	3697-24-3			
Acenapthene	83-32-9			
Acenaphthylene	208-96-8			
Acetaldehyde	75070			
Acetone	67-64-1			
Acetophenone	98862			
Acrolein	107028			
Arsenic	7440-38-2			
Anthracene	120-12-7			
Antimony	7440-36-0			
Benz(a)anthracene	56-55-3			
Benzaldehyde	100-52-7			
Benzene	71432			
Benzo(a)pyrene	50-32-8			
Benzo(b)fluoranthene	205-99-2			
Benzoic acid	65-85-0			
Benzo(b,k)fluoranthene	205-99-2			
Benzo(g,h,i)perylene	191-24-2			
Benzyl chloride	100447			
Beryllium	7440-41-7			
Biphenyl	92524			

Total Facility Emissions Summary Table

Note: Boilers Operate under Group 001 limits.

f) Pollutant Name	**g)** Potential (tons/year) Unrestricted	Limited[1]
PM	9988.44	98.51
PM_{10}	2343.88	30.43
$PM_{2.5}$	1105.29	32.03
SO_2	2452.80	1039.00
NO_x	1401.60	601.16
CO	967.10	333.59
VOC	27.42	13.19
Lead	1.03	1.02
CH_4	48.76	36.58
N_2O	12.77	9.58
CO_2	430,711.86	323,397.96
CO_2e	434,044.25	325,898.51
Total HAP	146.51	24.00
Single HAP	140.16	9.50
2-Methylnaphthalene	4.71E-05	4.71E-05
3-Methylchloranthrene	0.00E+00	0.00E+00
5-Methyl chrysene	2.57E-06	2.57E-06
Acenapthene	8.39E-05	8.16E-05
Acenaphthylene	4.61E-04	4.48E-04
Acetaldehyde	7.65E-02	7.44E-02
Acetone	1.75E-02	1.70E-02
Acetophenone	1.75E-03	1.75E-03
Acrolein	3.69E-01	3.59E-01
Arsenic	4.79E-02	1.01E-02
Anthracene	2.77E-04	2.69E-04
Antimony	2.10E-03	4.42E-04
Benz(a)anthracene	9.34E-06	9.34E-06
Benzaldehyde	0.00E+00	0.00E+00
Benzene	3.87E-01	3.76E-01
Benzo(a)pyrene	2.40E-04	2.33E-04
Benzo(b)fluoranthene	1.28E-05	1.28E-05
Benzoic acid	4.33E-06	4.21E-06
Benzo(b,k)fluoranthene	1.48E-05	1.43E-05
Benzo(g,h,i)perylene	8.58E-06	8.34E-06
Benzyl chloride	8.18E-02	8.18E-02
Beryllium	6.04E-03	3.66E-03
Biphenyl	1.99E-04	1.99E-04

Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

Alternate Format

GI-07 Spreadsheet

Air Quality Permit Program
Doc Type: Permit Application

1a) AQ Facility ID No.: 13700022

1b) Agency Interest ID No.: 4233

2) Facility Name: Duluth Steam Plant No. 1

Emissions By Source Table

a) Delta ID No.:		EQUI 7 (Boiler 4)			**a)** Delta ID No.:		RFO TK (IA)		
b) Tempo SI ID No.:					**b)** Tempo SI ID No.:				
c)	**d)**	**e)** Potential			**c)**	**d)**	**e)** Potential		
Pollutant Name	CAS #	Lbs per Hr	Unc tpy	Limited tpy	Pollutant Name	CAS #	Lbs per Hr	Unc tpy	Limited tpy
Bis(2-ethylhexyl)phthalate (DEHP)	117-81-7	4.87E-04	2.13E-03	2.13E-03	Bis(2-ethylhexyl)phthalate (DEHP)	117-81-7			
Bromoform	75252	2.60E-04	1.14E-03	1.14E-03	Bromoform	75252			
Bromomethane	74-83-9	7.89E-05	3.46E-04	3.36E-04	Bromomethane	74-83-9			
2-Butanone (MEK)	78-93-3	2.84E-05	1.24E-04	1.21E-04	2-Butanone (MEK)	78-93-3			
Cadmium	7440-43-9	1.50E-04	1.51E-03	3.17E-04	Cadmium	7440-43-9			
Carbon disulfide	75150	8.67E-04	3.80E-03	3.80E-03	Carbon disulfide	75150			
Carbon tetrachloride	56235	2.37E-04	1.04E-03	1.01E-03	Carbon tetrachloride	56235			
Chlorine	7782505	4.16E-03	1.82E-02	1.77E-02	Chlorine	7782505			
2-Chloroacetophenone	532274	4.67E-05	2.04E-04	2.04E-04	2-Chloroacetophenone	532274			
Chlorobenzene	108907	1.74E-04	7.61E-04	7.39E-04	Chlorobenzene	108907			
Chloroform	67663	3.93E-04	1.72E-03	1.72E-03	Chloroform	67663			
Chloromethane	74873	1.21E-04	5.30E-04	5.15E-04	Chloromethane	74873			
2-Chloronaphthalene	91-58-7	1.26E-08	5.53E-08	5.38E-08	2-Chloronaphthalene	91-58-7			
2-Chlorophenol	95-57-8	1.26E-07	5.53E-07	5.38E-07	2-Chlorophenol	95-57-8			
Chromium	7440-47-3	4.64E-04	7.59E-03	1.59E-03	Chromium	7440-47-3			
Chromium VI	18540-29-9	1.11E-04	2.31E-03	4.84E-04	Chromium VI	18540-29-9			
Chrysene	218-01-9	6.67E-07	2.92E-06	2.92E-06	Chrysene	218-01-9			
Cobalt	7440-48-4	1.40E-04	2.92E-03	6.13E-04	Cobalt	7440-48-4			
Copper	7440-50-8	1.45E-04	3.02E-03	6.35E-04	Copper	7440-50-8			
Crotonaldehyde	4170-30-3	5.21E-05	2.28E-04	2.22E-04	Crotonaldehyde	4170-30-3			
Cumene	98828	3.53E-05	1.55E-04	1.55E-04	Cumene	98828			
Cyanide	57-12-5	1.67E-02	7.30E-02	7.30E-02	Cyanide	57-12-5			
Decachlorobiphenyl	2051-24-3	1.42E-09	6.22E-09	6.05E-09	Decachlorobiphenyl	2051-24-3			
Dibenzo(a,h)anthracene	53-70-3	1.08E-07	4.72E-07	4.72E-07	Dibenzo(a,h)anthracene	53-70-3			
1,2 Dibromoethene	106-93-4	2.89E-04	1.27E-03	1.23E-03	1,2 Dibromoethene	106-93-4			
Dichlorobenzene	106-46-7	1.47E-04	6.42E-04	6.42E-04	Dichlorobenzene	106-46-7			
Dichlorobiphenyl	25569-80-6	3.89E-09	1.71E-08	1.66E-08	Dichlorobiphenyl	25569-80-6			
1,2 Dichloroethane	107-06-2	0.00E+00	0.00E+00	0.00E+00	1,2 Dichloroethane	107-06-2			
Dichloromethane	75092	1.53E-03	6.69E-03	6.50E-03	Dichloromethane	75092			
1,2 Dichloropropane	78-87-5	1.74E-04	7.61E-04	7.39E-04	1,2 Dichloropropane	78-87-5			
Dimethylbenz(s)anthracene 7,12	57-97-6	0.00E+00	0.00E+00	0.00E+00	Dimethylbenz(s)anthracene 7,12	57-97-6			
Dimethyl sulfate	77781	3.20E-04	1.40E-03	1.40E-03	Dimethyl sulfate	77781			
2,4 Dinitrophenol	51285	9.47E-07	4.15E-06	4.03E-06	2,4 Dinitrophenol	51285			
2, 4-Dinitrotoluene	121142	1.87E-06	8.18E-06	8.18E-06	2, 4-Dinitrotoluene	121142			
Ethylbenzene	100414	6.27E-04	2.74E-03	2.74E-03	Ethylbenzene	100414			
Ethyl chloride	75003	2.80E-04	1.23E-03	1.23E-03	Ethyl chloride	75003			
Ethylene dichloride	107062	2.67E-04	1.17E-03	1.17E-03	Ethylene dichloride	107062			
Ethylene dibromide	106934	8.00E-06	3.50E-05	3.50E-05	Ethylene dibromide	106934			
Fluoranthene	206-44-0	8.42E-06	3.69E-05	3.59E-05	Fluoranthene	206-44-0			
Fluorene	86-73-7	1.79E-05	7.84E-05	7.62E-05	Fluorene	86-73-7			
Formaldehyde	50000	2.32E-02	1.01E-01	9.86E-02	Formaldehyde	50000			
Heptachlorodibenzo-p-dioxins	35822-46-9	1.05E-08	4.61E-08	4.48E-08	Heptachlorodibenzo-p-dioxins	35822-46-9			
Heptachlorodibenzo-p-furans	37871-00-4	1.26E-09	5.53E-09	5.38E-09	Heptachlorodibenzo-p-furans	37871-00-4			
Heptachlorobiphenol	87-86-5	3.47E-10	1.52E-09	1.48E-09	Heptachlorobiphenol	87-86-5			
Hexachlorobiphenol	35065-28-2	2.89E-09	1.27E-08	1.23E-08	Hexachlorobiphenol	35065-28-2			
Hexachlorodibenzo-p-dioxins	34465-46-8	1.05E-08	4.61E-08	4.48E-08	Hexachlorodibenzo-p-dioxins	34465-46-8			
Hexachlorodibenzo-p-furans	87-86-5	1.26E-09	5.53E-09	5.38E-09	Hexachlorodibenzo-p-furans	87-86-5			
Hexane	110543	2.02E-01	8.84E-01	8.84E-01	Hexane	110543			
Hexanal	110-54-3	3.68E-05	1.61E-04	1.57E-04	Hexanal	110-54-3			
Hydrogen Chloride	7647-01-0	8.00E+00	3.50E+01	3.50E+01	Hydrogen Chloride	7647-01-0			
Hydrogen Fluoride	7664393	1.00E+00	4.38E+00	4.38E+00	Hydrogen Fluoride	7664393			
Indeno(1,2,3-cd)pyrene	193-39-5	4.58E-07	2.01E-06	1.95E-06	Indeno(1,2,3-cd)pyrene	193-39-5			
Isobutyraldehyde	78-84-2	6.32E-05	2.77E-04	2.69E-04	Isobutyraldehyde	78-84-2			

Total Facility Emissions Summary Table

Note: Boilers Operate under Group 001 limits.

f)	**g)** Potential (tons/year)	
Pollutant Name	Unrestricted	Limited[1]
Bis(2-ethylhexyl)phthalate (DE	8.53E-03	8.53E-03
Bromoform	4.56E-03	4.56E-03
Bromomethane	1.38E-03	1.34E-03
2-Butanone (MEK)	4.98E-04	4.84E-04
Cadmium	6.04E-03	1.27E-03
Carbon disulfide	1.52E-02	1.52E-02
Carbon tetrachloride	4.15E-03	4.03E-03
Chlorine	7.28E-02	7.08E-02
2-Chloroacetophenone	8.18E-04	8.18E-04
Chlorobenzene	3.04E-03	2.96E-03
Chloroform	6.89E-03	6.89E-03
Chloromethane	2.12E-03	2.06E-03
2-Chloronaphthalene	2.21E-07	2.15E-07
2-Chlorophenol	2.21E-06	2.15E-06
Chromium	3.04E-02	6.38E-03
Chromium VI	9.23E-03	1.94E-03
Chrysene	1.17E-05	1.17E-05
Cobalt	1.17E-02	2.45E-03
Copper	1.21E-02	2.54E-03
Crotonaldehyde	9.13E-04	8.87E-04
Cumene	6.19E-04	6.19E-04
Cyanide	2.92E-01	2.92E-01
Decachlorobiphenyl	2.49E-08	2.42E-08
Dibenzo(a,h)anthracene	1.89E-06	1.89E-06
1,2 Dibromoethene	5.07E-03	4.93E-03
Dichlorobenzene	2.57E-03	2.57E-03
Dichlorobiphenyl	6.82E-08	6.63E-08
1,2 Dichloroethane	0.00E+00	0.00E+00
Dichloromethane	2.67E-02	2.60E-02
1,2 Dichloropropane	3.04E-03	2.96E-03
Dimethylbenz(s)anthracene 7,	0.00E+00	0.00E+00
Dimethyl sulfate	5.61E-03	5.61E-03
2,4 Dinitrophenol	1.66E-05	1.61E-05
2, 4-Dinitrotoluene	3.27E-05	3.27E-05
Ethylbenzene	1.10E-02	1.10E-02
Ethyl chloride	4.91E-03	4.91E-03
Ethylene dichloride	4.67E-03	4.67E-03
Ethylene dibromide	1.40E-04	1.40E-04
Fluoranthene	1.48E-04	1.43E-04
Fluorene	3.14E-04	3.05E-04
Formaldehyde	4.06E-01	3.94E-01
Heptachlorodibenzo-p-dioxins	1.84E-07	1.79E-07
Heptachlorodibenzo-p-furans	2.21E-08	2.15E-08
Heptachlorobiphenol	6.09E-09	5.92E-09
Hexachlorobiphenol	5.07E-08	4.93E-08
Hexachlorodibenzo-p-dioxins	1.84E-07	1.79E-07
Hexachlorodibenzo-p-furans	2.21E-08	2.15E-08
Hexane	3.53E+00	3.53E+00
Hexanal	6.45E-04	6.27E-04
Hydrogen Chloride	1.40E+02	9.50E+00
Hydrogen Floride	8.76E+00	8.76E+00
Indeno(1,2,3-cd)pyrene	8.02E-06	7.80E-06
Isobutyraldehyde	1.11E-03	1.08E-03

Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

Alternate Format

GI-07 Spreadsheet

Air Quality Permit Program
Doc Type: Permit Application

1a) AQ Facility ID No.: 13700022

1b) Agency Interest ID No.: 4233

2) Facility Name: Duluth Steam Plant No. 1

Emissions By Source Table

a) Delta ID No.:		EQUI 7 (Boiler 4)		
b) Tempo SI ID No.:				
c)	**d)**	**e)** Potential		
Pollutant Name	CAS #	Lbs per Hr	Unc tpy	Limited tpy
Isophorone	78591	3.87E-03	1.69E-02	1.69E-02
Lead	7439-92-1	2.37E-02	1.23E-02	2.58E-03
Magnesium	7439-95-4	1.54E-02	3.21E-01	6.75E-02
Manganese	7439-96-5	2.38E-02	3.69E-02	7.53E-03
Mercury	7439-97-6	1.16E-04	2.42E-03	5.09E-04
Methane	74-82-8	#REF!	#REF!	#REF!
Methyl bromide	74839	1.07E-03	4.67E-03	4.67E-03
Methyl chloride	74873	3.53E-03	1.55E-02	1.55E-02
Methyl ethyl ketone	78933	2.60E-03	1.14E-02	1.14E-02
Methyl hydrazine	60344	1.13E-03	4.96E-03	4.96E-03
Methyl methacrylate	80626	1.33E-04	5.84E-04	5.84E-04
2 Methylnaphthalene	91-57-6	8.42E-07	3.69E-06	3.59E-06
Methyl tert butyl ether	1634044	2.33E-04	1.02E-03	1.02E-03
Methylene chloride	75092	1.93E-03	8.47E-03	8.47E-03
Molybdenum	7439-98-7	1.11E-05	4.84E-05	4.71E-05
Monochlorobiphenyl	27323-18-8	1.16E-09	5.07E-09	4.93E-09
Naphthalene	91203	5.11E-04	2.24E-03	2.17E-03
2 Nitrophenol	88-75-5	1.26E-06	5.53E-06	5.38E-06
4 Nitrophenol	100027	5.79E-07	2.54E-06	2.46E-06
Nickel	7440-02-0	6.40E-04	8.18E-03	1.72E-03
OCDD	3268-87-9	2.00E-10	8.76E-10	8.76E-10
Octachlorodibenzo-p-dioxins	3268-87-9	3.47E-07	1.52E-06	1.48E-06
Octachlorodibenzo-p-furans	39001-02-0	4.63E-10	2.03E-09	1.97E-09
Pentachlorodibenzo-p-dioxins	36088-22-9	7.89E-09	3.46E-08	3.36E-08
Pentachlorodibenzo-p-furans	40321-76-4	2.21E-09	9.68E-09	9.41E-09
Pentachlorophenol	87865	2.68E-07	1.18E-06	1.14E-06
Perylene	198-55-0	2.74E-09	1.20E-08	1.17E-08
Phenanathrene	85-01-8	3.68E-05	1.61E-04	1.57E-04
Phenol	108952	2.68E-04	1.18E-03	1.14E-03
Phosphorus	7723140	0.00E+00	0.00E+00	0.00E+00
POM	9002-81-7	2.02E-01	8.84E-01	8.84E-01
Propanal	123-38-6	1.68E-05	7.38E-05	7.17E-05
Propionaldehyde	123386	2.53E-03	1.11E-02	1.11E-02
Pyrene	129-00-0	1.95E-05	8.53E-05	8.29E-05
Selenium	7782-49-2	1.82E-03	3.80E-02	7.97E-03
Silver	7440-22-4	1.88E-03	3.92E-02	8.00E-03
Styrene	100425	1.00E-02	4.38E-02	4.26E-02
2,3,7,8 Tetrachlorodibenzo-p-dioxins	1746-01-6	4.53E-11	1.98E-10	1.93E-10
Tetrachlorodibenzo-p-dioxins	41903-57-5	2.47E-09	1.08E-08	1.05E-08
2,3,7,8 Tetrachlorodibenzo-p-furans	51207-31-9	4.74E-10	2.07E-09	2.02E-09
Tetrachlorodibenzo-p-furans	41903-57-5	3.95E-09	1.73E-08	1.68E-08
Tetrachlorobiphenyl	26914-33-0	1.32E-08	5.76E-08	5.60E-08
Tetrachloroethene	127-18-4	2.00E-04	8.76E-04	8.51E-04
Tetrachloroethylene	127184	2.87E-04	1.26E-03	1.26E-03
Trichloroethane, 1,1,1	71-55-6	1.33E-04	5.84E-04	5.84E-04
Toluene	108883	4.84E-03	2.12E-02	2.06E-02
o-Tolualdehyde	529-20-4	3.79E-05	1.66E-04	1.61E-04
p-Tolualdehyde	104-87-0	5.79E-05	2.54E-04	2.46E-04
Trichlorobiphenyl	7012-37-5	1.37E-08	5.99E-08	5.83E-08
1,1,1 Trichloroethane	71-55-6	1.63E-04	7.15E-04	6.95E-04
Trichloroethene	79-01-6	1.58E-04	6.92E-04	6.72E-04
Trichlorofluoromethane	75-69-4	2.16E-04	9.45E-04	9.19E-04
2,4,6 Trichlorophenol	88-06-2	0.00E+00	0.00E+00	0.00E+00
Vinyl acetate	108054	5.07E-05	2.22E-04	2.22E-04
Vinyl Chloride	75014	9.47E-05	4.15E-04	4.03E-04
Xylenes	1330-20-7]	2.47E-04	1.08E-03	1.08E-03
Xylene, O	95476	1.32E-04	5.76E-04	5.60E-04
Yttrium	7440-65-5	3.32E-07	6.92E-06	1.41E-06
Zinc	7440-66-6	6.83E-04	1.42E-02	2.99E-03

a) Delta ID No.:		RFO TK (IA)		
b) Tempo SI ID No.:				
c)	**d)**	**e)** Potential		
Pollutant Name	CAS #	Lbs per Hr	Unc tpy	Limited tpy
Isophorone	78591			
Lead	7439-92-1			
Magnesium	7439-95-4			
Manganese	7439-96-5			
Mercury	7439-97-6			
Methane	74-82-8			
Methyl bromide	74839			
Methyl chloride	74873			
Methyl ethyl ketone	78933			
Methyl hydrazine	60344			
Methyl methacrylate	80626			
2 Methylnaphthalene	91-57-6			
Methyl tert butyl ether	1634044			
Methylene chloride	75092			
Molybdenum	7439-98-7			
Monochlorobiphenyl	27323-18-8			
Naphthalene	91203			
2 Nitrophenol	88-75-5			
4 Nitrophenol	100027			
Nickel	7440-02-0			
OCDD	3268-87-9			
Octachlorodibenzo-p-dioxins	3268-87-9			
Octachlorodibenzo-p-furans	39001-02-0			
Pentachlorodibenzo-p-dioxins	36088-22-9			
Pentachlorodibenzo-p-furans	40321-76-4			
Pentachlorophenol	87865			
Perylene	198-55-0			
Phenanathrene	85-01-8			
Phenol	108952			
Phosphorus	7723140			
POM	9002-81-7			
Propanal	123-38-6			
Propionaldehyde	123386			
Pyrene	129-00-0			
Selenium	7782-49-2			
Silver	7440-22-4			
Styrene	100425			
2,3,7,8 Tetrachlorodibenzo-p-dioxins	1746-01-6			
Tetrachlorodibenzo-p-dioxins	41903-57-5			
2,3,7,8 Tetrachlorodibenzo-p-furans	51207-31-9			
Tetrachlorodibenzo-p-furans	41903-57-5			
Tetrachlorobiphenyl	26914-33-0			
Tetrachloroethene	127-18-4			
Tetrachloroethylene	127184			
Trichloroethane, 1,1,1	71-55-6			
Toluene	108883			
o-Tolualdehyde	529-20-4			
p-Tolualdehyde	104-87-0			
Trichlorobiphenyl	7012-37-5			
1,1,1 Trichloroethane	71-55-6			
Trichloroethene	79-01-6			
Trichlorofluoromethane	75-69-4			
2,4,6 Trichlorophenol	88-06-2			
Vinyl acetate	108054			
Vinyl Chloride	75014			
Xylenes	1330-20-7]			
Xylene, O	95476			
Yttrium	7440-65-5			
Zinc	7440-66-6			

Total Facility Emissions Summary Table

Note: Boilers Operate under Group 001 limits.

f)	**g)** Potential (tons/year)	
Pollutant Name	Unrestricted	Limited[1]
Isophorone	6.77E-02	6.77E-02
Lead	4.91E-02	1.03E-02
Magnesium	1.28E+00	2.70E-01
Manganese	1.48E-01	3.01E-02
Mercury	9.69E-03	2.04E-03
Methane	#REF!	#REF!
Methyl bromide	1.87E-02	1.87E-02
Methyl chloride	6.19E-02	6.19E-02
Methyl ethyl ketone	4.56E-02	4.56E-02
Methyl hydrazine	1.99E-02	1.99E-02
Methyl methacrylate	2.34E-03	2.34E-03
2 Methylnaphthalene	1.48E-05	1.43E-05
Methyl tert butyl ether	4.09E-03	4.09E-03
Methylene chloride	3.39E-02	3.39E-02
Molybdenum	1.94E-04	1.88E-04
Monochlorobiphenyl	2.03E-08	1.97E-08
Naphthalene	8.94E-03	8.69E-03
2 Nitrophenol	2.21E-05	2.15E-05
4 Nitrophenol	1.01E-05	9.86E-06
Nickel	3.27E-02	6.87E-03
OCDD	3.50E-09	3.50E-09
Octachlorodibenzo-p-dioxins	6.09E-06	5.92E-06
Octachlorodibenzo-p-furans	8.11E-09	7.89E-09
Pentachlorodibenzo-p-dioxins	1.38E-07	1.34E-07
Pentachlorodibenzo-p-furans	3.87E-08	3.76E-08
Pentachlorophenol	4.70E-06	4.57E-06
Perylene	4.79E-08	4.66E-08
Phenanathrene	6.45E-04	6.27E-04
Phenol	4.70E-03	4.57E-03
Phosphorus	0.00E+00	0.00E+00
POM	3.53E+00	3.53E+00
Propanal	2.95E-04	2.87E-04
Propionaldehyde	4.44E-02	4.44E-02
Pyrene	3.41E-04	3.32E-04
Selenium	1.52E-01	3.19E-02
Silver	1.57E-01	3.20E-02
Styrene	1.75E-01	1.70E-01
2,3,7,8 Tetrachlorodibenzo-p-d	7.93E-10	7.71E-10
Tetrachlorodibenzo-p-dioxins	4.33E-08	4.21E-08
2,3,7,8 Tetrachlorodibenzo-p-f	8.30E-09	8.07E-09
Tetrachlorodibenzo-p-furans	6.92E-08	6.72E-08
Tetrachlorobiphenyl	2.31E-07	2.24E-07
Tetrachloroethene	3.50E-03	3.41E-03
Tetrachloroethylene	5.02E-03	5.02E-03
Trichloroethane, 1,1,1	2.34E-03	2.34E-03
Toluene	8.48E-02	8.25E-02
o-Tolualdehyde	6.64E-04	6.45E-04
p-Tolualdehyde	1.01E-03	9.86E-04
Trichlorobiphenyl	2.40E-07	2.33E-07
1,1,1 Trichloroethane	2.86E-03	2.78E-03
Trichloroethene	2.77E-03	2.69E-03
Trichlorofluoromethane	3.78E-03	3.67E-03
2,4,6 Trichlorophenol	0.00E+00	0.00E+00
Vinyl acetate	8.88E-04	8.88E-04
Vinyl Chloride	1.66E-03	1.61E-03
Xylenes	4.32E-03	4.32E-03
Xylene, O	2.31E-03	2.24E-03
Yttrium	2.77E-05	5.65E-06
Zinc	5.69E-02	1.20E-02

EQUI 5 & 8 (EU001, and 004, Boiler #1, and #4) **Duluth Steam Plant No. 1**

These calculations represent the emissions from each boiler individually.

SV001

115	mmBtu/hour each	1,007,400	mmBtu/yr each boiler maximum physical heat input, all fuels				
60	mmBtu/hour each	Natural Gas Burner physical limit and/or RFO Physical limit. RFO can supplement with Natural Gas to Reach 115 MMBtu/hr					
Fuels:	Fuel Oil Potential -	8.9	mmBtu/hr (nozzle physical limit)				
Heating Value:	Natural Gas	1026	mmBtu/mmcf[3]				
Source: 40 CFR Part 98, Table C-1	Fuel Oil	138	mmBtu/mgal[3]				
	Subbituminous C	17.25	mmBtu/short ton[3]				
	Wood	17.48	mmBtu/short ton[3]				
	RFO	77998	BTU/gal	7792 BTU/lb	10.01 lb/gal		
Fuel Consumption:	Natural Gas	0.058	mmcf/hour ((mmBtu/hr)/(mmBtu/mmcf))				
	Dist. Fuel Oil	0.064	mgal/hr (mmBtu/hr/(mmBtu/gal)				
	Subbituminous C	6.667	tons/hour (mmBtu/hr)/(mmBtu/ton)				
	Potential Subbituminous	58,400	tons/yr (tons per hour x 8760 hrs per year)				
	Limited Subbituminous	95,000	tons/yr (group permit limit) - not restrictive on an individual boiler basis			1,638,750	mmBtu from subb.
	Wood	5.263	tons/hour (mmBtu/hr)/(mmBtu/ton)	92 MMBtu/hr when combusting wood		783,333	mmBtu from wood
	Wood	46,105	tons/yr physical potential			2,422,083	total
	Limited Wood:	44,813	tons wood per year (COMG 1 group limit) = tons per year potential x 235 tons CO / 302 tons CO potential				
	Lim. Wood/Max ht input	0.24	= ratio of limited wood to potential total facility max heat input				
						115*3*8760	3,022,200
	RFO	769.3	gal/hr			1538.502565	gph for two boilers
	Potential RFO	6,738,641	gal/yr				
Sulfur and Ash Limits	Fuel Oil	0.0015	%sulfur in oil (distillate permit limit)				
	Subbituminous C	0.60	% Sulfur in Coal (subbituminous permit limit)				
	Subbituminous C	8.5	% Ash in Coal (subbituminous permit limit)				

Control Equipment

99% PM control (baghouse)[1]

98% PM10/PM2.5 control (baghouse)[1]

	PM	PM_{10}	$PM_{2.5}$	SO_2	NO_x	CO	VOC	Lead		CH_4	N_2O	CO_2	$CO_2e^{4,3}$	
Emission Factors - Natural Gas														
Source: AP42 1.4 Gas	7.60	7.60	7.60	0.60	280.00	84.00	5.50	5.00E-04	lb/mmcf	1.00E-03	1.00E-04	53.06	53.11	kg/mmBtu[3]
Emission Factors- No. 2 Distillate Oil[7]														
Source- AP42 1.3-1, 1.3-6	3.30	2.30	1.55	0.21	24.00	5.00	0.20	1.51E-03	lb/mgal	3.00E-03	6.00E-04	73.96	74.21	kg/mmBtu[3]
Emission Factors- Subbituminous Coal[7]														
Source: AP42 Coal 1.1-4	85.52	20.07	5.62	21.00	12.00	0.50	0.06	5.07E-04	lb/ton	1.10E-02	1.60E-03	97.17	97.92	kg/mmBtu[3]
Emission Factors- Wood														
Source: AP42 1.6 No control, Mixed wet and dry wood	0.56	0.50	0.43	0.03	0.22	0.60	0.02	4.80E-05	lb/MMBtu	7.20E-03	3.60E-03	93.80	95.05	kg/mmBtu[3]
Emission Factors- RFO														
Source: Ensyn Testing; GHG Biodiesel EF's from 40 CFR 98	0.081	0.05	0.043	0.000401	0.25	0.013	0.0012	1.88E-03	lb/MMBtu	1.10E-03	1.10E-04	73.96	74.02	kg/mmBtu[3]

***Example calculations given below**

Potential Emissions - Natural Gas

PM	PM_{10}	$PM_{2.5}$	SO_2	NO_x	CO	VOC[9]	Lead		CH_4	N_2O	CO_2	CO_2e[4]	
0.85	0.85	0.85	0.07	31.38	9.42	0.62	0.0000	lb/hour	0.25	0.03	13,424.18	13,438.04	lb/hour
3.73	3.73	3.73	0.29	137.46	41.24	2.70	0.0001	uncontrolled tpy	1.11	0.11	58,797.91	58,858.63	uncontrolled tpy
3.73	3.73	3.73	0.29	137.46	41.24	2.70	0.0001	tpy	1.11	0.11	58,797.91	58,858.63	tpy

Potential Emissions - Distillate Oil

PM	PM_{10}	$PM_{2.5}$	SO_2	NO_x	CO	VOC	Lead		CH_4	N_2O	CO_2	CO_2e[4]	
2.13E-03	2.97E-03	2.00E-03	0.01	1.55	0.32	0.01	0.0001	lb/hour	0.76	0.15	18,711.88	18,776.09	lb/hour
0.93	0.65	0.44	0.06	6.78	1.41	0.06	0.000	uncontrolled tpy	3.32	0.66	81,958.03	82,239.28	uncontrolled tpy
0.01	0.01	0.01	0.06	6.78	1.41	0.06	0.0004	tpy	3.32	0.66	81,958.03	82,239.28	controlled tpy

Potential Emissions - Subbituminous Coal — Subbituminous, wall fired, dry bottom, PC, Pre NSPS

PM	[8]PM_{10}	$PM_{2.5}$	SO_2[6]	NO_x	CO	VOC	Lead		CH_4	N_2O	CO_2	CO_2e[4]	
5.70	2.68	0.75	140.00	80.00	3.33	0.40	0.0034	lb/hour	2.78	0.40	24,584.01	24,774.22	lb/hour
2497.11	585.97	164.03	613.20	350.40	14.60	1.75	0.0148	uncontrolled tpy	12.19	1.77	107,677.96	108,511.06	uncontrolled tpy
24.97	11.72	3.28	613.20	350.40	14.60	1.75	0.0148	tpy	12.19	1.77	107,677.96	108,511.06	controlled tpy
4062.08													

Potential Emissions- Wood

PM	PM_{10}	$PM_{2.5}$	SO_2	NO_x	CO	VOC	Lead		CH_4	N_2O	CO_2	CO_2e[4]	
0.52	0.92	0.79	2.30	20.24	55.20	1.56	0.0044	lb/hr	1.46	0.73	18,985.12	19,238.69	lb/hour
225.66	201.48	173.27	10.07	88.65	241.78	6.85	0.0193	uncontrolled tpy	6.38	3.19	83,154.83	84,265.45	uncontrolled tpy
2.26	4.03	3.47	10.07	88.65	241.78	6.85	0.0193	tpy	6.38	3.19	83,154.83	84,265.45	controlled tpy
Limit scaled emissions:[5] 2.26	4.03	3.47	10.07	88.65	**235.00**	6.85	0.02	tpy	6.38	3.19	83154.83	84,265.45	
Expected Emission Based on 20% Wood burning[9] 4.66	2.32	0.76	**112.46**	68.05	13.71	0.63	0.00	lb/hr	2.52	0.47	23464.23	23,667.11	lb/hour
		Note:	**112.46**	which is < 425 allowed									
				425 is also total for all 4 boilers									

Potential Emissions- RFO w. Natural Gas

PM	PM_{10}	$PM_{2.5}$	SO_2	NO_x	CO	VOC	Lead		CH_4	N_2O	CO_2	CO_2e[4]	
5.27	3.41	2.99	0.06	30.01	5.28	0.37	0.11	lb/hr	0.27	0.03	16,182.98	16,197.57	lb/hour
23.07	14.92	13.08	0.25	131.44	23.14	1.61	0.49	uncontrolled tpy	1.17	0.12	70,881.45	70,945.35	uncontrolled tpy
RFO Emissions + Natural Gas 23.07	14.92	13.08	0.25	131.44	23.14	1.61	0.49	tpy	1.17	0.12	70,881.45	70,945.35	controlled tpy
RFO Emissions w/o Nat. Gas. 21.29	13.14	11.30	0.11	65.70	3.42	0.32	0.49	tpy	0.64	0.06	42,760.71	42,795.57	

Worst Case Potential Emissions[2]

PM	[8]PM_{10}	$PM_{2.5}$	[8]SO_2	NO_x	CO	VOC	Lead		CH_4	N_2O	CO_2	CO_2e	
5.70	3.41	2.99	140.00	80.00	55.20	1.56	0.11	lb/hr	2.78	0.73	24,584	24,774	lb/hr
24.97	14.92	13.08	613.20	350.40	235.00	6.85	0.49	tpy	12.19	3.19	107,678	108,511	ton/yr

Notes

1 Source: Title I Condition; note that credit for emissions control is not taken for all fuels. RFO and natural gas combustion are uncontrolled.
2 Highest of natural gas, coal, wood, RFO or oil emissions. The function to use is =max(oil emissions, wood, s. coal, b. coal, gas emissions). Click on cell to view.
3 GHG Factors and heating values are derived from 40 CFR Part 98, GHG Mandatory Reporting Rule, Tables A-1, C-1 and C-2.
4 CO2e emissions are calculated by: 298 x N2O + 25 x CH4 + CO2 = CO2e
5 These calculations assume that wood could be burned ccontinuously, as long as CO emissions remain below 235 tons per year. Worst case used for all pollutants except CO.
6 SO2 emissions = 35 x percent sulfur limit (lb per ton) x ton per hour = lb per hour SO2
7 Permit sulfur and ash limits for oil and coal taken into account in calculations
8 Permit limits for PM10 are 7.7 lb/hour and 19.9 tons per year. Sulfur Dioxide limited to 680 lb/hr and 1039 tpy, Nox limited to 594 tpy.
9 These calculations assume that sbubituminous coal is burned at an 80% rate, and wood at the 20% rate. Subbituminous is most commonly used.
10 This is the stack total. Stack total emissions limited to 7.7 lb/hr. For the "after" case in modeling, the lb/hr rate is scaled by multiplying 7.7 x annual tpy 80% coal + 1.15 lb/hour x 20% annual wood. Resulting g/s is 0.85 g/s vs the 0.97 g/s from coal.

***Example Calculations:**

Gas Sample: lb PM per mmcf x mmcf per hour = lb PM/hour
Conversions to Annual tpy Sample: lb per hour x 8760 hours per year /2000 lb per ton = tpy
Oil Sample: lb PM per mgal x (1- 99%) x mgal per hour = lb PM/hour
Sample: lb per hour x 8760 hours per year /2000 lb per ton = tpy
Coal Sample: lb PM per ton x (1- 99% control) x ton per hour = lb PM/hour
*Sample for GHG Emissions: kg CO2 per mmBtu x 115 mmBtu per hr * 2.2lb per kg = lb/hour*
RFO Plus Natural Gas Sample: lb PM / MMBtu x MMBtu/hr for RFO + MMBtu/hr Nat.Gas / 1026 MMBtu/MMCF Nat.Gas x lb PM/MMCF Natural Gas = lb PM/hour
*Sample for GHG Emissions: kg CO2 per mmBtu x 115 mmBtu per hr * 2.2lb per kg = lb/hour*
CO2e emissions are calculated by: 298 x N2O + 25 x CH4 + CO2 = CO2e

Calculation of Boiler No. 1 and 4 HAP Emissions

These are worst case potential per boiler

For limited emissions see the bituminous, subituminous, oil, gas, and wood

RFO	60	mmBtu/hour	each Boiler
Boiler Heat Input:	115	mmBtu/hr	(see Boiler 1 and 4 sheet)
Natural Gas Througput	0.11	mmcf/hr	(see Boiler 1 and 4 sheet)
Oil Throughput	0.06	mgal/hr	(see Boiler 1 and 4 sheet)
Sub. Coal Throughput	6.67	tons/hr	(see Boiler 1 and 4 sheet)
Bit. Coal Throughput	0.00	tons/yr	(see Boiler 1 and 4 sheet)
Sub. Coal Potential Throughput[8]	58,400	tons/yr	= tons per hour x 8760 hours per year
Bit. Coal Potential Trhoughput[8]	0	tons/yr	= tons per hour x 8760 hours per year
Wood Throughput	5.26	tons/hr	(see Boiler 1 sheet)
Wood Potential Throughput[8]	46,105	tons/yr	= tons per hour x 8760 hours per year
Metals Control	79%		

Worst Case Potential	(lb/hr)	(tpy)	limited max
Max HAP (HCl)	8.0	35.0	3.50E+01
	Single(tpy)	Total(tpy)	
Potential HAP	9.5	24.0	*based on permit limits*
Mercury Calculations[7]			
New Mercury PTE			
1.96E-03 tons	3.91 lbs		
Change in Mercury PTE			
-4.69E-04 tons	-0.94 lbs		
Old Mercury PTE			
2.42E-03 tons	4.85 lbs		

Emissions

Emission Factors[1,2]		Gas	Gas		Oil	Oil		Coal	Coal (SBit is worst case)		Wood	Wood		Wood[7]	w/ Natural Gas RFO	RFO		RFO	**Maximum Unlimited**		**Maximum Limited**	
	POM or HAP	(lb/mmcf)	(lb/hr)	tpy	(lb/mgal)	(lb/hr)	tpy	(lb/ton)[3]	(lb/hr)	tpy	(lb/ton)	(lb/hr)	tpy	tpy limited	(lb/MMBtu)	(lb/hr)	tpy	tpy limited	(lb/hr)	tpy	(lb/hr)	tpy
2-Methylnaphthalene	POM	2.40E-05	2.69E-06	1.18E-05															2.69E-06	1.18E-05	2.69E-06	1.18E-05
3-Methylchloranthrene	POM	<1.8E-6																	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5-Methyl chrysene								2.20E-08	1.47E-07	6.42E-07									1.47E-07	6.42E-07	1.47E-07	6.42E-07
Acenapthene	POM	<1.8E-6			2.11E-05	1.36E-06	5.96E-06	5.10E-07	3.40E-06	1.49E-05	9.10E-07	4.79E-06	2.10E-05	2.04E-05					4.79E-06	2.10E-05	4.79E-06	2.04E-05
Acenaphthylene	POM	<1.8E-6			2.53E-07	1.63E-08	7.15E-08	2.50E-07	1.67E-06	7.30E-06	5.00E-06	2.63E-05	1.15E-04	1.12E-04					2.63E-05	1.15E-04	2.63E-05	1.12E-04
Acetaldehyde	*							5.70E-04	3.80E-03	1.66E-02	8.30E-04	4.37E-03	1.91E-02	1.86E-02					4.37E-03	1.91E-02	4.37E-03	1.86E-02
Acetone											1.90E-04	1.00E-03	4.38E-03	4.26E-03					1.00E-03	4.38E-03	1.00E-03	4.26E-03
Acetophenone	*							1.50E-05	1.00E-04	4.38E-04	3.20E-09	1.68E-08	7.38E-08	7.17E-08					1.00E-04	4.38E-04	1.00E-04	4.38E-04
Acrolein	*							2.90E-04	1.93E-03	8.47E-03	4.00E-03	2.11E-02	9.22E-02	8.96E-02					2.11E-02	9.22E-02	2.11E-02	8.96E-02
Arsenic[8]	*	2.00E-04	2.24E-05	9.82E-05	4.00E+00	4.60E-04	2.01E-03	4.10E-04	2.73E-03	1.20E-02	2.20E-05	1.16E-04	5.07E-04	4.93E-04	3.29E-06	2.08E-04	9.12E-04	0.00E+00	2.73E-03	1.20E-02	5.74E-04	2.51E-03
Anthracene	POM	<2.4E-6			1.22E-06	7.87E-08	3.45E-07	2.10E-07	1.40E-06	6.13E-06	3.00E-06	1.58E-05	6.92E-05	6.72E-05					1.58E-05	6.92E-05	1.58E-05	6.72E-05
Antimony	*							1.80E-05	1.20E-04	5.26E-04	7.90E-06	4.16E-05	1.82E-04	1.77E-04	3.36E-05	2.02E-03	8.83E-03	0.00E+00	2.02E-03	5.26E-04	4.23E-04	1.10E-04
Benz(a)anthracene	POM	<1.8E-6			4.01E-06	2.59E-07	1.13E-06	8.00E-08	5.33E-07	2.34E-06	6.50E-08	3.42E-07	1.50E-06	1.46E-06					5.33E-07	2.34E-06	5.33E-07	2.34E-06
Benzaldehyde											<8.5E-07								0.00E+00	0.00E+00	0.00E+00	0.00E+00
Benzene	*	2.13E-03	2.39E-04	1.05E-03	2.14E-04	1.38E-05	6.05E-05	1.30E-03	8.67E-03	3.80E-02	4.20E-03	2.21E-02	9.68E-02	9.41E-02	4.25E-04	2.56E-02	1.12E-01	0.00E+00	2.56E-02	9.68E-02	2.21E-02	9.41E-02
Benzo(a)pyrene	POM	<1.2E-6						3.80E-08	2.53E-07	1.11E-06	2.60E-06	1.37E-05	5.99E-05	5.83E-05					1.37E-05	5.99E-05	1.37E-05	5.83E-05
Benzo(b)fluoranthene	POM	<1.8E-6			1.48E-06	9.54E-08	4.18E-07	1.10E-07	7.33E-07	3.21E-06	1.00E-07	5.26E-07	2.31E-06	2.24E-06					7.33E-07	3.21E-06	7.33E-07	3.21E-06
Benzoic acid											4.70E-08	2.47E-07	1.08E-06	1.05E-06					2.47E-07	1.08E-06	2.47E-07	1.05E-06
Benzo(b,k)fluoranthene	POM	<1.8E-6			1.48E-06	9.54E-08	4.18E-07	1.10E-07	7.33E-07	3.21E-06	1.60E-07	8.42E-07	3.69E-06	3.59E-06					8.42E-07	3.69E-06	8.42E-07	3.59E-06
Benzo(g,h,i)perylene	POM	<1.2E-6			2.26E-06	1.46E-07	6.38E-07	2.70E-08	1.80E-07	7.88E-07	9.30E-08	4.89E-07	2.14E-06	2.08E-06					4.89E-07	2.14E-06	4.89E-07	2.08E-06
Benzyl chloride	*							7.00E-04	4.67E-03	2.04E-02									4.67E-03	2.04E-02	4.67E-03	2.04E-02
Beryllium[8]	*	<1.2E-5			3.00E+00	3.45E-04	1.51E-03	2.10E-05	1.40E-04	6.13E-04	1.10E-06	5.79E-06	2.54E-05	2.46E-05	<3.4E-7				3.45E-04	1.51E-03	3.45E-04	1.51E-03
Biphenyl	*							1.70E-06	1.13E-05	4.96E-05									1.13E-05	4.96E-05	1.13E-05	4.96E-05
Bis(2-ethylhexyl)phthalate (DEHP)	*							7.30E-05	4.87E-04	2.13E-03	4.70E-08	2.47E-07	1.08E-06	1.05E-06					4.87E-04	2.13E-03	4.87E-04	2.13E-03
Bromoform	*							3.90E-05	2.60E-04	1.14E-03									2.60E-04	1.14E-03	2.60E-04	1.14E-03
Bromomethane											1.50E-05	7.89E-05	3.46E-04	3.36E-04					7.89E-05	3.46E-04	7.89E-05	3.36E-04
2-Butanone (MEK)											5.40E-06	2.84E-05	1.24E-04	1.21E-04					2.84E-05	1.24E-04	2.84E-05	1.21E-04
Cadmium[8]	*	1.10E-03	1.23E-04	5.40E-04	3.00E+00	3.45E-04	1.51E-03	5.10E-05	3.40E-04	1.49E-03	4.10E-06	2.16E-05	9.45E-05	9.19E-05	1.09E-05	0.000713	3.12E-03	0.00E+00	7.13E-04	1.51E-03	1.50E-04	3.17E-04
Carbon disulfide	*							1.30E-04	8.67E-04	3.80E-03									8.67E-04	3.80E-03	8.67E-04	3.80E-03
Carbon tetrachloride	*										4.50E-05	2.37E-04	1.04E-03	1.01E-03					2.37E-04	1.04E-03	2.37E-04	1.01E-03
Chlorine	*										7.90E-04	4.16E-03	1.82E-02	1.77E-02					4.16E-03	1.82E-02	4.16E-03	1.77E-02
2-Chloroacetophenone	*							7.00E-06	4.67E-05	2.04E-04									4.67E-05	2.04E-04	4.67E-05	2.04E-04
Chlorobenzene	*							2.20E-05	1.47E-04	6.42E-04	3.30E-05	1.74E-04	7.61E-04	7.39E-04					1.74E-04	7.61E-04	1.74E-04	7.39E-04
Chloroform	*							5.90E-05	3.93E-04	1.72E-03	2.80E-05	1.47E-04	6.45E-04	6.27E-04					3.93E-04	1.72E-03	3.93E-04	1.72E-03
Chloromethane											2.30E-05	1.21E-04	5.30E-04	5.15E-04					1.21E-04	5.30E-04	1.21E-04	5.15E-04
2-Chloronaphthalene											2.40E-09	1.26E-08	5.53E-08	5.38E-08					1.26E-08	5.53E-08	1.26E-08	5.38E-08
2-Chlorophenol											2.40E-08	1.26E-07	5.53E-07	5.38E-07					1.26E-07	5.53E-07	1.26E-07	5.38E-07
Chromium[8]	*	1.40E-03	1.57E-04	6.87E-04	3.00E+00	3.45E-04	1.51E-03	2.60E-04	1.73E-03	7.59E-03	2.10E-05	1.11E-04	4.84E-04	4.71E-04	3.56E-05	0.002211	9.68E-03	0.00E+00	2.21E-03	7.59E-03	4.64E-04	1.59E-03
Chromium VI								7.90E-05	5.27E-04	2.31E-03	3.50E-06	1.84E-05	8.07E-05	7.84E-05					5.27E-04	2.31E-03	1.11E-04	4.84E-04
Chrysene	POM	<1.8E-6			2.38E-06	1.53E-07	6.72E-07	1.00E-07	6.67E-07	2.92E-06	3.80E-08	2.00E-07	8.76E-07	8.51E-07					6.67E-07	2.92E-06	6.67E-07	2.92E-06
Cobalt	*	8.40E-05	9.42E-06	4.12E-05				1.00E-04	6.67E-04	2.92E-03	6.50E-06	3.42E-05	1.50E-04	1.46E-04					6.67E-04	2.92E-03	1.40E-04	6.13E-04
Copper[8]		8.50E-04	9.53E-05	4.17E-04	6.00E+00	6.90E-04	3.02E-03				4.90E-05	2.58E-04	1.13E-03	1.10E-03					6.90E-04	3.02E-03	1.45E-04	6.35E-04

Crotonaldehyde											9.90E-06	5.21E-05	2.28E-04	2.22E-04					5.21E-05	2.28E-04	5.21E-05	2.22E-04
Cumene	*							5.30E-06	3.53E-05	1.55E-04									3.53E-05	1.55E-04	3.53E-05	1.55E-04
Cyanide	*							2.50E-03	1.67E-02	7.30E-02									1.67E-02	7.30E-02	1.67E-02	7.30E-02
Decachlorobiphenyl											2.70E-10	1.42E-09	6.22E-09	6.05E-09					1.42E-09	6.22E-09	1.42E-09	6.05E-09
Dibenzo(a,h)anthracene	POM	<1.2E-6			1.67E-06	1.08E-07	4.72E-07				9.10E-09	4.79E-08	2.10E-07	2.04E-07					1.08E-07	4.72E-07	1.08E-07	4.72E-07
1,2 Dibromoethene											5.50E-05	2.89E-04	1.27E-03	1.23E-03					2.89E-04	1.27E-03	2.89E-04	1.23E-03
Dichlorobenzene	*	1.20E-03	1.35E-04	5.89E-04				2.20E-05	1.47E-04	6.42E-04									1.47E-04	6.42E-04	1.47E-04	6.42E-04
Dichlorobiphenyl											7.40E-10	3.89E-09	1.71E-08	1.66E-08					3.89E-09	1.71E-08	3.89E-09	1.66E-08
1,2 Dichloroethane																			0.00E+00	0.00E+00	0.00E+00	0.00E+00
Dichloromethane											2.90E-04	1.53E-03	6.69E-03	6.50E-03					1.53E-03	6.69E-03	1.53E-03	6.50E-03
1,2 Dichloropropane											3.30E-05	1.74E-04	7.61E-04	7.39E-04					1.74E-04	7.61E-04	1.74E-04	7.39E-04
Dimethylbenz(s)anthracene 7,12		<1.6E-5																	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Dimethyl sulfate	*							4.80E-05	3.20E-04	1.40E-03									3.20E-04	1.40E-03	3.20E-04	1.40E-03
2,4 Dinitrophenol	*										1.80E-07	9.47E-07	4.15E-06	4.03E-06					9.47E-07	4.15E-06	9.47E-07	4.03E-06
2, 4-Dinitrotoluene	*							2.80E-07	1.87E-06	8.18E-06									1.87E-06	8.18E-06	1.87E-06	8.18E-06
Ethylbenzene	*				6.36E-05	4.10E-06	1.80E-05	9.40E-05	6.27E-04	2.74E-03	3.10E-05	1.63E-04	7.15E-04	6.95E-04					6.27E-04	2.74E-03	6.27E-04	2.74E-03
Ethyl chloride	*							4.20E-05	2.80E-04	1.23E-03									2.80E-04	1.23E-03	2.80E-04	1.23E-03
Ethylene dichloride	*							4.00E-05	2.67E-04	1.17E-03									2.67E-04	1.17E-03	2.67E-04	1.17E-03
Ethylene dibromide	*							1.20E-06	8.00E-06	3.50E-05									8.00E-06	3.50E-05	8.00E-06	3.50E-05
Fluoranthene	POM	3.00E-06	3.36E-07	1.47E-06	4.84E-06	3.12E-07	1.37E-06	7.10E-07	4.73E-06	2.07E-05	1.60E-06	8.42E-06	3.69E-05	3.59E-05					8.42E-06	3.69E-05	8.42E-06	3.59E-05
Fluorene	POM	2.80E-06	3.14E-07	1.37E-06	4.47E-06	2.88E-07	1.26E-06	9.10E-07	6.07E-06	2.66E-05	3.40E-06	1.79E-05	7.84E-05	7.62E-05					1.79E-05	7.84E-05	1.79E-05	7.62E-05
Formaldehyde	*	7.50E-02	8.41E-03	3.68E-02	3.30E-02	2.13E-03	9.32E-03	2.40E-04	1.60E-03	7.01E-03	4.40E-03	2.32E-02	1.01E-01	9.86E-02					2.32E-02	1.01E-01	2.32E-02	9.86E-02
Heptachlorodibenzo-p-dioxins											2.00E-09	1.05E-08	4.61E-08	4.48E-08					1.05E-08	4.61E-08	1.05E-08	4.48E-08
Heptachlorodibenzo-p-furans											2.40E-10	1.26E-09	5.53E-09	5.38E-09					1.26E-09	5.53E-09	1.26E-09	5.38E-09
Heptachlorobiphenol											6.60E-11	3.47E-10	1.52E-09	1.48E-09					3.47E-10	1.52E-09	3.47E-10	1.48E-09
Hexachlorobiphenol											5.50E-10	2.89E-09	1.27E-08	1.23E-08					2.89E-09	1.27E-08	2.89E-09	1.23E-08
Hexachlorodibenzo-p-dioxins											2.00E-09	1.05E-08	4.61E-08	4.48E-08					1.05E-08	4.61E-08	1.05E-08	4.48E-08
Hexachlorodibenzo-p-furans											2.40E-10	1.26E-09	5.53E-09	5.38E-09					1.26E-09	5.53E-09	1.26E-09	5.38E-09
Hexane	POM	1.80E+00	2.02E-01	8.84E-01				6.70E-05	4.47E-04	1.96E-03									2.02E-01	8.84E-01	2.02E-01	8.84E-01
Hexanal											7.00E-06	3.68E-05	1.61E-04	1.57E-04					3.68E-05	1.61E-04	3.68E-05	1.57E-04
Hydrogen Chloride	*							1.20	8.00E+00	3.50E+01	1.90E-02	1.00E-01	4.38E-01	4.26E-01	1.19E-04	7.14E-03	3.13E-02	0.00E+00	8.00E+00	3.50E+01	8.00E+00	3.50E+01
Hydrogen Fluoride								0.15	1.00E+00	4.38E+00					1.31E-04	0.00786	3.44E-02	0.00E+00	1.00E+00	4.38E+00	1.00E+00	4.38E+00
Indeno(1,2,3-cd)pyrene	POM	<1.8E-6			2.14E-06	1.38E-07	6.05E-07	6.10E-08	4.07E-07	1.78E-06	8.70E-08	4.58E-07	2.01E-06	1.95E-06					4.58E-07	2.01E-06	4.58E-07	1.95E-06
Isobutyraldehyde											1.20E-05	6.32E-05	2.77E-04	2.69E-04					6.32E-05	2.77E-04	6.32E-05	2.69E-04
Isophorone	*							5.80E-04	3.87E-03	1.69E-02									3.87E-03	1.69E-02	3.87E-03	1.69E-02
Lead[8]	*				9.00E+00	1.04E-03	4.53E-03	4.20E-04	2.80E-03	1.23E-02	4.80E-05	2.53E-04	1.11E-03	1.08E-03	1.88E-03	0.1128	4.94E-01	0.00E+00	1.13E-01	1.23E-02	2.37E-02	2.58E-03
Magnesium								1.10E-02	7.33E-02	3.21E-01									7.33E-02	3.21E-01	1.54E-02	6.75E-02
Manganese[8]	*	3.80E-04	4.26E-05	1.87E-04	6.00E+00	6.90E-04	3.02E-03	4.90E-04	3.27E-03	1.43E-02	1.60E-03	8.42E-03	3.69E-02	3.59E-02	1.89E-03	0.1134204	4.97E-01	0.00E+00	1.13E-01	3.69E-02	2.38E-02	7.53E-03
Mercury[8]	*	2.60E-04	2.91E-05	1.28E-04	3.00E+00	3.45E-04	1.51E-03	8.30E-05	5.53E-04	2.42E-03	3.50E-06	1.84E-05	8.07E-05	7.84E-05	6.01E-06	0.0003745	1.64E-03	0.00E+00	5.53E-04	2.42E-03	1.16E-04	5.09E-04
Methyl bromide	*							1.60E-04	1.07E-03	4.67E-03									1.07E-03	4.67E-03	1.07E-03	4.67E-03
Methyl chloride	*							5.30E-04	3.53E-03	1.55E-02									3.53E-03	1.55E-02	3.53E-03	1.55E-02
Methyl ethyl ketone								3.90E-04	2.60E-03	1.14E-02									2.60E-03	1.14E-02	2.60E-03	1.14E-02
Methyl hydrazine	*							1.70E-04	1.13E-03	4.96E-03									1.13E-03	4.96E-03	1.13E-03	4.96E-03
Methyl methacrylate	*							2.00E-05	1.33E-04	5.84E-04									1.33E-04	5.84E-04	1.33E-04	5.84E-04
2 Methylnaphthalene											1.60E-07	8.42E-07	3.69E-06	3.59E-06					8.42E-07	3.69E-06	8.42E-07	3.59E-06
Methyl tert butyl ether	*							3.50E-05	2.33E-04	1.02E-03									2.33E-04	1.02E-03	2.33E-04	1.02E-03
Methylene chloride	*							2.90E-04	1.93E-03	8.47E-03									1.93E-03	8.47E-03	1.93E-03	8.47E-03
Molybdenum											2.10E-06	1.11E-05	4.84E-05	4.71E-05					1.11E-05	4.84E-05	1.11E-05	4.71E-05
Monochlorobiphenyl											2.20E-10	1.16E-09	5.07E-09	4.93E-09					1.16E-09	5.07E-09	1.16E-09	4.93E-09
Naphthalene	*	6.10E-04	6.84E-05	2.99E-04	1.13E-03	7.29E-05	3.19E-04	1.30E-05	8.67E-05	3.80E-04	9.70E-05	5.11E-04	2.24E-03	2.17E-03					5.11E-04	2.24E-03	5.11E-04	2.17E-03
2 Nitrophenol											2.40E-07	1.26E-06	5.53E-06	5.38E-06					1.26E-06	5.53E-06	1.26E-06	5.38E-06
4 Nitrophenol	*										1.10E-07	5.79E-07	2.54E-06	2.46E-06					5.79E-07	2.54E-06	5.79E-07	2.46E-06
Nickel[8]	*	2.10E-03	2.35E-04	1.03E-03	3.00E+00	3.45E-04	1.51E-03	2.80E-04	*1.87E-03*	*8.18E-03*	3.30E-05	1.74E-04	7.61E-04	7.39E-04	4.89E-05	0.0030466	1.33E-02	0.00E+00	3.05E-03	8.18E-03	6.40E-04	1.72E-03
OCDD					3.10E-09	2.00E-10	8.76E-10												2.00E-10	8.76E-10	2.00E-10	8.76E-10
Octachlorodibenzo-p-dioxins											6.60E-08	3.47E-07	1.52E-06	1.48E-06					3.47E-07	1.52E-06	3.47E-07	1.48E-06
Octachlorodibenzo-p-furans											8.80E-11	4.63E-10	2.03E-09	1.97E-09					4.63E-10	2.03E-09	4.63E-10	1.97E-09

Pentachlorodibenzo-p-dioxins											1.50E-09	7.89E-09	3.46E-08	3.36E-08					7.89E-09	3.46E-08	7.89E-09	3.36E-08
Pentachlorodibenzo-p-furans											4.20E-10	2.21E-09	9.68E-09	9.41E-09					2.21E-09	9.68E-09	2.21E-09	9.41E-09
Pentachlorophenol	*										5.10E-08	2.68E-07	1.18E-06	1.14E-06					2.68E-07	1.18E-06	2.68E-07	1.14E-06
Perylene											5.20E-10	2.74E-09	1.20E-08	1.17E-08					2.74E-09	1.20E-08	2.74E-09	1.17E-08
Phenanathrene	POM	1.70E-05	1.91E-06	8.35E-06	1.05E-05	6.77E-07	2.97E-06	2.70E-06	1.80E-05	7.88E-05	7.00E-06	3.68E-05	1.61E-04	1.57E-04					3.68E-05	1.61E-04	3.68E-05	1.57E-04
Phenol	*							1.60E-05	1.07E-04	4.67E-04	5.10E-05	2.68E-04	1.18E-03	1.14E-03					2.68E-04	1.18E-03	2.68E-04	1.14E-03
Phosphorus	*														1.38E-03	0.0828	3.63E-01	0.00E+00	8.28E-02	0.00E+00	0.00E+00	0.00E+00
POM		1.80E+00	2.02E-01	8.84E-01	3.30E-03	2.13E-04	9.32E-04	*2.08E-06*	1.39E-05	6.07E-05									2.02E-01	8.84E-01	2.02E-01	8.84E-01
Propanal											3.20E-06	1.68E-05	7.38E-05	7.17E-05					1.68E-05	7.38E-05	1.68E-05	7.17E-05
Propionaldehyde	*							3.80E-04	2.53E-03	1.11E-02	6.10E-05	3.21E-04	1.41E-03	1.37E-03					2.53E-03	1.11E-02	2.53E-03	1.11E-02
Pyrene	POM	5.00E-06	5.60E-07	2.45E-06	4.25E-06	2.74E-07	1.20E-06	3.30E-07	2.20E-06	9.64E-06	3.70E-06	1.95E-05	8.53E-05	8.29E-05					1.95E-05	8.53E-05	1.95E-05	8.29E-05
Selenium[8]	*	<2.4E-5			1.50E+01	1.73E-03	7.56E-03	1.30E-03	8.67E-03	3.80E-02	2.80E-06	1.47E-05	6.45E-05	6.27E-05	<3.74E-6				8.67E-03	3.80E-02	1.82E-03	7.97E-03
Silver											1.70E-03	8.95E-03	3.92E-02	3.81E-02					8.95E-03	3.92E-02	1.88E-03	8.00E-03
Styrene	*							2.50E-05	1.67E-04	7.30E-04	1.90E-03	1.00E-02	4.38E-02	4.26E-02					1.00E-02	4.38E-02	1.00E-02	4.26E-02
2,3,7,8 Tetrachlorodibenzo-p-dioxins	*										8.60E-12	4.53E-11	1.98E-10	1.93E-10					4.53E-11	1.98E-10	4.53E-11	1.93E-10
Tetrachlorodibenzo-p-dioxins											4.70E-10	2.47E-09	1.08E-08	1.05E-08					2.47E-09	1.08E-08	2.47E-09	1.05E-08
2,3,7,8 Tetrachlorodibenzo-p-furans											9.00E-11	4.74E-10	2.07E-09	2.02E-09					4.74E-10	2.07E-09	4.74E-10	2.02E-09
Tetrachlorodibenzo-p-furans											7.50E-10	3.95E-09	1.73E-08	1.68E-08					3.95E-09	1.73E-08	3.95E-09	1.68E-08
Tetrachlorobiphenyl											2.50E-09	1.32E-08	5.76E-08	5.60E-08					1.32E-08	5.76E-08	1.32E-08	5.60E-08
Tetrachloroethene											3.80E-05	2.00E-04	8.76E-04	8.51E-04					2.00E-04	8.76E-04	2.00E-04	8.51E-04
Tetrachloroethylene	*							4.30E-05	2.87E-04	1.26E-03									2.87E-04	1.26E-03	2.87E-04	1.26E-03
Trichloroethane, 1,1,1					2.36E-04	1.52E-05	6.67E-05	2.00E-05	1.33E-04	5.84E-04									1.33E-04	5.84E-04	1.33E-04	5.84E-04
Toluene	*	3.40E-03	3.81E-04	1.67E-03	6.20E-03	4.00E-04	1.75E-03	2.40E-04	1.60E-03	7.01E-03	9.20E-04	4.84E-03	2.12E-02	2.06E-02	<3.0E-4				4.84E-03	2.12E-02	4.84E-03	2.06E-02
o-Tolualdehyde											7.20E-06	3.79E-05	1.66E-04	1.61E-04					3.79E-05	1.66E-04	3.79E-05	1.61E-04
p-Tolualdehyde											1.10E-05	5.79E-05	2.54E-04	2.46E-04					5.79E-05	2.54E-04	5.79E-05	2.46E-04
Trichlorobiphenyl											2.60E-09	1.37E-08	5.99E-08	5.83E-08					1.37E-08	5.99E-08	1.37E-08	5.83E-08
1,1,1 Trichloroethane											3.10E-05	1.63E-04	7.15E-04	6.95E-04					1.63E-04	7.15E-04	1.63E-04	6.95E-04
Trichloroethene											3.00E-05	1.58E-04	6.92E-04	6.72E-04					1.58E-04	6.92E-04	1.58E-04	6.72E-04
Trichlorofluoromethane											4.10E-05	2.16E-04	9.45E-04	9.19E-04					2.16E-04	9.45E-04	2.16E-04	9.19E-04
2,4,6 Trichlorophenol	*										<2.2E-08								0.00E+00	0.00E+00	0.00E+00	0.00E+00
Vinyl acetate	*							7.60E-06	5.07E-05	2.22E-04									5.07E-05	2.22E-04	5.07E-05	2.22E-04
Vinyl Chloride	*										1.80E-05	9.47E-05	4.15E-04	4.03E-04					9.47E-05	4.15E-04	9.47E-05	4.03E-04
Xylenes	*							3.70E-05	2.47E-04	1.08E-03					<3.46E-4				2.47E-04	1.08E-03	2.47E-04	1.08E-03
Xylene, O	*				1.09E-04	7.03E-06	3.08E-05				2.50E-05	1.32E-04	5.76E-04	5.60E-04					1.32E-04	5.76E-04	1.32E-04	5.60E-04
Yttrium											3.00E-07	1.58E-06	6.92E-06	6.72E-06					1.58E-06	6.92E-06	3.32E-07	1.41E-06
Zinc[8]		2.90E-02	3.25E-03	1.42E-02	4.00E+00	4.60E-04	2.01E-03				4.20E-04	2.21E-03	9.68E-03	9.41E-03					3.25E-03	1.42E-02	6.83E-04	2.99E-03
		Total HAPs =	0.93			0.04				35.40		0.88							8.67E+00	36.62	8.39	36.52
									minus HCl	0.36												

Notes

1 Emission Factors for gas from AP42 Section 1.4, Tables 1.4-3 and 1.4-4

2 Emission Factors for oil from AP42 Section 1.3, Tables 1.3-9, and 1.3-10. Residual oil emission factors for speciated organic compounds are conservatively used as AP-42 does not provide them for distillate.

3 Coal emission factors are from AP-42 Table 1.1-13, 1.1-14, 1.1-15, and 1.1-18.

4 Assume all chlorine is emitted as HCl

5 Assume 79% control of metals as per MPCA Technical Support Document for the current air emission permit.

6 PM air emissions are not dependent on ash content. As per AP42 1.3, they are dependent on sulfur content.

7 Fuel annual throughput limits not taken into account in calculations. Wood will be limited by CO emissions alone; not a permit limit on wood combustion.
New lb Hg =Hg from Coal x (1 - 20%) + Hg from wood x 20% = new mercury PTE if burning 20% wood
Change in lb Hg = Hg PTE from Sub. Coal - new mercury PTE if burning 20% wood
Existing lb Hg = Hg PTE from Sub. Coal

8 Trace element emission factors for oil are in units of lb/10^{12} Btu

FUGITIVE DUST PARTICULATE EMISSIONS FOR PAVED TRUCK LOADING ROUTE

The emission factor for PM and PM10 from truck traffic on paved roads is calculated using the AP-42 equation below:

E = k * [(sL)^0.91 * (W)^1.02](1-(P/4*N)) * (S/30)^0.5 (lb/VMT, vehicle miles traveled), AP-42, Section 13.2.1, Equation 2, 1/11, additional MPCA endorsed speed correction term

Factor	Description	PM Value	PM10 Value	PM2.5 Value
E =	RFO - controlled emission factor	1.314	0.263	0.065
	Coal - controlled emission factor	0.356	0.071	0.017
k =	Particle size multiplier (lb/vmt), AP-42, Table 13.2-1.1	0.011	0.002	0.001
sL =	Road surface silt loading (g/m²) (calculated) (1)	7.78	7.78	7.78
W =	RFO - Mean vehicle weight (ton) (estimated) (2)	32.5	32.5	32.5
	Coal - Mean vehicle weight (ton) (estimated) (2)	9.0	9.0	9.0
S =	Plant speed limit (mph)	10.0	10.0	10.0
P =	Number of Wet Days, AP-42, Figure 13.2-1-2	120	120	120
N =	Number of Days in Averaging Period	365	365	365

Fugitive Dust from paved Roads - RFO Trucks

Pollutant	No. of Vehicles(2) (vehicles/hr)	No. of Vehicles(3) (vehicles/yr)	Miles(4) Traveled per Vehicle (miles/vehicle)	Total Emissions (lb/hr)	Total Emissions (lb/yr)	Total Emissions (ton/yr)
PM	0.3	2,246	0.09	0.03	266	0.133
PM10	0.3	2,246	0.09	0.01	53	0.027
PM2.5	0.3	2,246	0.09	0.001	13	0.007

Fugitive Dust from paved Roads - Coal Trucks

Pollutant	No. of Vehicles(2) (vehicles/hr)	No. of Vehicles(3) (vehicles/yr)	Miles(4) Traveled per Vehicle (miles/vehicle)	Total Emissions (lb/hr)	Total Emissions (lb/yr)	Total Emissions (ton/yr)	prev. controlled lb/hr
PM	1.4	9,598	0.15	0.08	513	0.256	0.059470464
PM10	1.4	9,598	0.15	0.02	103	0.051	0.011603993
PM2.5	1.4	9,598	0.15	0.004	25	0.013	0.00174

Fugitive Dust from paved Roads - RFO + Coal Trucks

Pollutant	No. of Vehicles(2) (vehicles/hr)	No. of Vehicles(3) (vehicles/yr)	Miles(4) Traveled per Vehicle (miles/vehicle)	Total Emissions (lb/hr)	Total Emissions (lb/yr)	Total Emissions (ton/yr)
PM	-	-	-	0.11	779	0.389
PM10	-	-	-	0.02	156	0.078
PM2.5	-	-	-	0.01	38	0.019

(1) The silt loading (sL) value is calculated based on the following methodology provided by MPCA (Dennis Becker) in a 9/20/07 e-mail to Barr Engineering Company (Paul Taylor):

sL = road surface silt loading with controls (g/m^2) = silt loading without controls (g/m^2) x (1-silt loading control efficiency (%)) = 7.78

silt loading without controls (g/m^2) = a x b x c^('-0.5*LOG10(vehicles per day/100)) = 10.37

where: a (g/m^2) =	10	
b (-) =	1	
c (-) =	1.2	
vehicles per day =	40.15	
silt loading control efficiency (%) =	24.98	
Max. silt loading control efficiency (%) =	30	for broom sweeping
Min. silt loading control efficiency (%) =	19.96	
Road cleaning frequency (once every n days) =	1	
Avg. number of road cleanings/day =	1.0	
Zero-intercept (number of Vehicle Passes between road cleanings) =	120	for broom sweeping
vehicles per day subject to control efficiency =	40	
vehicles per day NOT subject to control efficiency =	0	

(2) The estimated mean vehicle weight is based on the average truck weight (filled and empty weights).

	Coal Trucks	Employee Vehicles	VMT-weighted Fleet Avg Weight (tons)
Weight (tons)	30	2	9.04

Empty RFO Truck Weight: 35,000 lbs.

Truck RFO Capacity: 6,000 gallons OR 60,060 lbs.

(3) The estimated average number of vehicles per hour and year is based on the following:

	Coal Trucks	Employee Vehicles	Total		
Max. number of trips per day (trips/day)	17	17	34		
Potential per yr = potential tons coal / 28 ton capacity/truck + employee trips/day =			14,548	9,598	w/ 95,000 ton/yr boiler group limit

No. of vehicles per year = potential gallons RFO / 6,000 gallon capacity/truck = 2,246 vehicles/yr

No. of vehicles per hr = 2052 gallons/hr for two boilers / 6,000 gallon capacity/truck = 0.26 vehicles/hr

Total Coal + RFO 40.15 (trips/day)

(4) The number of miles traveled per existing vehicle and plant truck is the round trip distance for the complete paved onsite truck loading route.

	Coal Trucks	Employee Vehicles	Total
Road Length Traveled by Coal Truck (feet/trip)	200	600	800
Max. Distance Traveled Per Day (feet/day)	3,429	10,200	13,629
Max. Distance Traveled Per Hour (VMT/hr)	0.027	0.080	0.108

RFO Truck Round Trip Distance (feet/trip): 500

Duluth Steam Plant No. 1
Paved On-Site Roads
RFO Tank Emissions (Insignificant Activity per Minn. R. 7007.1300, subp. 3(I))

Tank Name	Tank ID	Pollutant	Potential Emission Rate (lb/hr)	Potential Emissions (tpy)
Renewable Fuel Oil Tank (40,000 gal)	IA	VOC/HAP	2.03E-02	8.88E-02

Tank calculations are based on output from the TANKS 4.0.9d software using diesel as a surrogate tank material.

EQUI 6 & 7 (EU002 and 003, Boiler #2 and #3) **Duluth Steam Plant No. 1**

These calculations represent the emissions from each boiler individually.

Boilers 2 and 3 can burn natural gas

SV001

	115 mmBtu/hour each	1,007,400	mmBtu/yr each boiler maximum physical heat input	
Fuels:	Fuel Oil Potential	8.9	mmBtu/hr (nozzle physical limit)	
Heating Value:	Natural Gas	1026	mmBtu/mmcf[3]	
Source: 40 CFR Part 98, Table C-1	Fuel Oil	138	mmBtu/mgal[3]	
	Subbituminous C	17.25	mmBtu/short ton[3]	
	Wood	17.48	mmBtu/short ton[3]	
Fuel Consumption:	Natural Gas	0.112	mmcf/hour ((mmBtu/hr)/(mmBtu/mmcf))	
	Dist. Fuel Oil	0.064	mgal/hr (mmBtu/hr/(mmBtu/gal)	
	Subbituminous C	6.667	tons/hour (mmBtu/hr)/(mmBtu/ton)	
	Potential Subbitumino	58,400	tons/yr (tons per hour x 8760 hrs per year)	
	Limited Subbituminou	95,000	tons/yr (group permit limit) - not restrictive on an individual boiler basis	
	Wood	5.263	tons/hour (mmBtu/hr)/(mmBtu/ton)	92 MMBtu/hr when combusting wood
	Wood	46,105	tons/yr physical potential	
	Limited Wood:	44,813	tons wood per year = tons per year potential x 100 tons CO / 302 tons CO potential	No limit for 100 tons CO/yr, think typo in comment, calc is right
	Lim. Wood/Max ht inp	0.24	= ratio of limited wood to potential total facility max heat input	
Sulfur and Ash Limits	Fuel Oil	0.0015	%sulfur in oil (distillate permit limit)	
	Subbituminous C	0.60	% Sulfur in Coal (subbituminous permit limit)	
	Subbituminous C	8.5	% Ash in Coal (subbituminous permit limit)	
Control Equipment	99%	PM control (baghouse)[1]		
	98%	PM10/PM2.5 control (baghouse)[1]		

	PM	PM_{10}	$PM_{2.5}$	SO_2	NO_X	CO	VOC	Lead	CH_4	N_2O	CO_2	CO_2e[4,3]	
Emission Factors - Natural Gas													
Source: AP42 1.4 Gas	7.60	7.60	7.60	0.60	280.00	84.00	5.50	5.00E-04 lb/mmcf	1.00E-03	1.00E-04	53.06	53.11	kg/mmBtu[3]
Emission Factors- No. 2 Distillate Oil[7]													
Source- AP42 1.3-1, 1.3-6	3.30	2.30	1.55	0.21	24.00	5.00	0.20	1.51E-03 lb/mgal	3.00E-03	6.00E-04	73.96	74.21	kg/mmBtu[3]
Emission Factors- Subbituminous Coal[7]													
Source: AP42 Coal 1.1-4	85.52	20.07	5.62	21.00	12.00	0.50	0.06	5.07E-04 lb/ton	1.10E-02	1.60E-03	97.17	97.92	kg/mmBtu[3]
Emission Factors- Wood													
Source: AP42 1.6 No control, Mixed wet and dry wood	0.56	0.50	0.43	0.03	0.22	0.60	0.02	4.80E-05 lb/MMBtu	7.20E-03	3.60E-03	93.80	95.05	kg/mmBtu[3]

***Example calculations given below**

Potential Emissions - Natural Gas

PM	PM_{10}	$PM_{2.5}$	SO_2	NO_X	CO	VOC	Lead		CH_4	N_2O	CO_2	CO_2e[4]	
0.85	0.85	0.85	0.07	31.38	9.42	0.62	0.0001	lb/hour	0.25	0.03	13,424.18	13,438.04	lb/hour
3.73	3.73	3.73	0.29	137.46	41.24	2.70	0.0002	uncontrolled tpy	1.11	0.11	58,797.91	58,858.63	uncontrolled tpy
3.73	3.73	3.73	0.29	137.46	41.24	2.70	0.0002	tpy	1.11	0.11	58,797.91	58,858.63	tpy

Potential Emissions - Distillate Oil

PM	PM_{10}	$PM_{2.5}$	SO_2	NO_X	CO	VOC	Lead		CH_4	N_2O	CO_2	CO_2e[4]	
0.00	0.00	0.00	0.01	1.55	0.32	0.01	0.0001	lb/hour	0.76	0.15	18,711.88	18,776.09	lb/hour
0.93	0.65	0.44	0.06	6.78	1.41	0.06	0.0004	uncontrolled tpy	3.32	0.66	81,958.03	82,239.28	uncontrolled tpy
0.01	0.01	0.01	0.06	6.78	1.41	0.06	0.0004	tpy	3.32	0.66	81,958.03	82,239.28	tpy

Potential Emissions - Subbituminous Coal Subbituminous, wall fired, dry bottom, PC, Pre NSPS

PM	[8]PM_{10}	$PM_{2.5}$	SO_2[6]	NO_X	CO	VOC	Lead		CH_4	N_2O	CO_2	CO_2e[4]	
5.70	2.68	0.75	140.00	80.00	3.33	0.40	0.0034	lb/hour	2.78	0.40	24,584.01	24,774.22	lb/hour
2497.11	585.97	164.03	613.20	350.40	14.60	1.75	0.0148	uncontrolled tpy	12.19	1.77	107,677.96	108,511.06	uncontrolled tpy
24.97	11.72	3.28	613.20	350.40	14.60	1.75	0.0148	tpy	12.19	1.77	107,677.96	108,511.06	tpy

Potential Emissions- Wood

PM	PM_{10}	$PM_{2.5}$	SO_2	NO_X	CO	VOC	Lead		CH_4	N_2O	CO_2	CO_2e[4]	
0.52	0.92	0.79	2.30	20.24	55.20	1.56	0.0044	lb/hr	1.46	0.73	18,985.12	19,238.69	lb/hour
225.66	201.48	173.27	10.07	88.65	241.78	6.85	0.0193	uncontrolled tpy	6.38	3.19	83,154.83	84,265.45	uncontrolled tpy
2.26	4.03	3.47	10.07	88.65	241.78	6.85	0.0193	tpy	6.38	3.19	83,154.83	84,265.45	tpy
2.26	4.03	3.47	10.07	88.65	**235.00**	6.85	0.02	tpy	6.38	3.19	83154.83	81,903.83	
4.66	2.32	0.76	112.46	68.05	13.71	0.63	0.00		2.52	0.47	23464.23	23667.11	lb/hour
		Note:	337.38	= 112 x 3, which is < 425 allowed				lb/hr all boilers					
			42.60	g/s				g/s all boilers					

Limit scaled emissions:[5]

xpected Emission Based on 20% Wood burning

Worst Case Potential Emissions allowable by permit[2]

PM	[8]PM_{10}	$PM_{2.5}$	[8]SO_2	NO_X	CO	VOC	Lead		CH_4	N_2O	CO_2	CO_2e	
5.70	2.68	0.85	140.00	80.00	55.20	1.56	0.00		2.78	0.73	24,584	24,774	lb/hr
24.97	11.72	3.73	613.20	350.40	235.00	6.85	0.02	tpy	12.19	3.19	107,678	108,511	ton/yr

Notes

1 Source: Title I Condition
2 Highest of natural gas, coal, wood or oil emissions. The function to use is =max(oil emissions, wood, s. coal, b. coal, gas emissions). Click on cell to view.
3 GHG Factors and heating values are derived from 40 CFR Part 98, GHG Mandatory Reporting Rule, Tables A-1, C-1 and C-2.
4 CO2e emissions are calculated by: 298 x N2O + 25 x CH4 + CO2 = CO2e
5 These calculations assume that wood could be burned ccontinuously, as long as CO emissions remain below 235 tons per year. Worst case used for all pollutants except CO.
6 SO2 emissions = 35 x percent sulfur limit (lb per ton) x ton per hour = lb per hour SO2
7 Permit sulfur and ash limits for oil and coal taken into account in calculations
8 Permit limits for PM10 are 7.7 lb/hour and 19.9 tons per year. Sulfur Dioxide limited to 680 lb/hr and 1039 tpy, Nox limited to 594 tpy.

***Example Calculations:**

Gas Sample: lb PM per mmcf x mmcf per hour = lb PM/hour
Conversions to Annual tpy Sample: lb per hour x 8760 hours per year /2000 lb per ton = tpy
Oil Sample: lb PM per mgal x (1- 99%) x mgal per hour = lb PM/hour
Sample: lb per hour x 8760 hours per year /2000 lb per ton = tpy
Coal Sample: lb PM per ton x (1- 99% control) x ton per hour = lb PM/hour
*Sample for GHG Emissions: kg CO2 per mmBtu x 115 mmBtu per hr * 2.2lb per kg = lb/hour*

Calculation of Boiler No. 2 and 3 HAP Emissions

These are worst case potential per boiler

For limited emissions see the bituminous, subituminous, oil, gas, and wood

Boiler Heat Input:	115	mmBtu/hr	See boiler's criteria pollutants sheets
Natural Gas Througput	0.11	mmcf/hr	See boiler's criteria pollutants sheets
Oil Throughput	0.06	mgal/hr	See boiler's criteria pollutants sheets
Sub. Coal Throughput	6.67	tons/hr	See boiler's criteria pollutants sheets
Bit. Coal Throughput	0.00	tons/yr	See boiler's criteria pollutants sheets
Sub. Coal Potential Throughput[8]	58,400	tons/yr	= tons per hour x 8760 hours per year
Bit. Coal Potential Trhoughput[8]	0	tons/yr	= tons per hour x 8760 hours per year
Wood Throughput	5.26	tons/hr	(see Boiler 1 sheet)
Wood Potential Throughput[8]	46,105	tons/yr	= tons per hour x 8760 hours per year
Metals Control Efficiency	79%		

Worst Case Potential

	(lb/hr)	(tpy)	limited max
Max HAP (HCl)	8.0	35.0	3.50E+01
	Single(tpy)	Total(tpy)	
Potential HAP	9.5	24.0	*based on permit limits*

Mercury Calculations[7]

New Mercury PTE		
1.96E-03 tons	3.91	lbs
Change in Mercury PTE		
-4.69E-04 tons	-0.94	lbs
Old Mercury PTE		
2.42E-03 tons	4.85	lbs

Emissions

Emission Factors[1,2]		Gas	Gas		Oil	Oil		Coal	Coal (SBit is worst case)		Wood	Wood		Wood[7]	**Maximum Unlimited**		**Maximum Limited**	
	POM or HAP	(lb/mmcf)	(lb/hr)	tpy	(lb/mgal)	(lb/hr)	tpy	(lb/ton)[3]	(lb/hr)	tpy	(lb/ton)	(lb/hr)	tpy	tpy limited	(lb/hr)	tpy	(lb/hr)	tpy
2-Methylnaphthalene	POM	2.40E-05	2.69E-06	1.18E-05											2.69E-06	1.18E-05	2.69E-06	1.18E-05
3-Methylchloranthrene	POM	<1.8E-6													0.00E+00	0.00E+00	0.00E+00	0.00E+00
5-Methyl chrysene								2.20E-08	1.47E-07	6.42E-07					1.47E-07	6.42E-07	1.47E-07	6.42E-07
Acenapthene	POM	<1.8E-6			2.11E-05	1.36E-06	5.96E-06	5.10E-07	3.40E-06	1.49E-05	9.10E-07	4.79E-06	2.10E-05	2.04E-05	4.79E-06	2.10E-05	4.79E-06	2.04E-05
Acenaphthylene	POM	<1.8E-6			2.53E-07	1.63E-08	7.15E-08	2.50E-07	1.67E-06	7.30E-06	5.00E-06	2.63E-05	1.15E-04	1.12E-04	2.63E-05	1.15E-04	2.63E-05	1.12E-04
Acetaldehyde	*							5.70E-04	3.80E-03	1.66E-02	8.30E-04	4.37E-03	1.91E-02	1.86E-02	4.37E-03	1.91E-02	4.37E-03	1.86E-02
Acetone											1.90E-04	1.00E-03	4.38E-03	4.26E-03	1.00E-03	4.38E-03	1.00E-03	4.26E-03
Acetophenone	*							1.50E-05	1.00E-04	4.38E-04	3.20E-09	1.68E-08	7.38E-08	7.17E-08	1.00E-04	4.38E-04	1.00E-04	4.38E-04
Acrolein	*							2.90E-04	1.93E-03	8.47E-03	4.00E-03	2.11E-02	9.22E-02	8.96E-02	2.11E-02	9.22E-02	2.11E-02	8.96E-02
Arsenic[8]	*	2.00E-04	2.24E-05	9.82E-05	4.00E+00	4.60E-04	2.01E-03	4.10E-04	2.73E-03	1.20E-02	2.20E-05	1.16E-04	5.07E-04	4.93E-04	2.73E-03	1.20E-02	5.74E-04	2.51E-03
Anthracene	POM	<2.4E-6			1.22E-06	7.87E-08	3.45E-07	2.10E-07	1.40E-06	6.13E-06	3.00E-06	1.58E-05	6.92E-05	6.72E-05	1.58E-05	6.92E-05	1.58E-05	6.72E-05
Antimony	*							1.80E-05	1.20E-04	5.26E-04	7.90E-06	4.16E-05	1.82E-04	1.77E-04	1.20E-04	5.26E-04	2.52E-05	1.10E-04
Benz(a)anthracene	POM	<1.8E-6			4.01E-06	2.59E-07	1.13E-06	8.00E-08	5.33E-07	2.34E-06	6.50E-08	3.42E-07	1.50E-06	1.46E-06	5.33E-07	2.34E-06	5.33E-07	2.34E-06
Benzaldehyde											<8.5E-07				0.00E+00	0.00E+00	0.00E+00	0.00E+00
Benzene	*	2.13E-03	2.39E-04	1.05E-03	2.14E-04	1.38E-05	6.05E-05	1.30E-03	8.67E-03	3.80E-02	4.20E-03	2.21E-02	9.68E-02	9.41E-02	2.21E-02	9.68E-02	2.21E-02	9.41E-02
Benzo(a)pyrene	POM	<1.2E-6						3.80E-08	2.53E-07	1.11E-06	2.60E-06	1.37E-05	5.99E-05	5.83E-05	1.37E-05	5.99E-05	1.37E-05	5.83E-05
Benzo(b)fluoranthene	POM	<1.8E-6			1.48E-06	9.54E-08	4.18E-07	1.10E-07	7.33E-07	3.21E-06	1.00E-07	5.26E-07	2.31E-06	2.24E-06	7.33E-07	3.21E-06	7.33E-07	3.21E-06
Benzoic acid											4.70E-08	2.47E-07	1.08E-06	1.05E-06	2.47E-07	1.08E-06	2.47E-07	1.05E-06
Benzo(b,k)fluoranthene	POM	<1.8E-6			1.48E-06	9.54E-08	4.18E-07	1.10E-07	7.33E-07	3.21E-06	1.60E-07	8.42E-07	3.69E-06	3.59E-06	8.42E-07	3.69E-06	8.42E-07	3.59E-06
Benzo(g,h,i)perylene	POM	<1.2E-6			2.26E-06	1.46E-07	6.38E-07	2.70E-08	1.80E-07	7.88E-07	9.30E-08	4.89E-07	2.14E-06	2.08E-06	4.89E-07	2.14E-06	4.89E-07	2.08E-06
Benzyl chloride	*							7.00E-04	4.67E-03	2.04E-02					4.67E-03	2.04E-02	4.67E-03	2.04E-02
Beryllium[8]	*	<1.2E-5			3.00E+00	3.45E-04	1.51E-03	2.10E-05	1.40E-04	6.13E-04	1.10E-06	5.79E-06	2.54E-05	2.46E-05	3.45E-04	1.51E-03	7.25E-05	3.17E-04
Biphenyl	*							1.70E-06	1.13E-05	4.96E-05					1.13E-05	4.96E-05	1.13E-05	4.96E-05
Bis(2-ethylhexyl)phthalate (DEHP)	*							7.30E-05	4.87E-04	2.13E-03	4.70E-08	2.47E-07	1.08E-06	1.05E-06	4.87E-04	2.13E-03	4.87E-04	2.13E-03
Bromoform	*							3.90E-05	2.60E-04	1.14E-03					2.60E-04	1.14E-03	2.60E-04	1.14E-03
Bromomethane											1.50E-05	7.89E-05	3.46E-04	3.36E-04	7.89E-05	3.46E-04	7.89E-05	3.36E-04
2-Butanone (MEK)											5.40E-06	2.84E-05	1.24E-04	1.21E-04	2.84E-05	1.24E-04	2.84E-05	1.21E-04
Cadmium[8]	*	1.10E-03	1.23E-04	5.40E-04	3.00E+00	3.45E-04	1.51E-03	5.10E-05	3.40E-04	1.49E-03	4.10E-06	2.16E-05	9.45E-05	9.19E-05	3.45E-04	1.51E-03	7.25E-05	3.17E-04
Carbon disulfide	*							1.30E-04	8.67E-04	3.80E-03					8.67E-04	3.80E-03	8.67E-04	3.80E-03
Carbon tetrachloride	*										4.50E-05	2.37E-04	1.04E-03	1.01E-03	2.37E-04	1.04E-03	2.37E-04	1.01E-03
Chlorine	*										7.90E-04	4.16E-03	1.82E-02	1.77E-02	4.16E-03	1.82E-02	4.16E-03	1.77E-02
2-Chloroacetophenone	*							7.00E-06	4.67E-05	2.04E-04					4.67E-05	2.04E-04	4.67E-05	2.04E-04
Chlorobenzene	*							2.20E-05	1.47E-04	6.42E-04	3.30E-05	1.74E-04	7.61E-04	7.39E-04	1.74E-04	7.61E-04	1.74E-04	7.39E-04
Chloroform	*							5.90E-05	3.93E-04	1.72E-03	2.80E-05	1.47E-04	6.45E-04	6.27E-04	3.93E-04	1.72E-03	3.93E-04	1.72E-03
Chloromethane											2.30E-05	1.21E-04	5.30E-04	5.15E-04	1.21E-04	5.30E-04	1.21E-04	5.15E-04
2-Chloronaphthalene											2.40E-09	1.26E-08	5.53E-08	5.38E-08	1.26E-08	5.53E-08	1.26E-08	5.38E-08
2-Chlorophenol											2.40E-08	1.26E-07	5.53E-07	5.38E-07	1.26E-07	5.53E-07	1.26E-07	5.38E-07
Chromium[8]	*	1.40E-03	1.57E-04	6.87E-04	3.00E+00	3.45E-04	1.51E-03	2.60E-04	1.73E-03	7.59E-03	2.10E-05	1.11E-04	4.84E-04	4.71E-04	1.73E-03	7.59E-03	3.64E-04	1.59E-03
Chromium VI								7.90E-05	5.27E-04	2.31E-03	3.50E-06	1.84E-05	8.07E-05	7.84E-05	5.27E-04	2.31E-03	1.11E-04	4.84E-04
Chrysene	POM	<1.8E-6			2.38E-06	1.53E-07	6.72E-07	1.00E-07	6.67E-07	2.92E-06	3.80E-08	2.00E-07	8.76E-07	8.51E-07	6.67E-07	2.92E-06	6.67E-07	2.92E-06
Cobalt	*	8.40E-05	9.42E-06	4.12E-05				1.00E-04	6.67E-04	2.92E-03	6.50E-06	3.42E-05	1.50E-04	1.46E-04	6.67E-04	2.92E-03	1.40E-04	6.13E-04
Copper[8]		8.50E-04	9.53E-05	4.17E-04	6.00E+00	6.90E-04	3.02E-03				4.90E-05	2.58E-04	1.13E-03	1.10E-03	6.90E-04	3.02E-03	1.45E-04	6.35E-04
Crotonaldehyde											9.90E-06	5.21E-05	2.28E-04	2.22E-04	5.21E-05	2.28E-04	5.21E-05	2.22E-04
Cumene	*							5.30E-06	3.53E-05	1.55E-04					3.53E-05	1.55E-04	3.53E-05	1.55E-04
Cyanide	*							2.50E-03	1.67E-02	7.30E-02					1.67E-02	7.30E-02	1.67E-02	7.30E-02
Decachlorobiphenyl											2.70E-10	1.42E-09	6.22E-09	6.05E-09	1.42E-09	6.22E-09	1.42E-09	6.05E-09
Dibenzo(a,h)anthracene	POM	<1.2E-6			1.67E-06	1.08E-07	4.72E-07				9.10E-09	4.79E-08	2.10E-07	2.04E-07	1.08E-07	4.72E-07	1.08E-07	4.72E-07
1,2 Dibromoethene											5.50E-05	2.89E-04	1.27E-03	1.23E-03	2.89E-04	1.27E-03	2.89E-04	1.23E-03

Dichlorobenzene	*	1.20E-03	1.35E-04	5.89E-04				2.20E-05	1.47E-04	6.42E-04					1.47E-04	6.42E-04	1.47E-04	6.42E-04
Dichlorobiphenyl											7.40E-10	3.89E-09	1.71E-08	1.66E-08	3.89E-09	1.71E-08	3.89E-09	1.66E-08
1,2 Dichloroethane															0.00E+00	0.00E+00	0.00E+00	0.00E+00
Dichloromethane											2.90E-04	1.53E-03	6.69E-03	6.50E-03	1.53E-03	6.69E-03	1.53E-03	6.50E-03
1,2 Dichloropropane											3.30E-05	1.74E-04	7.61E-04	7.39E-04	1.74E-04	7.61E-04	1.74E-04	7.39E-04
Dimethylbenz(s)anthracene 7,12		<1.6E-5													0.00E+00	0.00E+00	0.00E+00	0.00E+00
Dimethyl sulfate	*							4.80E-05	3.20E-04	1.40E-03					3.20E-04	1.40E-03	3.20E-04	1.40E-03
2,4 Dinitrophenol	*										1.80E-07	9.47E-07	4.15E-06	4.03E-06	9.47E-07	4.15E-06	9.47E-07	4.03E-06
2, 4-Dinitrotoluene	*							2.80E-07	1.87E-06	8.18E-06					1.87E-06	8.18E-06	1.87E-06	8.18E-06
Ethylbenzene	*				6.36E-05	4.10E-06	1.80E-05	9.40E-05	6.27E-04	2.74E-03	3.10E-05	1.63E-04	7.15E-04	6.95E-04	6.27E-04	2.74E-03	6.27E-04	2.74E-03
Ethyl chloride	*							4.20E-05	2.80E-04	1.23E-03					2.80E-04	1.23E-03	2.80E-04	1.23E-03
Ethylene dichloride	*							4.00E-05	2.67E-04	1.17E-03					2.67E-04	1.17E-03	2.67E-04	1.17E-03
Ethylene dibromide	*							1.20E-06	8.00E-06	3.50E-05					8.00E-06	3.50E-05	8.00E-06	3.50E-05
Fluoranthene	POM	3.00E-06	3.36E-07	1.47E-06	4.84E-06	3.12E-07	1.37E-06	7.10E-07	4.73E-06	2.07E-05	1.60E-06	8.42E-06	3.69E-05	3.59E-05	8.42E-06	3.69E-05	8.42E-06	3.59E-05
Fluorene	POM	2.80E-06	3.14E-07	1.37E-06	4.47E-06	2.88E-07	1.26E-06	9.10E-07	6.07E-06	2.66E-05	3.40E-06	1.79E-05	7.84E-05	7.62E-05	1.79E-05	7.84E-05	1.79E-05	7.62E-05
Formaldehyde	*	7.50E-02	8.41E-03	3.68E-02	3.30E-02	2.13E-03	9.32E-03	2.40E-04	1.60E-03	7.01E-03	4.40E-03	2.32E-02	1.01E-01	9.86E-02	2.32E-02	1.01E-01	2.32E-02	9.86E-02
Heptachlorodibenzo-p-dioxins											2.00E-09	1.05E-08	4.61E-08	4.48E-08	1.05E-08	4.61E-08	1.05E-08	4.48E-08
Heptachlorodibenzo-p-furans											2.40E-10	1.26E-09	5.53E-09	5.38E-09	1.26E-09	5.53E-09	1.26E-09	5.38E-09
Heptachlorobiphenol											6.60E-11	3.47E-10	1.52E-09	1.48E-09	3.47E-10	1.52E-09	3.47E-10	1.48E-09
Hexachlorobiphenol											5.50E-10	2.89E-09	1.27E-08	1.23E-08	2.89E-09	1.27E-08	2.89E-09	1.23E-08
Hexachlorodibenzo-p-dioxins											2.00E-09	1.05E-08	4.61E-08	4.48E-08	1.05E-08	4.61E-08	1.05E-08	4.48E-08
Hexachlorodibenzo-p-furans											2.40E-10	1.26E-09	5.53E-09	5.38E-09	1.26E-09	5.53E-09	1.26E-09	5.38E-09
Hexane	POM	1.80E+00	2.02E-01	8.84E-01				6.70E-05	4.47E-04	1.96E-03					2.02E-01	8.84E-01	2.02E-01	8.84E-01
Hexanal											7.00E-06	3.68E-05	1.61E-04	1.57E-04	3.68E-05	1.61E-04	3.68E-05	1.57E-04
Hydrogen Chloride	*							1.20	8.00E+00	3.50E+01	1.90E-02	1.00E-01	4.38E-01	4.26E-01	8.00E+00	3.50E+01	8.00E+00	3.50E+01
Hyodrgen Fluoride								0.15	1.00E+00	4.38E+00					1.00E+00	4.38E+00	1.00E+00	4.38E+00
Indeno(1,2,3-cd)pyrene	POM	<1.8E-6			2.14E-06	1.38E-07	6.05E-07	6.10E-08	4.07E-07	1.78E-06	8.70E-08	4.58E-07	2.01E-06	1.95E-06	4.58E-07	2.01E-06	4.58E-07	1.95E-06
Isobutyraldehyde											1.20E-05	6.32E-05	2.77E-04	2.69E-04	6.32E-05	2.77E-04	6.32E-05	2.69E-04
Isophorone	*							5.80E-04	3.87E-03	1.69E-02					3.87E-03	1.69E-02	3.87E-03	1.69E-02
Lead[8]	*				9.00E+00	1.04E-03	4.53E-03	4.20E-04	2.80E-03	1.23E-02	4.80E-05	2.53E-04	1.11E-03	1.08E-03	2.80E-03	1.23E-02	5.88E-04	2.58E-03
Magnesium								1.10E-02	7.33E-02	3.21E-01					7.33E-02	3.21E-01	1.54E-02	6.75E-02
Manganese[8]	*	3.80E-04	4.26E-05	1.87E-04	6.00E+00	6.90E-04	3.02E-03	4.90E-04	3.27E-03	1.43E-02	1.60E-03	8.42E-03	3.69E-02	3.59E-02	8.42E-03	3.69E-02	1.77E-03	7.53E-03
Mercury[8]	*	2.60E-04	2.91E-05	1.28E-04	3.00E+00	3.45E-04	1.51E-03	8.30E-05	5.53E-04	2.42E-03	3.50E-06	1.84E-05	8.07E-05	7.84E-05	5.53E-04	2.42E-03	1.16E-04	5.09E-04
Methyl bromide	*							1.60E-04	1.07E-03	4.67E-03					1.07E-03	4.67E-03	1.07E-03	4.67E-03
Methyl chloride	*							5.30E-04	3.53E-03	1.55E-02					3.53E-03	1.55E-02	3.53E-03	1.55E-02
Methyl ethyl ketone								3.90E-04	2.60E-03	1.14E-02					2.60E-03	1.14E-02	2.60E-03	1.14E-02
Methyl hydrazine	*							1.70E-04	1.13E-03	4.96E-03					1.13E-03	4.96E-03	1.13E-03	4.96E-03
Methyl methacrylate	*							2.00E-05	1.33E-04	5.84E-04					1.33E-04	5.84E-04	1.33E-04	5.84E-04
2 Methylnaphthalene											1.60E-07	8.42E-07	3.69E-06	3.59E-06	8.42E-07	3.69E-06	8.42E-07	3.59E-06
Methyl tert butyl ether	*							3.50E-05	2.33E-04	1.02E-03					2.33E-04	1.02E-03	2.33E-04	1.02E-03
Methylene chloride	*							2.90E-04	1.93E-03	8.47E-03					1.93E-03	8.47E-03	1.93E-03	8.47E-03
Molybdenum											2.10E-06	1.11E-05	4.84E-05	4.71E-05	1.11E-05	4.84E-05	1.11E-05	4.71E-05
Monochlorobiphenyl											2.20E-10	1.16E-09	5.07E-09	4.93E-09	1.16E-09	5.07E-09	1.16E-09	4.93E-09
Naphthalene	*	6.10E-04	6.84E-05	2.99E-04	1.13E-03	7.29E-05	3.19E-04	1.30E-05	8.67E-05	3.80E-04	9.70E-05	5.11E-04	2.24E-03	2.17E-03	5.11E-04	2.24E-03	5.11E-04	2.17E-03
2 Nitrophenol											2.40E-07	1.26E-06	5.53E-06	5.38E-06	1.26E-06	5.53E-06	1.26E-06	5.38E-06
4 Nitrophenol	*										1.10E-07	5.79E-07	2.54E-06	2.46E-06	5.79E-07	2.54E-06	5.79E-07	2.46E-06
Nickel[8]	*	2.10E-03	2.35E-04	1.03E-03	3.00E+00	3.45E-04	1.51E-03	2.80E-04	1.87E-03	8.18E-03	3.30E-05	1.74E-04	7.61E-04	7.39E-04	1.87E-03	8.18E-03	3.92E-04	1.72E-03
OCDD					3.10E-09	2.00E-10	8.76E-10								2.00E-10	8.76E-10	2.00E-10	8.76E-10
Octachlorodibenzo-p-dioxins											6.60E-08	3.47E-07	1.52E-06	1.48E-06	3.47E-07	1.52E-06	3.47E-07	1.48E-06
Octachlorodibenzo-p-furans											8.80E-11	4.63E-10	2.03E-09	1.97E-09	4.63E-10	2.03E-09	4.63E-10	1.97E-09
Pentachlorodibenzo-p-dioxins											1.50E-09	7.89E-09	3.46E-08	3.36E-08	7.89E-09	3.46E-08	7.89E-09	3.36E-08
Pentachlorodibenzo-p-furans											4.20E-10	2.21E-09	9.68E-09	9.41E-09	2.21E-09	9.68E-09	2.21E-09	9.41E-09
Pentachlorophenol	*										5.10E-08	2.68E-07	1.18E-06	1.14E-06	2.68E-07	1.18E-06	2.68E-07	1.14E-06
Perylene											5.20E-10	2.74E-09	1.20E-08	1.17E-08	2.74E-09	1.20E-08	2.74E-09	1.17E-08

Phenanathrene	POM	1.70E-05	1.91E-06	8.35E-06	1.05E-05	6.77E-07	2.97E-06	2.70E-06	1.80E-05	7.88E-05	7.00E-06	3.68E-05	1.61E-04	1.57E-04	3.68E-05	1.61E-04	3.68E-05	1.57E-04
Phenol	*							1.60E-05	1.07E-04	4.67E-04	5.10E-05	2.68E-04	1.18E-03	1.14E-03	2.68E-04	1.18E-03	2.68E-04	1.14E-03
Phosphorus	*														0.00E+00	0.00E+00	0.00E+00	0.00E+00
POM		1.80E+00	2.02E-01	8.84E-01	3.30E-03	2.13E-04	9.32E-04	2.08E-06	1.39E-05	6.07E-05					2.02E-01	8.84E-01	2.02E-01	8.84E-01
Propanal											3.20E-06	1.68E-05	7.38E-05	7.17E-05	1.68E-05	7.38E-05	1.68E-05	7.17E-05
Propionaldehyde	*							3.80E-04	2.53E-03	1.11E-02	6.10E-05	3.21E-04	1.41E-03	1.37E-03	2.53E-03	1.11E-02	2.53E-03	1.11E-02
Pyrene	POM	5.00E-06	5.60E-07	2.45E-06	4.25E-06	2.74E-07	1.20E-06	3.30E-07	2.20E-06	9.64E-06	3.70E-06	1.95E-05	8.53E-05	8.29E-05	1.95E-05	8.53E-05	1.95E-05	8.29E-05
Selenium[8]	*	<2.4E-5			1.50E+01	1.73E-03	7.56E-03	1.30E-03	8.67E-03	3.80E-02	2.80E-06	1.47E-05	6.45E-05	6.27E-05	8.67E-03	3.80E-02	1.82E-03	7.97E-03
Silver											1.70E-03	8.95E-03	3.92E-02	3.81E-02	8.95E-03	3.92E-02	1.88E-03	8.00E-03
Styrene	*							2.50E-05	1.67E-04	7.30E-04	1.90E-03	1.00E-02	4.38E-02	4.26E-02	1.00E-02	4.38E-02	1.00E-02	4.26E-02
2,3,7,8 Tetrachlorodibenzo-p-dioxins	*										8.60E-12	4.53E-11	1.98E-10	1.93E-10	4.53E-11	1.98E-10	4.53E-11	1.93E-10
Tetrachlorodibenzo-p-dioxins											4.70E-10	2.47E-09	1.08E-08	1.05E-08	2.47E-09	1.08E-08	2.47E-09	1.05E-08
2,3,7,8 Tetrachlorodibenzo-p-furans											9.00E-11	4.74E-10	2.07E-09	2.02E-09	4.74E-10	2.07E-09	4.74E-10	2.02E-09
Tetrachlorodibenzo-p-furans											7.50E-10	3.95E-09	1.73E-08	1.68E-08	3.95E-09	1.73E-08	3.95E-09	1.68E-08
Tetrachlorobiphenyl											2.50E-09	1.32E-08	5.76E-08	5.60E-08	1.32E-08	5.76E-08	1.32E-08	5.60E-08
Tetrachloroethene											3.80E-05	2.00E-04	8.76E-04	8.51E-04	2.00E-04	8.76E-04	2.00E-04	8.51E-04
Tetrachloroethylene	*							4.30E-05	2.87E-04	1.26E-03					2.87E-04	1.26E-03	2.87E-04	1.26E-03
Trichloroethane, 1,1,1					2.36E-04	1.52E-05	6.67E-05	2.00E-05	1.33E-04	5.84E-04					1.33E-04	5.84E-04	1.33E-04	5.84E-04
Toluene	*	3.40E-03	3.81E-04	1.67E-03	6.20E-03	4.00E-04	1.75E-03	2.40E-04	1.60E-03	7.01E-03	9.20E-04	4.84E-03	2.12E-02	2.06E-02	4.84E-03	2.12E-02	4.84E-03	2.06E-02
o-Tolualdehyde											7.20E-06	3.79E-05	1.66E-04	1.61E-04	3.79E-05	1.66E-04	3.79E-05	1.61E-04
p-Tolualdehyde											1.10E-05	5.79E-05	2.54E-04	2.46E-04	5.79E-05	2.54E-04	5.79E-05	2.46E-04
Trichlorobiphenyl											2.60E-09	1.37E-08	5.99E-08	5.83E-08	1.37E-08	5.99E-08	1.37E-08	5.83E-08
1,1,1 Trichloroethane											3.10E-05	1.63E-04	7.15E-04	6.95E-04	1.63E-04	7.15E-04	1.63E-04	6.95E-04
Trichloroethene											3.00E-05	1.58E-04	6.92E-04	6.72E-04	1.58E-04	6.92E-04	1.58E-04	6.72E-04
Trichlorofluoromethane											4.10E-05	2.16E-04	9.45E-04	9.19E-04	2.16E-04	9.45E-04	2.16E-04	9.19E-04
2,4,6 Trichlorophenol	*										<2.2E-08				0.00E+00	0.00E+00	0.00E+00	0.00E+00
Vinyl acetate	*							7.60E-06	5.07E-05	2.22E-04					5.07E-05	2.22E-04	5.07E-05	2.22E-04
Vinyl Chloride	*										1.80E-05	9.47E-05	4.15E-04	4.03E-04	9.47E-05	4.15E-04	9.47E-05	4.03E-04
Xylenes	*							3.70E-05	2.47E-04	1.08E-03					2.47E-04	1.08E-03	2.47E-04	1.08E-03
Xylene, O	*				1.09E-04	7.03E-06	3.08E-05				2.50E-05	1.32E-04	5.76E-04	5.60E-04	1.32E-04	5.76E-04	1.32E-04	5.60E-04
Yttrium											3.00E-07	1.58E-06	6.92E-06	6.72E-06	1.58E-06	6.92E-06	3.32E-07	1.41E-06
Zinc[8]		2.90E-02	3.25E-03	1.42E-02	4.00E+00	4.60E-04	2.01E-03				4.20E-04	2.21E-03	9.68E-03	9.41E-03	3.25E-03	1.42E-02	6.83E-04	2.99E-03
		Total HAPs =	0.93			0.04		8.08	35.40			0.20	0.88		8.36	36.62	8.34	36.51
								minus HCl	0.36									
											Difference in HAP from co	-7.88	-34.52					

Notes

1 Emission Factors for gas from AP42 Section 1.4, Tables 1.4-3 and 1.4-4

2 Emission Factors for oil from AP42 Section 1.3, Tables 1.3-9, and 1.3-11. Residual oil emission factors for speciated organic compounds are conservatively used as AP-42 does not provide them for distillate.

3 Coal emission factors are from AP-42 Table 1.1-13, 1.1-14, 1.1-15, and 1.1-18.

4 Assume all chlorine is emitted as HCl

5 Assume 79% control of metals as per MPCA Technical Support Document for the current air emission permit.

6 PM air emissions are not dependent on ash content. As per AP42 1.3, they are dependent on sulfur content.

7 Fuel annual throughput limits not taken into account in calculations. Wood will be limited by CO emissions alone; not a permit limit on wood combustion.

New lb Hg =Hg from Coal x (1 - 20%) + Hg from wood x 20% = new mercury PTE if burning 20% wood

Change in lb Hg = Hg PTE from Sub. Coal - new mercury PTE if burning 20% wood

Existing lb Hg = Hg PTE from Sub. Coal

8 Trace element emission factors for oil are in units of lb/10^{12} Btu

Duluth Steam Cooperative Association

Table 1a: Derivation of Fugitive PM and PM10 Emission Factors

Emission Unit ID	Emission Unit Description	Pollutant	Input Parameters M [2] (%)	Input Parameters U [3] (mph)	Emission Factor [1]		Emissions lb/hr [4]	Emissions ton/yr [4]	lb/hr	ton/yr
EU 103 (IA)	Air discharge from ash silo 1 vent	PM	0.2	20.0	0.3606 lb/ton	[1]	0.30653	0.9707	0.0361	0.0043
		PM10	0.2	20.0	0.1706 lb/ton	[1]	0.14498	0.4591	0.0171	0.0020
		PM2.5	0.2	20.0	0.0258 lb/ton	[1]	0.02195	0.0695	0.0026	0.0003
EU 104 (IA)	Air discharge from ash silo 2 vent	PM	0.2	20.0	0.3606 lb/ton	[1]	0.30653	0.4853	0.0361	0.0043
		PM10	0.2	20.0	0.1706 lb/ton	[1]	0.14498	0.2296	0.0171	0.0020
		PM2.5	0.2	20.0	0.0258 lb/ton	[1]	0.02195	0.0348	0.0026	0.0003
FS 001 (IA)	Coal Truck Unloading	PM	4.5	11.0	0.0021 lb/ton	[1]	0.04241	0.1007	0.0369	0.16175216
		PM10	4.5	11.0	0.0010 lb/ton	[1]	0.02006	0.0476	0.0175	0.0765044
		PM2.5	4.5	11.0	0.0002 lb/ton	[1]	0.00304	0.0072	0.0026	0.01158495
FS 002 (IA)	Coal Transfer to Bunker	PM	4.5	11.0	0.0021 lb/ton	[1]	0.04241	0.1007	0.0369	0.16175216
		PM10	4.5	11.0	0.0010 lb/ton	[1]	0.02006	0.0476	0.0175	0.0765044
		PM2.5	4.5	11.0	0.0002 lb/ton	[1]	0.00304	0.0072	0.0026	0.01158495
FS 003 (IA)	Ash Truck Loading	PM	27.0	11.0	0.00017 lb/ton	[1]	0.00029	0.0007	0.0003	0.00144105
		PM10	27.0	11.0	0.00008 lb/ton	[1]	0.00014	0.0003	0.0002	0.00068158
		PM2.5	27.0	11.0	0.00001 lb/ton	[1]	0.00002	0.0000	0.0000	0.00010321

Notes:

[1] Emission factor for material handling, E (lb/ton) = k x 0.0032 x [(U/5)^1.3 / (M/2)^1.4]

where k is an empirical constant:

	k
PM:	0.74
PM_{10}:	0.35
$PM_{2.5}$:	0.053

Source: AP-42, November 2006, Page 13.2.4-4.

[2] M = moisture content (%).	4.5	% (coal)	Source: AP-42, November 2006, Table 13.2.4-1.
	0.2	% (ash)	Source: DSCA estimate (conservatively low)
	27.0	% (ash)	Source: MPCA Title V Modeling - Fugitive PM10 Emission Spreadsheet (Aug. 2001): Material Handling of "Fly ash - landfill waste"
[3] U = mean wind speed.	11.0	mph	Source: "Climate of Minnesota, Part XIV - Wind Climatology and Wind Power", University of Minnesota, 1983, for Duluth, MN
	20.0	mph	Source: DSCA estimate of wind speed from pneumatic conveying (conservatively high)

[4] Throughput rates are as follows:

Maximum subbit =	20	ton/hr	based on rated capacity, heat content, and 345 mmbtu/hr group limit
	95,000	ton/yr	based on rated capacity, heat content, and 95,000 ton/yr group limit
Maximum ash =	1.7	ton/hr	based on rated capacity, heat content, and ash content
	8075	ton/yr	based on rated capacity, heat content, and ash content

Ash and Sulfur contents of fuels used to calculate maximum and limited emissions are conservative estimates based on fuel specifications and analyses reported by DSCA.

Ash and Sulfur contents of fuels used to calculate actual emissions are based on analytical data reported by DSCA in their annual emission inventory.

	Maximum wt.% Ash	Actual % Ash
Subbituminous Coal	8.5	4.04
#2 Fuel Oil	0	0

Maximum ash silo assumptions:

Hourly silo throughput is equal to the maximum daily amount of ash generated multiplied by the split ratio as described below.
Annual silo hroughput is equal to the maximum annual amount of ash generated multiplied by the split ratio as described below.

Note: It is assumed that the fly ash generated is split between the two silos as the quantity of acceptable and unacceptable ash for use as a concrete additive will vary. Each silo is equipped with a filter tank (containing bags that control the emissions at 99%). However, no control efficiency is assumed in order to be conservative.

EQUI 2 Ash Handling System Calculations

Exhaust Flow Rate:	813	acfm 70F
Ash Flow Rate:	1.7	tons per hr
Annual Flow Rate:	8,075	tons per yr potential
Permit Limit:	8,415	tons per yr 12 month rolling
Control in Permit:	99.9	percent; implies compliance with rule
Table 1 Limit:	4.99	lb per hour
Limit from Table 2:	0.1	gr per dscf
	0.70	lb per hr minimim allowable limit
Overall Limit:	0.3	gr per dscf
	2.09	lb per hr maximum allowable limit

Based on the above calculations, the allowable emissions are 2.09 lb/hr maximum. This is the same as limiting based on 0.3 gr/dscf. The higher Table 1 lb/hour would exceed the 0.3 gr/dscf limit, and is not allowable.

Potential Emissions

PM

9.16 tons/yr, =2.09 lb per hour x 8760 hour per year / 2000 lb per ton

9.54 tons/yr, = 9.16 tons per year potential x 8415 tons throughput allowable / 245,280 tons potential

PM10

assume all of the material out of a 99.9 percent effective baghouse is less than 2.5 microns.

PM2.5

assume PM2.5 emissions equal to PM10 emission rate

EQUI 9, Emergency Generator **Duluth Steam Plant No. 1**

STRU 13

Cummins KTA-38 G4 Emergency Diesel Generator

8.95 mmBtu/hour Manufactured: Aug-99

Fuels: No. 2 Fuel Oil

1,350	rated hp
64.62	gal/hr
138,500	Btu/gal
500.00	hr/yr, (1995 EPA MD-10 memorandom on emergency generator hours)
0.0015	% S

Emission Factors - Fuel Oil

	PM	PM_{10}	$PM_{2.5}$	SO_2	NO_X	CO	VOC	Lead	CH_4	N_2O	CO_2	CO_2e	
Source: AP42 3.4 Diesel Fuel	0.0697	0.0573	0.0556	0.0015	3.20	0.85	0.08	0.00	6.60E-03	1.32E-03	73.96	74.52	lb/mmBtu (kg/mmBtu for GHG pollutants))

Source: 40 CFR Pt 98, Tables C-1 and C-2 for GHG factors

Potential Emissions - Diesel Fuel

Sample: 0.0697 lb PM/mmBtu x 11.61 mmBtu/hr = 3.54 lb/hour

PM	**[2]PM_{10}**	**$PM_{2.5}$**	**[1]SO_2**	**[3]NO_X**	**CO**	**VOC**	**Lead**	**CH_4**	**N_2O**	**CO_2**	**CO_2e**	
0.62	0.51	0.50	0.0136	28.64	7.61	0.73	0.00	0.06	0.01	1,456.27	1,461.27	lb/hour
0.16	0.13	0.12	0.00	7.16	1.90	0.18	0.00E+00	0.01	0.00	364.07	365.32	**limited tpy**

Worst Case Potential Emissions allowable by permit

PM	**[2]PM_{10}**	**$PM_{2.5}$**	**[1]SO_2**	**NO_X**	**CO**	**VOC**	**Lead**	**CH_4**	**N_2O**	**CO_2**	**CO_2e**	
0.16	0.13	0.12	0.0034	7.16	1.90	0.18	0.00	0.01	0.00	364.07	365.32	ton/yr

Notes

1 Sulfur dioxide permit limits are 1.6 lb/hr and 2.1 tons per year
2 PM10 permit limits are 0.21 lb/hr and 0.28 tpy
3 Nitrogen Oxides limited to 38 tpy

Calculation of Flue Gas Flow Rate

F Factor	10,320	wcfm/mmBtu	
Heat Input	8.95	mmBtu/hr	
Excess Air	100	%	diesel engines operate stoiciometric air fuel ratio of 14.6:1, and
Exhaust Temperature	835	F	with excess air (air:fuel ratio, =25-30:1; Lassiter & Milby, 1978).
Exhaust Temperature	719	K	802.8 F

Ttl Actual exhaust Flow	7,667	acfm	1/2 to each stack, SV002 and SV003	3833.698 acfm each stack
Actual exhaust Flow	1.81	m3/s	1/2 to each stack, SV002 and SV003	
Diameter =	0.67	feet	each stack	
Diameter =	0.204216	m	each stack	
Area = 3.14*D^2/4	0.032737777	m2	each stack	
Velocity =	55	m/s	=(m3/s)/Aonestack/2 = m/s	
			EACH STACK - SV002 and SV003	

Calculation of Generator HAP Emissions

Worst Case Potential	(lb/hr)	(tpy)
Potential HAP	0.0141	0.0035
Single HAP	6.95E-03	1.74E-03

Generator Heat Input: 8.95 mmBtu/hr (see Generator sheet)
Annual Limit on Hours 500.00 hr/yr

Emissions

Emission Factors[1]	Diesel lb/mmBtu	(lb/hr)	tpy[2]
Benzene	7.76E-04	6.95E-03	1.74E-03
Toluene	2.81E-04	2.51E-03	6.29E-04
Xylenes	1.93E-04	1.73E-03	4.32E-04
Formaldehyde	7.89E-05	7.06E-04	1.77E-04
Acetaldehyde	2.52E-05	2.26E-04	5.64E-05
Acrolein	7.88E-06	7.05E-05	1.76E-05
Naphthalene	1.30E-04	1.16E-03	2.91E-04
PAH (w/o Naphthalene)	8.20E-05	7.34E-04	1.83E-04
Total =		1.41E-02	3.52E-03

Notes 1 Emission Factors for diesel engines from AP42 Section 3.4, Tables 3.4-3 and 3.4-4

Duluth Steam Plant #1
Table 2: Monthly Recordkeeping Data

	Boiler 1					Boiler 2						Boiler 3						Boiler 4				
	Boiler Usage	Steam	Coal used		Fuel Oil Burned	Boiler Usage	Steam	Coal used		Natural Gas Burned	Fuel Oil Burned	Boiler Usage	Steam	Coal used		Natural Gas Burned	Fuel Oil Burned	Boiler Usage	Steam	Coal used		Fuel Oil Burned
			Bitum.	Sub-bitum.				Bitum.	Sub-bitum.					Bitum.	Sub-bitum.					Bitum.	Sub-bitum.	
	hr	mlbs	ton	ton	gal/mo	hr	mlbs	ton	ton	mcf = mmBtu	gal/mo	hr	mlbs	ton	ton	mcf = mmBtu	gal/mo	hr	mlbs	ton	ton	gal/mo
Jan-06															0.00	0.00						
Feb-06															0.00	0.00						
Mar-06															0.00	0.00						
Apr-06															0.00	0.00						
May-06															0.00	0.00						
Jun-06															0.00	0.00						
Jul-06															0.00	0.00						
Aug-06															0.00	0.00						
Sep-06															0.00	0.00						
Oct-06															0.00	0.00						
Nov-06															0.00	0.00						
Dec-06															0.00	0.00						
Jan-07															0.00	0.00						
Feb-07															0.00	0.00						
Mar-07															0.00	0.00						
Apr-07															0.00	0.00						
May-07															0.00	0.00						
Jun-07															0.00	0.00						
Jul-07															0.00	0.00						
Aug-07															0.00	0.00						
Sep-07															0.00	0.00						
Oct-07															0.00	0.00						
Nov-07															0.00	0.00						
Dec-07															0.00	0.00						
Jan-08			16.45	2,370.49				15.89	2,288.75					8.51	1,226.12						15.89	2,288.75	
Feb-08				1,938.55					1,938.55						2,013.11							1,565.75	
Mar-08				1,726.66					1,662.71						1,598.76							1,406.90	
Apr-08				791.10					369.18						2,109.61							1,951.39	
May-08				1,238.97					1,275.41						546.60							583.04	
Jun-08				612.14					581.53						887.60							1,010.02	
Jul-08				206.52					447.45						1,548.86							1,273.51	
Aug-08				60.64					272.87						1,303.72							1,394.68	
Sep-08				1,178.72					1,150.65						449.04							28.06	
Oct-08				1,356.69					1,424.52						610.51							0.00	
Nov-08				1,069.29					1,272.96						1,425.72							1,374.80	
Dec-08			49.87	2,274.18				44.33	2,021.49					48.02	2,189.95						42.48	1,937.26	
Jan-09			67.19	2,007.68				72.79	2,174.98					69.99	2,091.33						69.99	2,091.33	
Feb-09			13.08	2,139.60				9.93	1,623.15					10.83	1,770.71						11.28	1,844.49	
Mar-09				1,776.59					1,835.80						888.29							1,421.27	
Apr-09				1,521.62					1,872.76						1,170.47							1,287.52	
May-09				1,454.66					1,454.66						0.00							554.16	
Jun-09				343.11					499.06						1,029.32							1,216.47	
Jul-09				270.75					300.84						1,263.52							1,143.18	
Aug-09				1,436.78					1,271.00						82.89							0.00	
Sep-09				1,461.50					870.68						653.01							124.38	
Oct-09				1,447.87					0.00						1,654.71							1,034.20	
Nov-09				1,494.87					951.28						1,041.88							1,087.18	
Dec-09				1,922.70					1,993.91					38.38	1,566.64						57.56	1,637.86	
Jan-10				2,007.33					1,635.60						1,858.64							1,932.99	
Feb-10				1,772.29					1,843.18						1,772.29							1,701.40	
Mar-10				1,641.98					1,032.10						1,219.76							797.53	
Apr-10				1,490.38					851.65						1,021.98						30.00	894.23	
May-10				341.94					0.00						1,709.70							1,747.70	
Jun-10				330.25					0.00						1,122.85							1,882.43	
Jul-10				360.75					0.00						773.05							1,443.02	
Aug-10				997.02					0.00						792.50							766.94	
Sep-10				1,485.86					0.00						485.73							843.63	
Oct-10				1,434.75					29.89						0.00							1,494.54	
Nov-10				1,590.89					0.00						1,542.68							1,687.31	
Dec-10			100.00	2,324.17				20.91	1,041.87						2,324.17							2,324.17	
Jan-11				1,841.29					1,767.64						1,841.29							1,914.94	
Feb-11				1,760.19					1,833.54						1,906.88							1,833.54	
Mar-11				1,889.73					1,629.08						1,498.75							1,498.75	
Apr-11				1,589.85					1,300.79						1,252.61							674.48	
May-11				1,735.88					1,660.41						377.34							0.00	
Jun-11				457.35					140.72						1,125.77							1,864.55	
Jul-11				362.95					0.00						556.52							1,500.17	
Aug-11				514.69					2,287.50						0.00							57.18	
Sep-11				253.02					860.27						632.55							784.36	
Oct-11				0.00					695.17						1,324.06							1,290.99	
Nov-11				1,883.39					1,560.52						1,130.03							807.17	
Dec-11			28.31	1,515.67				113.23	1,571.81						1,459.54							1,066.59	
Jan-12	525			1,738.13	352.21	546			1,807.66	0	366.30	543			1,797.72	0	364.29	429			1,420.30	287.81	2,043
Feb-12	634		27.98	1,722.98	451.78	560			1,521.88	0	399.05	617			1,676.78	0	439.66	716			1,945.83	510.21	2,527
Mar-12	484			1,347.44	357.91	426			1,185.97	3	315.02	467			1,300.11	3	345.34	391			1,088.53	289.14	1,768
Apr-12	443			1,179.46	303.52	168			447.29	0	115.10	587			1,562.85	0	402.18	485			1,291.28	332.30	1,683
May-12	468			1,146.48	230.15	347			850.06	1	170.64	400			979.90	2	196.71	400			979.90	196.71	1,615
Jun-12	526			1,164.93	625.23	641			1,419.63	0	761.92	0			0.00	0	0.00	168			372.07	199.69	1,335
Jul-12	138			317.64	183.22	342			787.20	1	454.06	247			568.53	1	327.93	397			913.79	527.08	1,124
Aug-12	0			0.00	0.00	31			77.50	0	40.55	714			1,785.00	0	933.86	453			1,132.50	592.49	1,198
Sep-12	428			1,001.26	372.07	604			1,413.00	30	525.07	94			219.90	5	81.72	31			72.52	26.95	1,157
Oct-12	696			1,838.44	357.60	620			1,637.69	0	318.55	233			615.45	0	119.71	136			359.23	69.88	1,685
Nov-12	505			1,386.41	389.57	312			856.56	0	240.69	442			1,213.46	0	340.97	568			1,559.37	438.17	1,827
Dec-12	665			1,835.82	269.27	713			1,968.33	101	288.70	653		49.27	1,802.69	92	264.41	670		50.56	1,849.62	271.29	2,701
Jan-13	704		44.23	1,925	307	674		42.52	1,842.64	0	294	676	25,441	42.52	1,848	0	295	649	24,548	40.82	1,774	283	2,703
Feb-13	516	24,583	28.76	1,604	278	558	24,504	0.00	1,734.73	357	301	502	19,829	28.76	1,561	0	271	515	21,073	0.00	1,601	278	2,091
Mar-13	652	20,320	0.00	1,763	410	512	21,570	0.00	1,384.61	0	322	563	20,271	0.00	1,523	0	354	648	23,521	0.00	1,752	408	2,375

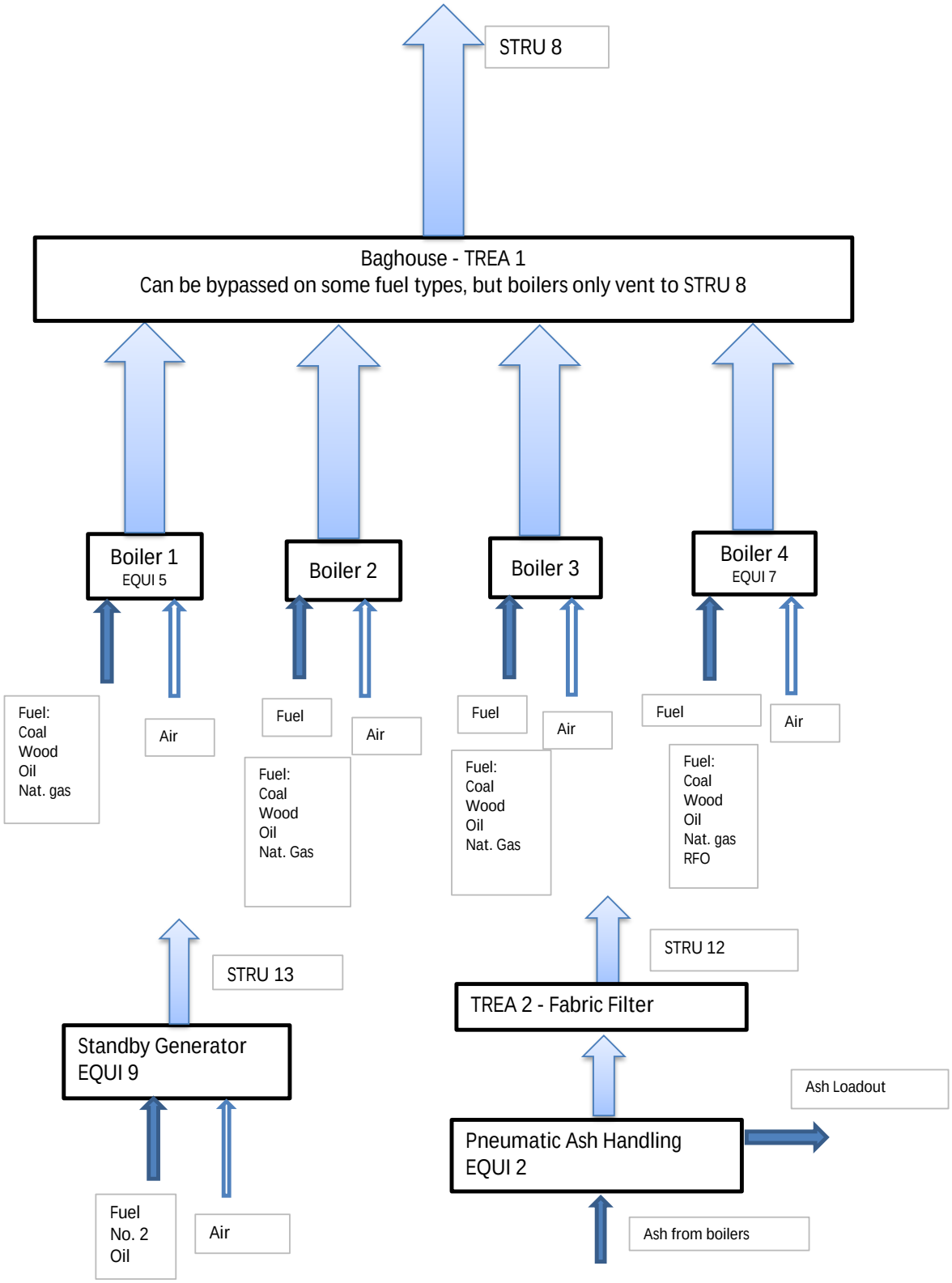
	GP 001 (EU001 - EU004)									GP 001	GP 001	GP 001	GP 001	GP 001	EU 006	EU 005		EU007	EU008		
	Boilers 1 to 4 Totals									Boilers 1 - 4	Boilers 1 - 4	Boilers 1 - 4	Boilers 1 - 4	Boilers 1 - 4	Pneumatic Ash Handling System	900 kW Emerg Generator	% Seasonal Use	150 kW Emerg. Gen.	400 kW Emerg. Gen.		1 MW Emerg. Gen
	Boiler Usage	Steam	Coal used		Natural Gas Burned	Fuel Oil Burned	Waste Oil Burned	Mineral Spirits Burned	Wood	HCl emitted	HF emitted	SO_2 emitted	NO_x emitted	PM_{10} emitted	Ash Handled	Operating Hours		Deisel	Deisel		Deisel
			Bitum.	Sub-bitum.																	
	hr	mlbs	ton	ton	mcf = mmBtu	Gal	Gal	Gal	tons/mo	lbs/mo	lbs/mo	lbs/mo	lbs/mo	lbs/mo	ton	hours/mo		gal	gal		gal
Jan-06			0.00	0.00						586	355	0	74,051	555							
Feb-06			0.00	0.00						1,017	782	0	90,550	679							
Mar-06			0.00	0.00						1,204	281	0	70,088	526							
Apr-06			0.00	0.00						445	288	0	53,018	398							
May-06			0.00	0.00						625	414	0	48,521	364							
Jun-06			0.00	0.00						377	158	0	39,577	297							
Jul-06			0.00	0.00						276	263	0	36,116	271							
Aug-06			0.00	0.00						489	452	0	37,250	279							
Sep-06			0.00	0.00						278	227	0	33,792	253							
Oct-06			0.00	0.00						721	378	0	50,430	378							
Nov-06			0.00	0.00						1,488	471	0	70,524	529							
Dec-06			0.00	0.00						1,097	553	0	73,888	554							
Jan-07			0.00	0.00						1,458	690	0	83,764	628		81.2					
Feb-07			0.00	0.00						2,019	1,014	0	105,549	792		169.8					
Mar-07			0.00	0.00						1,626	593	0	71,165	534		35.8					
Apr-07			0.00	0.00						1,957	395	0	69,603	522		145.2					
May-07			0.00	0.00						1,885	219	0	46,590	349		96.5					
Jun-07			0.00	0.00						1,028	270	0	34,365	258		64.2					
Jul-07			0.00	0.00						1,845	605	0	33,849	254		107.9					
Aug-07			0.00	0.00						564	658	0	33,163	249		99.1					
Sep-07			0.00	0.00						711	492	0	31,926	239		0.1					
Oct-07			0.00	0.00						367	421	0	38,281	287		0.7					
Nov-07			0.00	0.00						757	491	0	60,300	452		90.3					
Dec-07			0.00	0.00						2,015	818	0	76,584	574		0					
Jan-08			56.74	8174.11						2,925	1,399	107,429	98,682	740	0	0					
Feb-08			0.00	7455.96						2,892	1,013	107,950	88,884	667	0	0					
Mar-08			0.00	6395.03						2,316	749	93,989	77,040	578	0	0					
Apr-08			0.00	5221.28						246	575	83,701	63,588	477	0	0					
May-08			0.00	3644.02						129	398	54,836	42,828	321	0	0					
Jun-08			0.00	3091.29						2,230	353	37,735	36,728	275	0	0					
Jul-08			0.00	3476.34						249	295	39,343	41,003	308	0	0					
Aug-08			0.00	3031.91						966	246	38,682	35,783	268	0	0					
Sep-08			0.00	2806.47						164	295	34,952	34,578	259	0	0					
Oct-08			0.00	3391.72						79	227	43,534	39,801	299	0	0					
Nov-08			0.00	5142.77						99	379	65,914	62,302	467	0	0					
Dec-08			184.70	8422.88						1,284	781	110,751	100,659	755	0	0					
Jan-09			279.96	8365.32						1,361	632	99,596	95,433	716	0	0					
Feb-09			45.12	7377.95						1,950	990	87,024	84,729	635	0	0					
Mar-09			0.00	5921.95						824	870	78,791	70,943	532	0	0					
Apr-09			0.00	5852.37						791	843	76,560	70,348	528	0	0					
May-09			0.00	3463.48						125	437	47,565	41,565	312	0	0					
Jun-09			0.00	3087.96						220	169	38,305	37,430	281	0	0					
Jul-09			0.00	2978.29						121	177	44,331	36,101	271	0	0					
Aug-09			0.00	2790.67						312	262	34,732	32,857	246	0	0					
Sep-09			0.00	3109.57						151	250	40,118	37,915	284	0	0					
Oct-09			0.00	4136.78						267	440	53,364	49,641	372	0	0					
Nov-09			0.00	4575.21						111	323	52,963	54,359	408	0	0					
Dec-09			95.94	7121.11						3,006	1,146	194,853	174,428	1,308	0	0					
Jan-10			0.00	7434.56						1,679	591	98,661	88,975	667	0	0					
Feb-10			0.00	7089.16						1,494	900	92,043	84,470	634	0	0					
Mar-10			0.00	4691.37						725	336	60,918	56,291	422	0	0					
Apr-10			30.00	4258.24						455	288	60,831	51,099	383	0	0					
May-10			0.00	3799.34						168	267	54,502	45,592	342	0	0					
Jun-10			0.00	3335.53						222	311	48,161	39,630	297	0	0					
Jul-10			0.00	2576.82						230	604	30,535	30,922	232	0	0					
Aug-10			0.00	2556.46						255	770	32,544	30,677	230	0	0					
Sep-10			0.00	2815.22						184	709	42,110	37,937	285	0	0					
Oct-10			0.00	2959.18						130	142	36,853	35,569	267	0	0					
Nov-10			0.00	4820.88						884	242	58,180	57,851	434	0	0					
Dec-10			120.91	8014.38						1,889	1,569	106,402	96,173	721	0	0					
Jan-11			0.00	7365.16						1,988	867	98,810	88,382	663	315.2	0					
Feb-11			0.00	7334.15						1,611	257	98,216	88,010	660	326.2	0					
Mar-11			0.00	6516.31						957	183	88,550	78,195	586	265.8	0					
Apr-11			0.00	4817.73						671	177	62,878	56,913	427	223.6	0					
May-11			0.00	3773.64						159	135	49,984	45,284	340	151.8	0					
Jun-11			0.00	3518.02						557	94	46,058	42,216	317	138.6	0					
Jul-11			0.00	2419.64						481	164	31,912	29,035	218	90.0	0					
Aug-11			0.00	2859.37						1,043	142	37,142	34,312	257	110.2	0					
Sep-11			0.00	2530.20						961	126	33,564	30,362	228	93.5	0					
Oct-11			0.00	3310.22						316	197	44,189	39,723	298	140.1	0					
Nov-11			0.00	5381.11						967	447	71,660	64,573	484	298.8	0					
Dec-11			141.54	5613.61						2,026	495	78,602	69,061	518	229.6	0					
Jan-12			0.00	6763.81	0.00	1,370.6	0	0		1,317	699	91,169	81,166	609	267.4	0		0.00	0.00		**Jan-12**
Feb-12			27.98	6867.48	0.00	1,800.7	0	0		1,366	567	91,699	82,410	618	277.5	0		0.00	0.00		Feb-12
Mar-12			0.00	4922.04	5.40	1,311.0	0	0		1,281	358	64,337	59,064	443	207.7	0		0.00	3.60		Mar-12
Apr-12			0.00	4480.88	0.00	1,153.1	0	0		957	524	59,561	53,271	403	180.3	0		0.00	0.00		Apr-12
May-12			0.00	3956.35	3.10	794.2	40	0		338	286	52,552	47,476	356	165.5	0		0.00	0.00		May-12
Jun-12			0.00	2956.63	0.00	1,589.0	50	0		269	178	38,779	35,480	266	119	0		0.00	2.16		Jun-12
Jul-12			0.00	2587.16	1.50	1,495.2	60	0		164	129	34,733	31,046	233	106.7	0		0.00	2.92		Jul-12
Aug-12			0.00	2995.00	0.00	1,571.4	100	0		372	260	40,695	35,940	270	123.5	0		4.50	0.00		Aug-12
Sep-12			0.00	2706.69	34.70	1,041.0	200	5		242	162	37,057	32,480	244	112.3	0		3.00	32.19		Sep-12
Oct-12			0.00	4450.81	0.00	873.7	100	0		519	259	59,975	53,410	401	186.6	0		4.50	3.46		Oct-12
Nov-12			0.00	5015.80	0.00	1,409.4	0	10		678	418	66,347	60,190	451	203.4	0		0.00	0.00		Nov-12
Dec-12			99.83	7456.46	193.00	1,141.7	50	0		1,840	846	97,879	90,675	680	323.3	0		30.75	17.28		Dec-12
Jan-13	49,989	170.09	7390	0.00	1,197.0	0	0			2,886	677	102,988	90,717	680	302.8	0		5.25	11.78		**Jan-13**
Feb-13	89,989	57.52	6501	357.00	1,140.6	0	0			1,063	236	82,149	78,697	590	236.6	0		3.00	9.40		Feb-13
Mar-13	85,682	0.00	6423	0.00	1,501.5	0	0			1,162	392	82,211	77,073	578	244.7	0		4.50	3.02		Mar-13

Duluth Steam Plant #1
Table 2: Monthly Recordkeeping Data

	Boiler 1					Boiler 2						Boiler 3						Boiler 4						GP 001 (EU001 - EU004) Boilers 1 to 4 Totals									GP 001 Boilers 1 - 4	GP 001 Boilers 1 - 4	GP 001 Boilers 1 - 4	GP 001 Boilers 1 - 4	GP 001 Boilers 1 - 4	EU 006 Pneumatic Ash Handling System	EU 005 900 kW Emerg Generator	% Seasonal Use	EU007 150 kW Emerg. Gen.	EU008 400 kW Emerg. Gen.		1 MW Emerg. Gen
	Boiler Usage	Steam	Coal used		Fuel Oil Burned	Boiler Usage	Steam	Coal used		Natural Gas Burned	Fuel Oil Burned	Boiler Usage	Steam	Coal used		Natural Gas Burned	Fuel Oil Burned	Boiler Usage	Steam	Coal used		Fuel Oil Burned	Boiler Usage	Steam	Coal used		Natural Gas Burned	Fuel Oil Burned	Waste Oil Burned	Mineral Spirits Burned	Wood	HCl emitted	HF emitted	SO_2 emitted	NO_x emitted	PM_{10} emitted	Ash Handled	Operating Hours		Deisel	Deisel		Deisel
			Bitum.	Sub-bitum.				Bitum.	Sub-bitum.					Bitum.	Sub-bitum.					Bitum.	Sub-bitum.				Bitum.	Sub-bitum.																	
	hr	mlbs	ton	ton	gal/mo	hr	mlbs	ton	ton	mcf = mmBtu	gal/mo	hr	mlbs	ton	ton	mcf = mmBtu	gal/mo	hr	mlbs	ton	ton	gal/mo	hr	mlbs	ton	ton	mcf = mmBtu	Gal	Gal	Gal	tons/mo	lbs/mo	lbs/mo	lbs/mo	lbs/mo	lbs/mo	ton	hours/mo		gal	gal		gal
Apr-13	620	21,976	0.00	1,696	233	175	18,589	0.00	478.77	0	66	620	21,196	0.00	1,696	0	233	697	24,028	0.00	1,907	262	2,112	85,789	0.00	5778	0.00	798.3	0	0		1,806	280	67,025	69,336	520	213.2	0		0.00	3.68	Apr-13	
May-13	230	19,746	0.00	729	266	15	5,378	0.00	47.54	0	17	486	19,483	0.00	1,540	0	561	561	22,911	0.00	1,778	648	1,292	67,518	0.00	4095	0.00	1,499.2	0	0		1,928	328	93,367	49,140	369	195.7	0		4.50	2.34	May-13	
Jun-13	489	9,713	0.00	993	88	17	408	0.00	34.53	43	3	202	5,830	0.00	410	0	36	638	17,805	0.00	1,296	114	1,346	33,756	0.00	2734	43.00	250.2	0	0		51	150	37,177	32,803	246	104.4	0		4.50	4.32	Jun-13	
Jul-13	27	11,087	0.00	2	27	170	458	0.00	11.30	8,832	168	546	21,032	0.00	36	0	541	9	293	0.00	1	9	752	32,870	0.00	50	8,832.00	751.8	0	0		1	2	480	600	5	1.8	0		4.50	2.70	Jul-13	
Aug-13	0	759	0.00	0	0	205	6,231	0.00	0.00	13,806	0	469	17,313	0.00	0	0	0	0	0	0.00	0	0	674	24,303	0.00	0	13,806.00	0.3	0	0		0	0	0	0	0	0.0	0		4.50	0.18	Aug-13	
Sep-13	0	0	0.00	0	0	469	9,834	0.00	0.00	23,979	0	252	10,011	0.00	0	0	0	0	0	0.00	0	0	721	19,845	0.00	0	23,979.00	0.0	0	0		0	0	0	0	0	0.0	0		6.00	0.00	Sep-13	
Oct-13	134	0	0.00	281	128	443	17,239	0.00	929.29	5,576	422	576	22,165	0.00	1,208	0	549	0	0	0.00	0	0	1,153	39,404	0.00	2419	5,576.00	1,099.0	0	0		328	5	31,926	29,024	218	94.6	0		0.00	0.00	Oct-13	
Nov-13	475	4,907	0.00	1,294	362	577	15,762	0.00	1,571.79	0	439	404	13,824	0.00	1,101	0	308	293	9,232	0.00	798	223	1,749	43,725	0.00	4764	0.00	1,338.5	0	0		176	622	62,890	57,173	429	189.1	0		3.00	3.46	Nov-13	
Dec-13	690	16,290	0.00	2,013	403	641	19,460	0.00	1,869.93	149	374	544	18,640	2.88	1,587	0	318	631	24,768	20.65	1,841	368	2,506	79,158	98.02	7311	149.00	1,483.5	0	0		1,882	952	84,622	88,902	667	286.6	0		12.00	8.54	Dec-13	
Jan-14	715	25,622	1	1,949	298	704	24,630	0	1,919	0	293	698	24,960	0	1,903	0	291	612	22,921	0	1,669	255	2,729	98,133	1	7,440	0	1,138	0	0	0.00	677	1,363	86,334	89,293	670	293	0		3.8	24.8	Jan-14	NA
Feb-14	611	22,451	15	1,881	394	593	21,579	0	1,826	221	379	486	18,021	0	1,496	0	311	560	21,250	35	1,724	365	2,250	83,301	50	6,928	221	1,448	0	0	0.00	1,513	897	112,284	84,233	628	339	0		3.8	8.3	Feb-14	NA
Mar-14	648	22,195	10	1,779	307	699	24,353	0	1,919	0	329	665	23,212	0	1,826	0	313	146	5,118	35	401	75	2,158	74,878	45	5,925	0	1,025	0	0	0.00	1,888	767	72,400	71,644	537	251	0		5.0	16.5	Mar-14	NA
Apr-14	109	3,517	0	319	110	701	25,484	0	2,049	0	707	610	23,342	0	1,783	0	615	169	5,782	0	494	170	1,589	58,125	0	4,644	0	1,602	0	0	0.00	363	587	65,013	55,725	418	186	0		3.8	11.0	Apr-14	NA
May-14	0	0	0	0	0	601	18,170	0	1,562	0	563	625	21,754	0	1,624	0	586	132	4,474	0	343	124	1,358	44,398	0	3,529	0	1,272	0	0	0.00	152	468	40,931	42,342	318	129	0		2.5	8.3	May-14	NA
Jun-14	508	20,256	0	1,633	1,706	132	5,013	0	424	56	443	114	4,462	0	367	0	383	22	623	0	71	74	776	30,354	0	2,495	56	2,606	0	0	0.00	65	323	30,689	29,939	225	94	0		3.8	55.0	Jun-14	NA
Jul-14	627	23,341	16	1,784	810	150	5,369	4	427	0	194	0	0	0	0	0	0	0	0	0	0	0	777	28,710	20	2,211	0	1,004	0	0	0.00	186	471	47,889	43,452	324	141	0		3.8	11.0	Jul-14	NA
Aug-14	225	8,220	0	615	658	309	9,966	0	845	0	903	267	9,701	0	730	0	781	0	0	0	0	0	801	27,887	0	2,190	0	2,342	0	0	0.00	88	281	29,182	26,286	197	88	0		2.5	0.0	Aug-14	NA
Sep-14	266	9,855	0	884	787	393	14,967	0	1,307	0	1,163	74	477	0	246	0	219	7	3,880	0	23	21	740	29,179	0	2,460	0	2,190	0	0	0.00	71	546	56,772	55,808	419	190			3.8	8.3	Sep-14	NA
Oct-14	144	5,076	0	363	253	30	1,033	0	76	0	53	544	17,773	10	1,371	320	963	658	19,453	13	1,658	1,165	1,376	43,335	23	3,467	320	2,434	0	0	0.00	239	398	38,654	41,830	312	149			5.0	11.0	Oct-14	NA
Nov-14	430	14,535	0	1,176	588	480	16,551	0	1,313	0	656	493	17,441	0	1,348	0	674	512	18,176	0	1,400	700	1,915	66,703	0	5,237	0	2,619	0	0	0.00	894	532	63,886	62,847	471	212			0.0	27.5	Nov-14	NA
Dec-14	443	15,388	10	16	5	505	16,412	8	13	1,527	4	211,021	21,324	15	5,434	1,944	962	623	20,767	28	16	8	212,592	73,891	61	5,475	3,471	978	0	0	0.00	1,764	664	217,814	67,037	498	244			3.8	8.3	Dec-14	NA
Jan-15	678	21,673	0	1,797	251	646	20,356	0	1,712	0	239	596	18,737	5	1,579	0	221	553	19,199	20	1,465	208	2,473	79,965	25	6,553	0	920	0	0	0.00	1,211	744	71,226	79,186	968	270	0		3.8	101.8	0	NA
Feb-15	667	25,609	0	1,807	295	583	21,768	0	1,580	0	258	644	23,969	15	1,745	0	288	577	20,378	10	1,563	257	2,471	91,724	25	6,695	0	1,098	0	0	0.00	1,774	699	83,620	80,594	995	265	0		0.0	0.0	0	NA
Mar-15	445	14,053	0	1,154	264	359	11,658	0	931	61	213	580	20,320	10	1,504	13	346	441	14,789	10	1,144	264	1,825	60,820	20	4,733	74	1,086	0	0	0.00	1,580	572	61,724	57,234	710	182	0		2.5	93.5	0	NA
Apr-15	0	0	0	0	0	267	7,453	0	709	0	169	624	20,710	0	1,657	0	395	618	21,129	0	1,641	391	1,509	49,292	0	4,007	0	955	0	0	0.00	768	483	45,923	48,084	590	159	0		3.8	0.0	0	NA
May-15	0	0	0	0	0	237	6,666	0	558	93	158	617	17,334	0	1,454	68	411	648	19,265	0	1,527	432	1,502	43,265	0	3,539	161	1,000	0	0	0.00	399	449	40,531	42,465	442	141	0		0.0	101.8	May-15	NA
Jun-15	377	17,941	0	1,307	407	47	810	0	129	0	40	176	5,063	3	482	0	151	171	6,485	12	469	150	871	30,299	15	2,387	0	748	0	0	0.00	265	312	29,371	28,975	355	98	0		12.5	16.5	Jun-15	NA
Jul-15	444	15,534	0	723	677	190	6,655	0	309	10,133	290	29	1,660	0	47	1,002	44	23	854	0	37	35	686	24,703	0	1,117	11,135	1,046	0	0	0.00	47	101	13,471	13,404	165	45	0		0.0	8.3	Jul-15	NA
Aug-15	10	2,677	0	8	6	169	5,854	0	136	10,226	101	3	3,118	0	2	103	2	0	14,689	0	0	0	182	26,338	0	146	10,329	109	0	0	0.00	4	9	1,712	1,752	21	6	0		0.0	429.0	Aug-15	NA
Sep-15	553	20,199	0	1,477	2,372	151	6,072	0	403	9,376	648	11	680	0	29	0	47	0	0	0	0	0	715	26,951	0	1,910	9,376	3,067	0	0	0.00	42	113	23,882	22,922	281	81	0		12.5	11.0	Sep-15	NA
Oct-15	457	11,999	0	1,196	585	633	21,096	0	1,657	0	811	49	1,811	0	63	0	63	0	858	0	0	0	1,139	35,764	0	2,981	0	1,459	0	0	0.00	66	105	36,794	35,770	441	123	0		0.0	0.0	Oct-15	NA
Nov-15	517	13,835	0	1,124	400	613	18,312	0	1,332	0	475	221	7,536	0	480	0	171	311	10,497	0	676	241	1,662	50,180	0	3,612	0	1,287	0	0	0.00	65	220	41,137	43,343	523	149	0		0.0	11.0	Nov-15	NA
Dec-15	557	17,253	0	1,390	704	337	10,277	0	841	0	426	534	16,562	10	1,333	932	680	613	20,632	38	1,530	794	2,041	64,724	48	5,095	932	2,603	0	0	0.00	383	276	62,085	61,615	754	191	0		5.0	11.0	Dec-15	NA
Jan-16	630	20,039	14	12	15	526	15,309	11	36	0	25	618	21,825	0	1,116	0	614	617	22,859	0	3,136	1,726	2,391	80,032	25	6,177	0	2,380	0	0	0.00	638	297	82,854	74,679	558	250	0	33.03	3.8	8.3		NA
Feb-16	603	24,775	15	396	137	595	24,031	10	898	2,086	304	493	17,757	0	1,861	1,849	623	210	8,474	0	888	297	1,901	75,037	25	4,042	3,935	1,362	0	0	0.00	251	198	49,811	49,051	366	161	0		17.5	148.5		NA
Mar-16	612	23,131	0	893	272	708	26,013	0	2,545	0	774	282	10,196	0	998	0	303	61	3,172	0	310	94	1,663	62,512	0	4,747	0	1,443	0	0	0.00	275	248	59,890	56,964	427	200	0		2.5	8.3		NA
Apr-16	295	10,206	0	737	230	657	20,935	0	1,512	0	472	634	23,536	0	1,700	0	531	0	0	0	0	0	1,586	54,677	0	3,950	0	1,233	0	0	0.00	286	154	58,367	47,400	356	156	0	18.19	2.5	8.3		NA
May-16	109	2,890	0	277	92	664	18,789	0	1,802	0	600	553	15,529	0	1,489	0	496	33	850	0	82	27	1,359	38,058	0	3,650	0	1,215	0	0	0.00	230	93	44,040	43,802	329	137	0		0.0	2.8		NA
Jun-16	0	0	0	0	0	465	16,098	0	249	16,933	152	380	13,659	0	801	7,608	488	52	1,755	0	103	63	897	31,512	0	1,153	24,541	702	0	0	0.00	31	7	13,744	13,836	104	43	0		6.3	13.8		NA
Jul-16	0	0	0	0	0	250	10,225	0	782	50	207	427	16,099	0	1,236	283	327	29	1,139	0	87	23	706	27,463	0	2,105	333	557	0	0	0.00	1,767	55	27,502	25,263	189	90	0	15.77	6.3	13.8		NA
Aug-16	295	10,028	0	808	461	385	12,934	0	1,042	0	594	0	0	0	0	0	0	64	2,539	0	0	0	744	25,501	0	2,054	0	1,055	0	0	0.00	51	15	28,601	24,653	185	88	0		0.0	0.0		NA
Sep-16	40	1,296	0	0	0	0	0	0	0	0	0	23	932	0	72	772	1,160	663	25,807	0	0	0	727	28,035	0	2,160	772	1,160	0	0	0.00	68	78	22,881	25,920	194	114	0		36.3	0.0		NA
Oct-16	226	8,787	0	640	973	0	0	0	0	0	0	307	7,928	0	578	5,475	878	490	20,830	0	462	702	1,023	37,545	0	2,736	5,475	2,553	0	0	0.00	72	82	34,867	32,828	246	112	0	33.01	0.0	0.0		NA
Nov-16	398	14,179	0	1,075	895	282	8,655	0	631	472	525	309	6,713	0	509	6,756	424	377	14,344	0	402	335	1,366	43,891	0	3,302	7,228	2,179	0	0	0.00	136	118	46,492	39,624	297	125	0		0.0	0.0		NA
Dec-16	643	25,351	0	2,076	309	704	27,789	0	2,160	3,156	322	35	1,198	0	101	289	15	658	25,189	0	676	101	2,040	79,527	0	6,463	3,445	746	0	0	0.00	1,334	243	70,910	77,556	582	373	0		0.0	0.0		64.6
Jan-17	670	25,351	0	2,035	410	612	23,501	0	1,886	17,573	0	513	19,430	0	1,559	6,119	0	313	11,680	0	937	189	2,108	79,962	0	6,417	23,692	1,294	0	0	0.00	7,707	243	58,783	77,009	1,434	335	0		0	NA		6.46
Feb-17	610	23,831	0	1,944	292	251	9,889	0	807	113	0	493	18,685	0	1,524	455	0	320	12,453	0	1,016	152	1,674	64,858	0	5,291	568	794	0	0	0.00	283	223	56,720	63,492	1,172	303	0		0	NA		6.46
Mar-17	589	22,950	0	1,802	300	143	5,602	0	440	0	0	502	21,079	0	1,655	0	0	423	18,093	0	1,421	237	1,657	67,724	0	5,319	0	885	0	0	0.00	612	202	43,826	63,824	1,220	248	0		0	NA		64.6
Apr-17	257	8,103	0	320	65	411	18,190	0	55	23,993	0	576	21,557	0	852	16,306	0	0	0	0	0	0	1,245	47,850	0	1,227	40,299	250	0	0	0.00	129	39	10,942	14,720	274	60	0		0	NA		0
May-17	0	0	0	0	0	297	14,191	0	0	20,178	0	526	27,288	0	0	35,829	0	0	0	0	0	0	822	41,479	0	-	56,007	147	0	0	0.00	0	0	0	0	0	0	0		0	NA		103.36
Jun-17	0	0	0	0	0	372	14,604	0	0	20,139	0	353	14,773	0	0	19,496	0	0	0	0	0	0	724	29,377	0	-	39,635	0	0	0	0.00	0	0	0	0	0	0	0		0	NA		0
Jul-17	0	0	0	0	0	718	26,721	0	0	37,017	0	26	1,042	0	0	1,623	0	0	0	0	0	0	744	27,763	0	-	38,640	0	0	0	0.00	0	0	0	0	0	0	0		0	NA		0
Aug-17	0	0	0	0	0	706	26,329	0	0	36,401	0	39	1,469	0	0	2,267	0	0	0	0	0	0	745	27,798	0	-	38,668	0	0	0	0.00	0	0	0	0	0	0	0		0	NA		0
Sep-17	0	0	0	0	0	517	19,151	0	0	26,814	0	203	8,117	0	0	10,551	0	0	0	0	0	0	720	27,268	0	49	37,365	237	0	0	0.00	1	2	427	588	11	3	0		0	NA		12.92
Oct-17	0	0	0	0	0	435	20,304	0	0	27,548	0	416	18,244	0	0	23,524	0	9	373	0	31	410	860	38,921	0	31	51,072	410	0	0	0.00	1	1	689	372	7	2	0		0	NA		90.44
Nov-17	6	273	0	0	0	718	36,706	0	0	48,555	0	467	20,522	0	0	26,052	0	75	2,685	0	211	1,634	1,266	60,186	0	232	74,607	1,800	0	0	0.00	4	2	2,172	2,784	51	12	0		0	NA		25.84
Dec-17	242	10,099	0	0	0	486	21,195	0	1,395	6,537	0	463	21,417	0	1,787	548	0	645	28,781	0	2,465	189	1,836	81,492	0	6,512	7,085	500	0	0	0.00	161	233	58,608	78,144	1,478	308	0		0	NA		0
Jan-18	575	24,313	0	1,867	333	509	23,304	0	1,786	128	0	252	11,310	0	869	79	0	556	25,767	0	1,979	353	1,892	84,694	0	6,501	207	1,160	0	0	0.00	107	55	85,813	78,012	585	257						90.44
Feb-18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0		0	0	0.00	0	0	0	0	0	0						
Mar-18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0		0	0	0.00	0	0	0	0	0	0						
Apr-18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0		0	0	0.00	0	0	0	0	0	0						
May-18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0		0	0	0.00	0	0	0	0	0	0						
Jun-18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0		0	0	0.00	0	0	0	0	0	0						
Jul-18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0		0	0	0.00	0	0	0	0	0	0						
Aug-18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0		0	0	0.00	#REF!	0	0	0	0	0						
Sep-18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0		0	0	0.00	0	0	0	0	0	0						
Oct-18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0		0	0	0.00	0	0	0	0	0	0						
Nov-18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0		0	0	0.00	0	0	0	0	0	0						
Dec-18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0		0	0	0.00	0	0	0	0	0	0						

Annual Totals	Boiler 1					Boiler 2						Boiler 3						Boiler 4						Boilers 1 to 4 Totals									Boilers 1 - 4	Boilers 1 - 4	Boilers 1 - 4	Boilers 1 - 4	Boilers 1 - 4	Pneumatic Ash Handling System	900 kW Emerg Generator		150 kW Emerg. Gen.	400 kW Emerg. Gen.		1 MW Emerg. Gen
	Boiler Usage	Steam	Coal used		Fuel Oil Burned	Boiler Usage	Steam	Coal used		Natural Gas Burned	Fuel Oil Burned	Boiler Usage	Steam	Coal used		Natural Gas Burned	Fuel Oil Burned	Boiler Usage	Steam	Coal used		Fuel Oil Burned	Boiler Usage	Steam	Coal used		Natural Gas Burned	Fuel Oil Burned	Waste Oil Burned	Mineral Spirits Burned	Wood	HCl emitted	HF emitted	SO_2 emitted	NO_x emitted	PM_{10} emitted	Ash Handled	Operating Hours		Diesel	Diesel		Deisel
			Bitum.	Sub-bitum.				Bitum.	Sub-bitum.					Bitum.	Sub-bitum.					Bitum.	Sub-bitum.				Bitum.	Sub-bitum.																	
	hr	mlbs	ton	ton	gal/mo	hr	mlbs	ton	ton	mcf = mmBtu	gal/mo	hr	mlbs	ton	ton	mcf = mmBtu	gal/mo	hr	mlbs	ton	ton	gal/mo	hr	mlbs	ton	ton	mcf = mmBtu	Gal	Gal	Gal	tons/mo	lbs/mo	lbs/mo	lbs/mo	lbs/mo	lbs/mo	ton	hours/mo		gal	gal		gal
2013 Totals	**4,537**		**72.99**	**12,300**	**2,502**	**4,456**		**42.52**	**9,905.11**	**52,742.00**	**2,407.81**	**5,840**		**74.16**	**12,510**	**0**	**3,466**	**4,641.00**	**168,179.00**	**61.47**	**12,748**	**2,594**	**19,474**	**652,028**	**325.63**	**47,463**	**52,742**	**11,060**	**0.00**	**0.00**		**11,283.96**	**3,643**	**644,835**	**573,466**	**4,301**	**1,870**	**0.00**		**51.75**	**49.42**		**0**
2014 Totals	**4,726**	**170,456**	**52**	**12,400**	**5,916**	**5,297**	**183,527**	**12**	**13,679**	**1,804**	**5,688**	**215,597**	**182,467**	**25**	**18,128**	**2,264**	**6,097**	**3,441**	**122,444**	**111**	**7,799**	**2,957**	**229,061**	**658,894**	**200**	**52,001**	**4,068**	**20,657**

GI-02 Duluth Steam Process Flow Diagram



Duluth Steam Plant 1
13700022-101

Attachment 2
Title I Emissions Summary and Calculation Spreadsheets

Duluth Energy Systems - Limit Changes Major Modification

Duluth, MN

AQ Facility ID: 13700022

Future Projected Actual (FPA) to Baseline Actual (BA)

Significant Emissions Increase Determination

Future Projected Actual to Baseline Emission Summary

Pollutant	EQUI 5 Boiler 1				EQUI 8 Boiler 2				EQUI 6 Boiler 3				EQUI 7 Boiler 4				EQUI 2 (EU 006) Ash System			
	FPA	BA	Exluded emissions	FPA - BA *	FPA	BA	Exluded emissions	FPA - BA *	FPA	BA	Exluded emissions	FPA - BA *	FPA	BA	Exluded emissions	FPA - BA *	FPA	BA	Exluded emissions	FPA - BA *
	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)
PM	8.39	6.48	2.41	0.00	8.39	2.68	6.21	0.00	8.39	6.11	2.78	0.00	8.39	5.95	2.95	0.00	0.05	0.06	-	0.00
PM10	4.87	7.23	0.00	0.00	4.87	2.98	2.00	0.00	4.87	6.16	0.00	0.00	4.87	6.50	0.00	0.00	0.01	0.01	-	0.00
PM2.5	3.57	3.43	5.99	0.00	3.57	1.42	8.01	0.00	3.57	3.24	6.19	0.00	3.57	3.15	6.27	0.00	0.01	0.01	-	0.00
NOx	55.40	102.91	39.59	0.00	55.40	68.53	73.97	0.00	55.40	90.77	51.73	0.00	55.40	94.47	48.03	0.00	-	-	-	-
SOx	57.79	113.93	145.82	0.00	57.79	70.12	189.63	0.00	57.79	95.28	164.47	0.00	57.79	103.79	155.96	0.00	-	-	-	-
CO	3.56	4.27	1.67	0.00	3.56	4.04	1.90	0.00	3.56	4.89	1.05	0.00	3.56	3.93	2.01	0.00	-	-	-	-
VOC	0.33	0.51	0.20	0.00	0.33	0.41	0.30	0.00	0.33	0.52	0.20	0.00	0.33	0.47	0.24	0.00	-	-	-	-
Pb	0.14	0.26	0.000	0.00	0.14	0.05	0.065	0.02	0.14	0.07	0.047	0.02	0.14	0.20	0.000	0.00	-	-	-	-
Fluorides	0.41	1.28	0.50	0.00	0.41	0.79	0.99	0.00	0.41	1.08	0.70	0.00	0.41	1.18	0.60	0.00	-	-	-	-
H_2SO_4	0.05	0.10	0.12	0.00	0.05	0.06	0.16	0.00	0.05	0.08	0.14	0.00	0.05	0.09	0.13	0.00	-	-	-	-
CO_2	23,800	32,288	11,502	0.00	23,800	15,221	28,569	0.00	23,800	28,095	15,696	0.00	23,800	28,137	15,653	0.00	-	-	-	-
CH_4	1.36	4	1	0.00	1.36	1	4	0.00	1.36	3	2	0.00	1.36	3	5	0.00	-	-	-	-
N_20	0.19	1	0	0.00	0.19	0	0	0.00	0.19	0	0	0.00	0.19	0	0	0.00	-	-	-	-
CO2e	23,890	32,591	11,538	0.00	23,890	15,314	28,815	0.00	23,890	28,313	15,477	0.00	23,890	28,355	15,774	0.00	-	-	-	-

* Negatives reported based on EPA memo dated 3/18/2018 Project Emissions Accounting Under the New Source Review Preconstruction Permitting Program.

BA = Baseline Actual

Coal Fugitives - Total				IA/FS Paved Roads - Coal				IA/FS Paved Roads - RFO			IA/TK RFO			Emission increase from exisiting units (tpy)	Potential Emissions From New Units (tpy)	TOTAL (tpy)	Exceed Reasonable Possibility Thresold?	PSD Threshold	Exceed PSD Threshold?	
FPA	BA	Exluded emissions	FPA - BA *	FPA	BA	Exluded emissions	FPA - BA *	PTE		PTE	PTE		PTE							
(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)		(tpy)	(tpy)		(tpy)			FPA - BA *	(tpy)	(tpy)	(tpy)	
0.38	1.01	-	0.00	0.02	0.05	-	0.00	0.13		0.13				0.00	0.13	**0.1**	No	25	No	PM
0.18	0.48	-	0.00	0.00	0.01	-	0.00	0.03		0.03				0.00	0.03	**0.0**	No	15	No	PM10
0.03	0.07	-	0.00	0.00	0.00	-	0.00	0.01		0.01				0.00	0.01	**0.0**	No	10	No	PM2.5
-	-	-	-	-	-	-	-							0.00	0.00	**0.0**	No	40	No	NOx
-	-	-	-	-	-	-	-							0.00	0.00	**0.0**	No	40	No	SOx
-	-	-	-	-	-	-	-							0.00	0.00	**0.0**	No	100	No	CO
-	-	-	-	-	-	-	-				0.09		0.09	0.00	0.09	**0.1**	No	40	No	VOC
-	-	-	-	-	-	-	-							0.04	0.00	**0.04**	No	0.60	No	Pb
-	-	-	-	-	-	-	-							0.00	0.00	**0.0**	No	3	No	Fluorides
-	-	-	-	-	-	-	-							0.00	0.00	**0.0**	No	7	No	H_2SO_4
-	-	-	-	-	-	-	-							0.00	0.00	**0**	---	---	---	CO_2
-	-	-	-	-	-	-	-							0.00	0.00	**0.0**	---	---	---	CH_4
-	-	-	-	-	-	-	-							0.00	0.00	**0.0**	---	---	---	N_20
-	-	-	-	-	-	-	-							0.00	0.00	**0**	No	75,000	No	CO2e

Boilers 1-4 **Duluth Steam Plant No. 1**

Future Projected Actual Emissions

345 MMBtu/hr limit only applies to B1-B4 when combusting coal and wood. B2 and B3 will operate uncontrolled on Natural Gas. There is no anticipated increase in steam demand
Change: *associated with this change.*

SV001

115 mmBtu/hour (each Boiler) 1,007,400 mmBtu/yr each boiler maximum physical heat input
60 mmBtu/hour (each Boiler 1/4) Natural Gas Burner physical limit and/or RFO Physical limit. RFO can br supplemented with Natural Gas to Reach 115 MMBtu/hr

Fuels: Fuel Oil Potential - 8.9 mmBtu/hr (nozzle physical limit)
Heating Value: Natural Gas 1026 mmBtu/mmcf[3]

Source: 40 CFR Part 98, Table C-1 Fuel Oil 138 mmBtu/mgal[3]
Subbituminous C 17.25 mmBtu/short ton[3]
RFO 77998 BTU/gal 7792 BTU/lb 10.01 lb/gal

Fuel Consumption: Natural Gas 0.058 mmcf/hour ((mmBtu/hr)/(mmBtu/mmcf))
Subbituminous C 6.667 tons/hour (mmBtu/hr)/(mmBtu/ton)
Subbituminous C 17.25 mmBtu/short ton[3]
Subbituminous C 22,000 tons/year, future projected actual coal usage for Boilers 1, 2, 3, and 4.
RFO 769.3 gal/hr
Potential RFO 6,738,641 gal/yr, for one Boiler
Projected RFO 7,500,000 gal/yr, Sum for Boiler 1 and Boiler 4

Sulfur and Ash Limits Subbituminous C 0.60 % Sulfur in Coal (subbituminous permit limit)
Subbituminous C 8.5 % Ash in Coal (subbituminous permit limit)

FPA Steam Produced B1/B2/B3/B4 724,783,400 lbs projected actual annual steam production from B1, B2, B3, and B4 combined (maximum steam produced from four boilers on annual basis in recent years, conservatively assumes 10% increase although no increase in steam demand is associated with this project).
Boiler Efficiency 1414 Btu/lb maximum achieved from 2013-2017
1,024,844 MMBtu required to meet Steam Demand
584,984 MMBtu produced by RFO, based on gallons per year the facility plans to burn
379,500 MMBtu produced by coal, based on past years, assuming coal will decrease with RFO
60,359 MMBTU produced by Natural Gas 58.83 MMcf natural gas

Control Equipment 99% PM control (baghouse)[1]
98% PM10/PM2.5 control (baghouse)[1]

	PM	PM_{10}	$PM_{2.5}$	SO_2	NO_X	CO	VOC	Lead	HF	H_2SO_4 [9]		CH_4	N_2O	CO_2	CO_2e [4,3]	
Emission Factors- Subbituminous Coal[7]										(lb/lb SO_2)						
Source: AP42 Coal 1.1-4	85.52	20.07	5.62	21.00	12.00	0.50	0.06	5.07E-04	1.50E-01	8.51E-04	lb/ton	1.10E-02	1.60E-03	97.17	97.92	kg/mmBtu[3]
Emission Factors - Natural Gas																
Source: AP42 1.4 Gas	7.60	7.60	7.60	0.60	280.00	84.00	5.50	5.00E-04	N/A	N/A	lb/mmcf	1.00E-03	1.00E-04	53.06	53.11	kg/mmBtu[3]
Emission Factors- RFO																
Source: Ensyn Testing; GHG Biodiesel EF's from 40 CFR 98	0.081	0.05	0.043	0.000401	0.25	0.013	0.0012	1.88E-03	N/A	N/A	lb/MMBtu	1.10E-03	1.10E-04	73.96	74.02	kg/mmBtu[3]

***Example calculations given below**

Projected Actual Emissions - Natural Gas

Boilers 1&4 uncontrolled	PM	PM_{10}	$PM_{2.5}$	SO_2	NO_X	CO	VOC	Lead	HF	H_2SO_4		CH_4	N_2O	CO_2	CO_2e[4]	
when firing natural gas or RFO.																
Natural gas can	0.44	0.44	0.44	0.04	16.37	4.91	0.32	0.0000	N/A	N/A	lb/hour	0.25	0.03	13,424.18	13,438.04	lb/hour
be used to supplement RFO to																
meet 115 MMBtu/hr.	0.22	0.22	0.22	0.02	8.24	2.47	0.16	0.0000	N/A	N/A	uncontr. tpy	0.07	0.01	3,522.93	3,526.57	uncontr. tpy
	0.22	0.22	0.22	0.02	8.24	2.47	0.16	0.00	N/A	N/A	tpy	0.07	0.01	3,522.93	3,526.57	tpy

Potential Emissions - Subbituminous Coal — Subbituminous, wall fired, dry bottom, PC, Pre NSPS

PM	[8]PM_{10}	$PM_{2.5}$	SO_2[6]	NO_X	CO	VOC	Lead	HF	H_2SO_4		CH_4	N_2O	CO_2	CO_2e[4]	
5.70	2.68	0.75	140.00	80.00	3.33	0.40	0.003	1.000	0.119	lb/hour	2.78	0.40	24,584.01	24,774.22	lb/hour
940.69	220.74	61.79	231.00	132.00	5.50	0.66	0.0056	1.6500	0.197	tpy	4.59	0.67	40,563.62	40,877.46	uncontr. tpy
9.41	4.41	1.24	231.00	132.00	5.50	0.66	0.0056	1.6500	0.197	tpy	4.59	0.67	40,563.62	40,877.46	controlled tpy

Projected Actual Emissions- RFO w. Natural Gas

PM	PM_{10}	$PM_{2.5}$	SO_2	NO_X	CO	VOC	Lead	HF	H_2SO_4		CH_4	N_2O	CO_2	CO_2e[4]	
5.27	3.41	2.99	0.06	30.01	5.28	0.37	0.11	N/A	N/A	lb/hr	0.27	0.03	16,182.98	16,197.57	lb/hour
23.92	14.85	12.80	0.13	81.36	6.27	0.51	0.55	N/A	N/A	uncontr. tpy	0.77	0.08	51,114.92	51,157.35	uncontr. tpy
23.92	14.85	12.80	0.13	81.36	6.27	0.51	0.55	N/A	N/A	tpy	0.77	0.08	51,114.92	51,157.35	controlled tpy

Future Projected Actual Emissions[2]

PM	PM_{10}	$PM_{2.5}$	SO_2	NO_X	CO	VOC	Lead	Flourides (HF	H_2SO_4		CH_4	N_2O	CO_2	CO_2e	
33.55	19.49	14.26	231.15	221.60	14.24	1.33	0.56	1.65	0.20	tpy	5.43	0.75	95,201	95,561	ton/yr

Wood not considered in FPA Scenario is addition as the proposed change will not impact the quantity of wood that the facility will combust in the future.

Notes

1 Source: Title I Condition; baghouse used for coal combustion. Not used for natural gas combustion.
2 Sum of both RFO and Natural gas combustion required to meet projected steam demand.
3 GHG Factors and heating values are derived from 40 CFR Part 98, GHG Mandatory Reporting Rule, Tables A-1, C-1 and C-2.
4 CO2e emissions are calculated by: 298 x N2O + 25 x CH4 + CO2 = CO2e
6 SO2 emissions = 35 x percent sulfur limit (lb per ton) x ton per hour = lb per hour SO2
7 Permit sulfur and ash limits for oil and coal taken into account in calculations
8 Permit limits for PM10 are 7.7 lb/hour and 19.9 tons per year. Sulfur Dioxide limited to 425 lb/hr and 1039 tpy, Nox limited to 594 tpy.
9 H2SO4 EF calculated using equation in: *An Updated Method for Estimating Total Sulfuric Acid Emissions from Stationary Power Plants* , Research and Environmental Affairs Department, Southern Company Generation and Energy Marketing (2003)

H2SO4: 0.000851451 ton/ton SO2 *(equation was modified to calculate an emission factor in ton/ton SO2 instead of emissions in lb/yr, but follows the same methodology)*

E1 =K*F1 *E2 Where:

E1= total H2SO4 manufactured from combustion, lbs/yr - *modified equation to yield ton/ton SO2*

K= Molecular weight and units conversion constant = 98.07 / 64.04 * 2000 = 3,063, where 98.07 = Molecular weight of H2SO4; 64.04 = Molecular weight of SO2; Conversion from tons per year to pounds per year - multiply by 2000 - *modified to remove ton to lb conversion*

F1= Fuel Impact Factor (F1 factor from Table 1 for subbituminous coal fired in a PC boiler) = 0.000556

E2= Sulfur dioxide (SO2) emissions either: (1) recorded by a continuous emissions monitor, tons/yr, or (2) calculated from coal bum data, tons/yr - *this step is performed in the calculations above*

***Example Calculations:**

RFO Plus Natural Gas Sample: lb PM / MMBtu x MMBtu/hr for RFO + MMBtu/hr Nat.Gas / 1026 MMBtu/MMCF Nat.Gas x lb PM/MMCF Natural Gas = lb PM/hour

*Sample for GHG Emissions: kg CO2 per mmBtu x 115 mmBtu per hr * 2.2lb per kg = lb/hour*

Coal Sample: lb PM per ton x (1- 99% control) x ton per hour = lb PM/hour

*Sample for GHG Emissions: kg CO2 per mmBtu x 115 mmBtu per hr * 2.2lb per kg = lb/hour*

Boilers 1-4 (EU 001 - EU004) **Duluth Steam Plant No. 1**
Excludable Emissions

SV001

	115	mmBtu/hour each	1,007,400	mmBtu/yr each boiler maximum physical heat input, all fuels
	60	mmBtu/hour each	Natural Gas Burner physical limit and/or RFO Physical limit. RFO can supplement with Natural Gas to Reach 115 MMBtu/hr	
Fuels:		Subbituminous C		
Heating Value:				
Source: 40 CFR Part 98, Table C-1		Subbituminous C	17.25	mmBtu/short ton[3]

		Boiler 1 (tons)	Boiler 4 (tons)	Boiler 2 (tons)	Boiler 3 (tons)	
Fuel Consumption:	Dec-10	2,324.17	2,324.17	1,041.87	2,324.17	Based on Duluth Steam Plant No. 1 Tracking Spreadsheet

Subbituminous C	6.667	tons/hour (mmBtu/hr)/(mmBtu/ton)	
Excludable Subbituminous	96,173	tons/yr	
Limited Subbituminous	95,000	tons/yr (permit limit) -	
Sulfur and Ash Limits	Subbituminous C	0.60	% Sulfur in Coal (subbituminous permit limit)
	Subbituminous C	8.5	% Ash in Coal (subbituminous permit limit)
Control Equipment	99%	PM control (baghouse)[1]	
	98%	PM10/PM2.5 control (baghouse)[1]	

	PM	PM_{10}	$PM_{2.5}$	SO_2	NO_x	CO	VOC	Lead	HF	H_2SO_4 [10]		CH_4	N_2O	CO_2	CO_2e[4,3]	
Emission Factors- Subbituminous Coal[7]										(lb/lb SO_2)						
Source: MPCA AEIR factors matching baseli	74.88	83.00	39.69	21.00	12.00	0.50	0.06	1.00E-02	1.50E-01	8.51E-04	lb/ton	1.10E-02	1.60E-03	97.17	97.92	kg/mmBtu[3]

PM, PM10 EFs calculated accounting for HHV difference;
PM2.5 EF calculated based on particle size distribution in 2012 AEIR
***Example calculations given below**

Boiler 1
Capable of Accommodating Emissions - Subbituminous Coal — Subbituminous, wall fired, dry bottom, PC, Pre NSPS

PM	$^8PM_{10}$	$PM_{2.5}$	SO_2[6]	NO_x	CO	VOC	Lead	HF	H_2SO_4		CH_4	N_2O	CO_2	CO_2e[4]	
4.99	1.93	5.29	106.25	80.00	3.33	0.40	0.067	1.000	0.090	lb/hour	2.78	0.40	24,584.01	24,774.22	lb/hour
8.89	4.98	9.43	259.75	142.50	5.94	0.71	0.119	1.781	0.221	tpy	4.96	0.72	43,790.27	44,129.07	controlled tpy

Boiler 2
Capable of Accommodating Emissions - Subbituminous Coal — Subbituminous, wall fired, dry bottom, PC, Pre NSPS

PM	$^9PM_{10}$	$PM_{2.5}$	SO_2[6]	NO_x	CO	VOC	Lead	HF	H_2SO_4		CH_4	N_2O	CO_2	CO_2e[4]	
4.99	1.93	5.29	106.25	80.00	3.33	0.40	0.067	1.000	0.090	lb/hour	2.78	0.40	24,584.01	24,774.22	lb/hour
8.89	4.98	9.43	259.75	142.50	5.94	0.71	0.119	1.781	0.221	tpy	4.96	0.72	43,790.27	44,129.07	controlled tpy

Boiler 3

Capable of Accommodating Emissions - Subbituminous Coal

Subbituminous, wall fired, dry bottom, PC, Pre NSPS

PM	$^{8}PM_{10}$	$PM_{2.5}$	SO_2[6]	NO_x	CO	VOC	Lead	HF	H_2SO_4		CH_4	N_2O	CO_2	CO_2e[4]	
4.99	1.93	5.29	106.25	80.00	3.33	0.40	0.07	1.00	0.09	lb/hour	2.78	0.40	24584.01	24,774.22	lb/hour
8.89	4.98	9.43	259.75	142.50	5.94	0.71	0.12	1.78	0.22	tpy	4.96	0.72	43790.27	44,129.07	controlled tpy

Boiler 4

Capable of Accommodating Emissions - Subbituminous Coal

Subbituminous, wall fired, dry bottom, PC, Pre NSPS

PM	$^{8}PM_{10}$	$PM_{2.5}$	SO_2[6]	NO_x	CO	VOC	Lead	HF	H_2SO_4		CH_4	N_2O	CO_2	CO_2e[4]	
4.99	1.93	5.29	106.25	80.00	3.33	0.40	0.067	1.000	0.090	lb/hour	2.78	0.40	24,584.01	24,774.22	lb/hour
8.89	4.98	9.43	259.75	142.50	5.94	0.71	0.119	1.781	0.221	tpy	4.96	0.72	43,790.27	44,129.07	controlled tpy

Notes

1 Source: Title I Condition

3 GHG Factors and heating values are derived from 40 CFR Part 98, GHG Mandatory Reporting Rule, Tables A-1, C-1 and C-2.

4 CO2e emissions are calculated by: 298 x N2O + 25 x CH4 + CO2 = CO2e

6 SO2 emissions = 35 x percent sulfur limit (lb per ton) x ton per hour = lb per hour SO2

7 PM and PM10 EFs calculated based on 2009-2010 AEIR factors from stack testing/material balance:

	Air Emissions Summary Report Data			Calculated Emissions Factor		
Year	PM	PM10	Units	PM	PM10	Units
2009	0.041	0.050	lb/MMBtu	73.98	90.22	lb/ton
2010	0.042	0.042	lb/MMBtu	75.79	75.79	lb/ton
09/10 avg				**74.88**	**83.00**	lb/ton

Avg HHV used in PM/PM10 EFs calculated based on the different values from 2009-2010 AEIR for Boilers 1 & 4:

	Boiler 1			Boiler 2			Boiler 3			Boiler 4			Avg
Year	MMBtu/yr	Tons/yr	MMBtu/ton	MMBtu/yr	Tons/yr	MMBtu/ton	MMBtu/yr	Tons/yr	MMBtu/ton	MMBtu/yr	Tons/yr	MMBtu/ton	MMBTU/ton
2009	412,081.5	17,999.0	22.9	173,508.0	14,999.0	11.6	303,639.0	13,799.0	22.0	195,196.5	13,199.0	14.8	17.8
2010	289,990.0	15,869.0	18.3	109,996.0	6,019.0	18.3	269,991.0	14,774.0	18.3	329,989.0	18,058.0	18.3	18.3
09/10 avg	351,035.8	16,934.0	20.6	141,752.0	10,509.0	14.9	286,815.0	14,286.5	20.1	262,592.8	15,628.5	16.5	**18.0**

8 Permit limits for PM10 are 7.7 lb/hour and 19.9 tons per year. Sulfur Dioxide limited to 425 lb/hr and 1039 tpy, Nox limited to 594 tpy.

9

H2SO4 EF calculated using equation in: *An Updated Method for Estimating Total Sulfuric Acid Emissions from Stationary Power Plants* , Research and Environmental Affairs Department, Southern Company Generation and Energy Marketing (2003)

H2SO4: 0.000851451 ton/ton SO2 *(equation was modified to calculate an emission factor in ton/ton SO2 instead of emissions in lb/yr, but follows the same methodology)*

E1 =K*F1 *E2 Where:

E1= total H2SO4 manufactured from combustion, lbs/yr - *modified equation to yield ton/ton SO2*

K= Molecular weight and units conversion constant = 98.07 / 64.04 * 2000 = 3,063, where 98.07 = Molecular weight of H2SO4; 64.04 = Molecular weight of SO2; Conversion from tons per year to pounds per year - multiply by 2000 - *modified to remove ton to lb conversion*

F1= Fuel Impact Factor (F1 factor from Table 1 for subbituminous coal fired in a PC boiler) = 0.000556

E2= Sulfur dioxide (SO2) emissions either: (1) recorded by a continuous emissions monitor, tons/yr, or (2) calculated from coal bum data, tons/yr - *this step is performed in the calculations above*

***Example Calculations:**

Coal Sample: lb PM per ton x (1- 99% control) x ton per hour = lb PM/hour

*Sample for GHG Emissions: kg CO2 per mmBtu x 115 mmBtu per hr * 2.2lb per kg = lb/hour*

Duluth Energy Systems - Major Modification
Duluth, MN
AQ Facility ID: 13700022
Baseline Actual Emission Calculations in Tons

EU 001: Boiler 1	2009	2010	2011 [5]	2012	2013	2014	2015	2016	2017	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	Maximum	Year
CO	4.54	4.00	3.49	3.69	3.10	1.76	3.01	1.74	3.34	4.27	3.75	3.59	3.39	2.43	2.39	2.38	2.54	4.27	2009/10
Lead[1]	0.43	0.08	0.0032	0.07	0.06	0.04	0.06	0.03	0.07	0.26	0.04	0.04	0.07	0.05	0.05	0.05	0.05	0.26	2009/10
NO_x	109.47	96.35	83.63	88.42	74.62	42.23	71.97	41.84	82.71	102.91	89.99	86.03	81.52	58.43	57.10	56.91	62.27	102.91	2009/10
PM (FIL)[2]	6.81	6.15	-	3.62	7.60	0.30	0.66	0.87	0.72	6.48	-	-	5.61	3.95	0.48	0.77	0.79	6.48	2009/10
PM_{10}(CON+FIL)[2]	8.31	6.15	-	3.34	7.72	0.95	0.38	0.94	1.02	7.23	-	-	5.53	4.33	0.67	0.66	0.98	7.23	2009/10
$PM_{2.5}$(CON+FIL)[2]	3.61	3.26	-	1.93	4.77	0.79	0.35	0.60	0.72	3.43	-	-	3.35	2.78	0.57	0.47	0.66	3.43	2009/10
SO_2	121.44	106.41	92.87	98.03	83.40	29.26	70.79	39.67	83.89	113.93	99.64	95.45	90.72	56.33	50.03	55.23	61.78	113.93	2009/10
VOC	0.54	0.48	0.42	0.46	0.37	0.21	0.36	0.21	0.40	0.51	0.45	0.44	0.42	0.29	0.29	0.28	0.30	0.51	2009/10
Flourides[3]	1.36	1.20	1.04	1.10	0.93	1.00	0.90	0.52	0.53	1.28	1.12	1.07	1.02	0.96	0.95	0.71	0.52	1.28	2009/10
Sulfuric Acid Mist[4]	0.10	0.09	0.08	0.08	0.07	0.03	0.06	0.03	0.07	0.10	0.09	0.08	0.08	0.05	0.04	0.05	0.05	0.10	2009/10
CO2	33,320	31,256	26,973	1,887	16,858	9,355	15,832	9,134	16,693	32,288	29,115	14,430	9,373	13,107	12,594	12,483	12,914	32,288	2009/10
CH4	3.80	4.75	3.40	3.26	2.76	1.34	2.44	1.47	2.78	4.28	4.08	3.33	3.01	2.05	1.89	1.95	2.12	4.28	2009/10
N2O	0.55	0.76	0.51	0.47	0.40	0.21	0.04	0.35	0.40	0.66	0.64	0.49	0.44	0.31	0.13	0.19	0.38	0.66	2009/10
CO_2e	33,580	31,601	27,211	2,110	17,047	9,453	15,905	9,274	16,883	32,591	29,406	2,110	17,047	9,453	15,905	9,274	16,883	32,591	2009/10

EU 004: Boiler 4	2009	2010	2011 [5]	2012	2013	2014	2015	2016	2017	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	Maximum	Year
CO	3.34	4.53	3.21	3.27	3.21	1.53	2.54	1.55	2.31	3.93	3.87	3.24	3.24	2.37	2.03	2.04	1.93	3.93	2009/10
Lead[1]	0.32	0.09	0.0030	0.07	0.06	0.03	0.05	0.03	0.05	0.20	0.05	0.03	0.06	0.05	0.04	0.04	0.04	0.20	2009/10
NO_x	80.59	108.35	76.78	78.51	77.18	36.52	61.33	36.92	57.25	94.47	92.56	77.65	77.85	56.85	48.93	49.13	47.09	94.47	2009/10
PM (FIL)[2]	4.96	6.93	-	3.21	7.87	0.26	0.55	0.77	0.70	5.95	-	-	5.54	4.07	0.41	0.66	0.74	5.95	2009/10
PM_{10}(CON+FIL)[2]	6.06	6.93	-	2.97	7.99	0.82	0.58	0.83	1.00	6.50	-	-	5.48	4.41	0.70	0.71	0.92	6.50	2009/10
$PM_{2.5}$(CON+FIL)[2]	2.63	3.67	-	1.70	1.72	0.68	0.29	0.19	0.71	3.15	-	-	1.71	1.20	0.49	0.24	0.45	3.15	2009/10
SO_2	88.37	119.21	85.00	87.08	86.20	25.28	59.19	52.77	82.70	103.79	102.10	86.04	86.64	55.74	42.23	55.98	67.74	103.79	2009/10
VOC	0.40	0.54	0.38	0.40	0.38	0.18	0.23	0.18	0.28	0.47	0.46	0.39	0.39	0.28	0.21	0.21	0.23	0.47	2009/10
Flourides[3]	1.00	1.35	0.96	0.98	0.96	0.69	0.76	0.46	0.46	1.18	1.16	0.97	0.97	0.83	0.73	0.61	0.46	1.18	2009/10
Sulfuric Acid Mist[4]	0.08	0.10	0.07	0.07	0.07	0.02	0.05	0.05	0.07	0.09	0.09	0.07	0.07	0.05	0.04	0.05	0.06	0.09	2009/10
CO2	20,957	35,317	24,755	15,528	156	8,107	13,500	8,126	11,548	28,137	30,036	20,142	7,842	4,131	10,803	10,813	9,837	28,137	2009/10
CH4	2.39	3.99	2.80	2.89	0.02	1.16	2.05	1.31	1.92	3.19	3.40	2.85	1.46	0.59	1.61	1.68	1.61	3.19	2009/10
N20	0.35	0.58	0.41	0.42	0.41	0.09	0.32	0.21	0.28	0.46	0.49	0.41	0.42	0.25	0.21	0.27	0.24	0.46	2009/10
CO_2e	21,120	35,590	24,947	15,726	280	8,163	13,648	8,221	11,679	28,355	30,269	20,336	8,003	4,222	10,906	10,934	9,950	28,355	2009/10

Duluth Energy Systems - Major Modification
Duluth, MN
AQ Facility ID: 13700022
Baseline Acutal Emission Calculations in Tons

EU 002: Boiler 2	2009	2010	Baseline		Maximum	Year
CO	6.35	1.73	4.04		4.04	2009/10
Lead[1]	0.08	0.03	0.05		0.05	2009/10
NO_x	99.98	37.08	68.53		68.53	2009/10
PM (FIL)[2]	3.03	2.32	2.68		2.68	2009/10
PM_{10}(CON+FIL)[2]	3.63	2.32	2.98		2.98	2009/10
$PM_{2.5}$(CON+FIL)[2]	1.61	1.23	1.42		1.42	2009/10
SO_2	100.14	40.10	70.12		70.12	2009/10
VOC	0.62	0.20	0.41		0.41	2009/10
Flourides[3]	1.13	0.45	0.79		0.79	2009/10
Sulfuric Acid Mist[4]	0.09	0.03	0.06		0.06	2009/10
CO2	18,671	11,772	15,221		15221.13	2009/10
CH4	0.06	1.33	0.69		0.69	2009/10
N2O	0.31	0.19	0.25		0.25	2009/10
CO_2e	18,765	11,863	15,314		15313.80	2009/10

EU 003: Boiler 3	2009	2010	Baseline		Maximum	Year
CO	6.05	3.72	4.89		4.89	2009/10
Lead[1]	0.07	0.07	0.07		0.07	2009/10
NO_x	92.79	88.75	90.77		90.77	2009/10
PM (FIL)[2]	6.55	5.67	6.11		6.11	2009/10
PM_{10}(CON+FIL)[2]	6.66	5.67	6.16		6.16	2009/10
$PM_{2.5}$(CON+FIL)[2]	3.47	3.01	3.24		3.24	2009/10
SO_2	93.05	97.52	95.28		95.28	2009/10
VOC	0.59	0.44	0.52		0.52	2009/10
Flourides[3]	1.04	1.11	1.08		1.08	2009/10
Sulfuric Acid Mist[4]	0.08	0.08	0.08		0.08	2009/10
CO2	27,293	28,896	28,095		28094.72	2009/10
CH4	3.12	3.27	3.19		3.19	2009/10
N20	0.45	0.48	0.46		0.46	2009/10
CO_2e	27,507	29,119	28,313		28312.98	2009/10

1 Control was taken for Pb in 2009 at 79% for fabric filter. Control was not taken in any future year, so uncontrolled emissions were back calculated here for consistency

2 PM, and PM10 subbituminous coal emissions in 2009 were adjusted by a ratio of the avg coal HHV from 2010 - 2012 for consistency. PM2.5 was calculated for years 2009 - 2011 based on size distributions for the relevant fuels in AP-42 chapters used in the 2012 AEIR.

3 HF emission factor from AP 42 Table 1.1-15 for PC dry bottom, tangentially fired boiler combusting bituminous/subbituminous coal:

HF: 0.15 lb/ton coal

4 H2SO4 EF calculated using equation in: *An Updated Method for Estimating Total Sulfuric Acid Emissions from Stationary Power Plants* , Research and Environmental Affairs Department, Southern Company Generation and Energy Marketing (2003)

H2SO4: 0.000857535 ton/ton SO2 *(equation was modified to calculate an emission factor in ton/ton SO2 instead of emissions in lb/yr, but follows the same methodology)*

E1 =K*F1*E2 Where:

E1= total H2SO4 manufactured from combustion, lbs/yr - *modified equation to yield ton/ton SO2*

K=

Molecular weight and units conversion constant = 98.07 / 64.04 * 2000 = 3,063, where 98.07 = Molecular weight of H2SO4; 64.04 = Molecular weight of SO2; Conversion from tons per year to pounds per year - multiply by 2000 - *modified to remove ton to lb conversion*

F1= Fuel Impact Factor (F1 factor from Table 1 for a PC boiler) = 0.000556 for subbituminous coal

0.00111 ır bituminous coal

0.000559973 combined F1 based on 2009 bit/subbit ratios of total coal as a conservative calculation as the most bituminous coal was combusted in 2009

E2= Sulfur dioxide (SO2) emissions either: (1) recorded by a continuous emissions monitor, tons/yr, or (2) calculated from coal bum data, tons/yr - *this step is performed in the calculations above*

5 AEIR data appears to contain error for PM and PM10 resulting in abnormal emissions; omitted from baseline calcualtions that reason. PM2.5 was not included until AEIR for 2012.

Duluth Steam Cooperative Association
Fugitive Future Projected Actuals

Emission Unit ID	Emission Unit Description	Pollutant	Input Parameters M [2] (%)	Input Parameters U [3] (mph)	Emission Factor [1]	Emissions lb/hr [4]	Emissions ton/yr [4]
EU 103 (IA)	Air discharge from ash silo 1 vent	PM	0.2	20.0	0.3606 lb/ton [1]	0.03849	0.2248
		PM10	0.2	20.0	0.1706 lb/ton [1]	0.01821	0.1063
		PM2.5	0.2	20.0	0.0258 lb/ton [1]	0.00276	0.0161
EU 104 (IA)	Air discharge from ash silo 2 vent	PM	0.2	20.0	0.3606 lb/ton [1]	0.03849	0.1124
		PM10	0.2	20.0	0.1706 lb/ton [1]	0.01821	0.0532
		PM2.5	0.2	20.0	0.0258 lb/ton [1]	0.00276	0.0080
FS 001 (IA)	Coal Truck Unloading	PM	4.5	11.0	0.0021 lb/ton [1]	0.00533	0.0233
		PM10	4.5	11.0	0.0010 lb/ton [1]	0.00252	0.0110
		PM2.5	4.5	11.0	0.0002 lb/ton [1]	0.00038	0.0017
FS 002 (IA)	Coal Transfer to Bunker	PM	4.5	11.0	0.0021 lb/ton [1]	0.00533	0.0233
		PM10	4.5	11.0	0.0010 lb/ton [1]	0.00252	0.0110
		PM2.5	4.5	11.0	0.0002 lb/ton [1]	0.00038	0.0017
FS 003 (IA)	Ash Truck Loading	PM	27.0	11.0	0.00017 lb/ton [1]	0.00004	0.0002
		PM10	27.0	11.0	0.00008 lb/ton [1]	0.00002	0.0001
		PM2.5	27.0	11.0	0.00001 lb/ton [1]	0.00000	0.0000
Total Coal Fugitives		PM				0.08767	0.3840
		PM10				0.04147	0.1816
		PM2.5				0.00628	0.0275

Notes:

[1] Emission factor for material handling, E (lb/ton) = k x 0.0032 x [(U/5)^1.3 / (M/2)^1.4]

where k is an empirical constant:

	k
PM:	0.74
PM_{10}:	0.35
$PM_{2.5}$:	0.053

Source: AP-42, November 2006, Page 13.2.4-4.

[2] M = moisture content (%).

4.5	% (coal)	Source: AP-42, November 2006, Table 13.2.4-1.
0.2	% (ash)	Source: DSCA estimate (conservatively low)
27.0	% (ash)	Source: MPCA Title V Modeling - Fugitive PM10 Emission Spreadsheet (Aug. 2001): Material Handling of "Fly ash - landfill waste"

[3] U = mean wind speed.

11.0	mph	Source: "Climate of Minnesota, Part XIV - Wind Climatology and Wind Power", University of Minnesota, 1983, for Duluth, MN
20.0	mph	Source: DSCA estimate of wind speed from pneumatic conveying (conservatively high)

[4] Throughput rates are as follows:

Maximum subbit =	2.51	ton/hr	based on projected actual coal use in ton/yr
	22,000	ton/yr	based on projected actual coal use in ton/yr
Maximum bit =	0.00	ton/hr	based on projected actual coal use in ton/yr
	0	ton/yr	based on projected actual coal use in ton/yr
Maximum ash =	0.21347032	ton/hr	based on projected actual coal use, and ash content
	1870	ton/yr	based on projected actual coal use, and ash content

Ash and Sulfur contents of fuels used to calculate maximum and limited emissions are conservative estimates based on fuel specifications and analyses reported by DSCA.

Ash and Sulfur contents of fuels used to calculate actual emissions are based on analytical data reported by DSCA in their annual emission inventory.

	Maximum wt.% Ash	Actual % Ash
Subbituminous Coal	8.5	4.04
Bituminous Coal	10	
#2 Fuel Oil	0	0

Maximum ash silo assumptions:
Hourly silo throughput is equal to the projected actual daily amount of ash generated multiplied by the split ratio
Annual silo hroughput is equal to the maximum annual amount of ash generated multiplied by the split ratio

Note: It is assumed that the fly ash generated is split between the two silos as the quantity of acceptable and unacceptable ash for use as a concrete additive will vary. Each silo is equipped with a filter tank (containing bags that control the emissions at 99%). However, no control efficiency is assumed in order to be conservative.

Duluth Steam Cooperative Association
Fugitive Baseline Actuals

Emission Unit ID	Emission Unit Description	Pollutant	Input Parameters M [2] (%)	Input Parameters U [3] (mph)	Emission Factor [1]	Emissions lb/hr [4]	Emissions ton/yr [4]
EU 103 (IA)	Air discharge from ash silo 1 vent	PM	0.2	20.0	0.3606 lb/ton [1]	0.10101	0.5899
		PM10	0.2	20.0	0.1706 lb/ton [1]	0.04777	0.2790
		PM2.5	0.2	20.0	0.0258 lb/ton [1]	0.00723	0.0422
EU 104 (IA)	Air discharge from ash silo 2 vent	PM	0.2	20.0	0.3606 lb/ton [1]	0.10101	0.2949
		PM10	0.2	20.0	0.1706 lb/ton [1]	0.04777	0.1395
		PM2.5	0.2	20.0	0.0258 lb/ton [1]	0.00723	0.0211
FS 001 (IA)	Coal Truck Unloading	PM	4.5	11.0	0.0021 lb/ton [1]	0.01389	0.0608
		PM10	4.5	11.0	0.0010 lb/ton [1]	0.00657	0.0288
		PM2.5	4.5	11.0	0.0002 lb/ton [1]	0.00099	0.0044
FS 002 (IA)	Coal Transfer to Bunker	PM	4.5	11.0	0.0021 lb/ton [1]	0.01389	0.0608
		PM10	4.5	11.0	0.0010 lb/ton [1]	0.00657	0.0288
		PM2.5	4.5	11.0	0.0002 lb/ton [1]	0.00099	0.0044
FS 003 (IA)	Ash Truck Loading	PM	27.0	11.0	0.00017 lb/ton [1]	0.00010	0.0004
		PM10	27.0	11.0	0.00008 lb/ton [1]	0.00005	0.0002
		PM2.5	27.0	11.0	0.00001 lb/ton [1]	0.00001	0.0000
Total Coal Fugitives		PM				0.22988	1.0069
		PM10				0.10873	0.4762
		PM2.5				0.01646	0.0721

Notes:

[1] Emission factor for material handling, E (lb/ton) = k x 0.0032 x [(U/5)^1.3 / (M/2)^1.4]

where k is an empirical constant:

	k
PM:	0.74
PM_{10}:	0.35
$PM_{2.5}$:	0.053

Source: AP-42, November 2006, Page 13.2.4-4.

[2] M = moisture content (%).

4.5 % (coal) Source: AP-42, November 2006, Table 13.2.4-1.

0.2 % (ash) Source: DSCA estimate (conservatively low)

27.0 % (ash) Source: MPCA Title V Modeling - Fugitive PM10 Emission Spreadsheet (Aug. 2001): Material Handling of "Fly ash - landfill waste"

[3] U = mean wind speed.

11.0 mph Source: "Climate of Minnesota, Part XIV - Wind Climatology and Wind Power", University of Minnesota, 1983, for Duluth, MN

20.0 mph Source: DSCA estimate of wind speed from pneumatic conveying (conservatively high)

[4] Throughput rates are as follows:

Maximum subbit =	6.55	ton/hr	based on baseline actual coal use in ton/yr using average data in 2009 and 2010 AEIRs
	57,358	ton/yr	based on baseline actual coal use in ton/yr using average data in 2009 and 2010 AEIRs
Maximum bit =	0.04	ton/hr	based on baseline actual coal use in ton/yr using average data in 2009 and 2010 AEIRs
	316	ton/yr	based on baseline actual coal use in ton/yr using average data in 2009 and 2010 AEIRs
Maximum ash =	0.560162728	ton/hr	based on baseline actual coal use, and ash content
	4907.0255	ton/yr	based on baseline actual coal use, and ash content

Ash and Sulfur contents of fuels used to calculate maximum and limited emissions are conservative estimates based on fuel specifications and analyses reported by DSCA.

Ash and Sulfur contents of fuels used to calculate actual emissions are based on analytical data reported by DSCA in their annual emission inventory.

	Maximum wt.% Ash	Actual % Ash
Subbituminous Coal	8.5	4.04
Bituminous Coal	10	
#2 Fuel Oil	0	0

Maximum ash silo assumptions:
Hourly silo throughput is equal to the baseline actual daily amount of ash generated multiplied by the split ratio as described below.
Annual silo hroughput is equal to the maximum annual amount of ash generated multiplied by the split ratio as described below.

Note: It is assumed that the fly ash generated is split between the two silos as the quantity of acceptable and unacceptable ash for use as a concrete additive will vary. Each silo is equipped with a filter tank (containing bags that control the emissions at 99%). However, no control efficiency is assumed in order to be conservative.

EQUI 2 Ash Handling System Calculations - Future Projected Actuals and Baseline Actuals

Baseline (tpy):

Ash System Total	2009	2010	09/10 avg
PM	0.0083	0.119	0.063
PM10	0.0041	0.015	0.010
PM2.5	0.0041	0.015	0.010

AEIR avg throughput: 2357.6 (tpy coal ash)

FPA (tpy):

Ash System Total	Proportioned Emissions		FPA Emissions
PM	0.0066	0.0941	0.050
PM10	0.0033	0.0122	0.008
PM2.5	0.0033	0.0122	0.008

FPA throughput: 1870 (tpy coal ash)

Limits:

Exhaust Flow Rate:	813	acfm 70F
Ash Flow Rate:	0.2134703	tons per hr, FPA
Annual Flow Rate:	1870	tons per yr, FPA
Permit Limit:	8,415	tons per yr 12 month rolling
Control in Permit:	99.9	percent; implies compliance with rule
Table 1 Limit:	1.38	lb per hour
Limit from Table 2:	0.1	gr per dscf
	0.70	lb per hr minimim allowable limit
Overall Limit:	0.3	gr per dscf
	2.09	lb per hr maximum allowable limit

Based on the above calculations, the allowable emissions are 2.09 lb/hr maximum. This is the same as limiting based on 0.3 gr/dscf. The higher Table 1 lb/hour would exceed the 0.3 gr/dscf limit, and is not allowable.

FPA Emissions

PM

9.16 tons/yr, =2.09 lb per hour x 8760 hour per year / 2000 lb per ton

41.21 tons/yr, = 9.16 tons per year potential x 1,870 tons throughput baseline / 245,280 tons potential

PM10

assume all of the material out of a 99.9 percent effective baghouse is less than 2.5 microns.

PM2.5

assume PM2.5 emissions equal to PM10 emission rate

Duluth Steam Plant No. 1
Paved On-Site Roads
Fugitive Dust Emissions from On-Site Road Traffic - Coal Truck FPA and BA

FUGITIVE DUST PARTICULATE EMISSIONS FOR PAVED TRUCK LOADING ROUTE

The emission factor for PM and PM10 from truck traffic on paved roads is calculated using the AP-42 equation below:

E = k * [(sL)^0.91 * (W)^1.02](1-(P/4*N)) * (S/30)^0.5 (lb/VMT, vehicle miles traveled), AP-42, Section 13.2.1, Equation 2, 1/11, additional MPCA endorsed speed correction ter

Factor	Description	PM Value	PM10 Value	PM2.5 Value
E =	Coal - controlled emission factor	1.229	0.246	0.060
k =	Particle size multiplier (lb/vmt), AP-42, Table 13.2-1.1	0.011	0.002	0.001
sL =	Road surface silt loading (g/m²) (calculated) (1)	7.91	7.91	7.91
W =	Coal - Mean vehicle weight (ton) (estimated) (2)	30.0	30.0	30.0
S =	Plant speed limit (mph)	10.0	10.0	10.0
P =	Number of Wet Days, AP-42, Figure 13.2-1-2	120	120	120
N =	Number of Days in Averaging Period	365	365	365

Fugitive Dust from paved Roads - FPA

Pollutant	No. of Vehicles(2) (vehicles/hr)	No. of Vehicles(3) (vehicles/yr)	Miles(4) Traveled per Vehicle (miles/vehicle)	Total Emissions (lb/hr)	Total Emissions (lb/yr)	Total Emissions (ton/yr)
PM	0.1	786	0.04	0.00	39	0.019
PM10	0.1	786	0.04	0.00	8	0.004
PM2.5	0.1	786	0.04	0.000	2	0.001

Fugitive Dust from paved Roads - BA

Pollutant	No. of Vehicles(2) (vehicles/hr)	No. of Vehicles(3) (vehicles/yr)	Miles(4) Traveled per Vehicle (miles/vehicle)	Total Emissions (lb/hr)	Total Emissions (lb/yr)	Total Emissions (ton/yr)
PM	0.3	2,060	0.04	0.01	101	0.051
PM10	0.3	2,060	0.04	0.00	20	0.010
PM2.5	0.3	2,060	0.04	0.001	5	0.002

(1) The silt loading (sL) value is calculated based on the following methodology provided by MPCA (Dennis Becker) in a 9/20/07 e-mail to Barr Engineering Company (Paul Taylor):

sL = road surface silt loading with controls (g/m^2) = silt loading without controls (g/m^2) x (1-silt loading control efficiency (%)) = 7.91

silt loading without controls (g/m^2) = a x b x c^('-0.5*LOG10(vehicles per day/100)) = 11.18

where: a (g/m^2) =	10	
b (-) =	1	
c (-) =	1.2	
vehicles per day =	6	
silt loading control efficiency (%) =	29.25	
Max. silt loading control efficiency (%) =	30	for broom sweeping
Min. silt loading control efficiency (%) =	28.50	
Road cleaning frequency (once every n days) =	1	
Avg. number of road cleanings/day =	1.0	
Zero-intercept (number of Vehicle Passes between road cleanings) =	120	for broom sweeping
vehicles per day subject to control efficiency =	6	
vehicles per day NOT subject to control efficiency =	0	

(2) The estimated mean vehicle weight is based on the average truck weight (filled and empty weights).

	Coal Trucks	Employee Vehicles	VMT-weighted Fleet Avg Weight (tons)
Weight (tons)	30	2	30.00

Empty RFO Truck Weight: 35,000 lbs.
Truck RFO Capacity: 6,000 gallons OR 60,060 lbs.

(3) The estimated average number of vehicles per hour and year is based on the following:

Baseline based on AEIR avg data 2009-2010:

	Coal Trucks	Total
Max. number of trips per day (trips/day)	6	6
trips per yr = tons coal / 28 ton capacity/truck + employee trips/day =	2,060	

Future Projected Actuals based on projected coal use:

	Coal Trucks	Total
Max. number of trips per day (trips/day)	2	2
trips per yr = tons coal / 28 ton capacity/truck + employee trips/day =	786	

(4) The number of miles traveled per existing vehicle and plant truck is the round trip distance for the complete paved onsite truck loading route.

	Coal Trucks	Total
Road Length Traveled by Coal Truck (feet/trip)	200	200
Max. Distance Traveled Per Day (feet/day)	1,129	1,129
Max. Distance Traveled Per Hour (VMT/hr)	0.009	0.009

Facility: Duluth Steam Plant 1
Facility ID: 13700022 (AI ID 4233)
Inventory Year: 2009

Boiler 2 HHV	Average Boiler 2 HHV (2009-2010)	Boiler 3 HHV	Average Boiler 3 HHV (2009-2010)
11.56797186	14.92138417	22.00442206	18.34663668
		18.41853395	

Unit ID	Subject Item	Unit Desc	Process ID	Proc Desc	SCC	Pollutant	Emissions Calculation Method	Throughput Material	Throughput Amount	Throughput Units	Emission Factor	EF Units	Capt (%)	Cont (%)	Total Comb (%)	Emissions	Emiss Units	Emission Factor (AP-42)	Emission Factor Units
EU001	EQUI5	Boiler 1	EU001PD001	Subbituminous Coal	10100222	CO	ENG JUDGMENT	COAL,SUBBIT	17,999.00	TON	6.00E-01	LB/TON				4.50E+00	TON	0.5	lb/ton
EU001	EQUI5	Boiler 1	EU001PD001	Subbituminous Coal	10100222	LEAD	ENG JUDGMENT	COAL,SUBBIT	17,999.00	TON	1.00E-02	LB/TON	79.00	100.00	79.00	1.89E-02	TON	1.00E-02	lb/ton
EU001	EQUI5	Boiler 1	EU001PD001	Subbituminous Coal	10100222	NOX	ENG JUDGMENT	COAL,SUBBIT	17,999.00	TON	1.20E+01	LB/TON				107.99	TON	12	lb/ton
EU001	EQUI5	Boiler 1	EU001PD001	Subbituminous Coal	10100222	PM	ENG JUDGMENT	HEAT	412,081.53	E6BTU	4.10E-02	LB/E6BTU	100	99	99	8.45E+00	TON	4.10E-02	lb/E6BTU
EU001	EQUI5	Boiler 1	EU001PD001	Subbituminous Coal	10100222	PM10-PRI	ENG JUDGMENT	HEAT	412,081.53	E6BTU	5.00E-02	LB/E6BTU	100	98	98	1.03E+01	TON	5.00E-02	lb/E6BTU
EU001	EQUI5	Boiler 1	EU001PD001	Subbituminous Coal	10100222	SO2	ENG JUDGMENT	COAL,SUBBIT	17,999.00	TON	1.32E+01	LB/TON				1.19E+02	TON	13.2	lb/ton
EU001	EQUI5	Boiler 1	EU001PD001	Subbituminous Coal	10100222	VOC	ENG JUDGMENT	COAL,SUBBIT	17,999.00	TON	6.00E-02	LB/TON				0.539969981	TON	6.00E-02	lb/ton
EU001	EQUI5	Boiler 1	EU001PD002	Natural gas	10100601	CO	ENG JUDGMENT	NATURAL GAS	0.00	E6FT3						0.00E+00	TON	84	lb/E6FT3
EU001	EQUI5	Boiler 1	EU001PD002	Natural gas	10100601	LEAD	ENG JUDGMENT	NATURAL GAS	0.00	E6FT3						0.00E+00	TON	5.00E-04	lb/E6FT3
EU001	EQUI5	Boiler 1	EU001PD002	Natural gas	10100601	NOX	ENG JUDGMENT	NATURAL GAS	0.00	E6FT3						0.00	TON	280	lb/E6FT3
EU001	EQUI5	Boiler 1	EU001PD002	Natural gas	10100601	PM	ENG JUDGMENT	NATURAL GAS	0.00	E6FT3						0.00E+00	TON	7.60E+00	lb/E6FT3
EU001	EQUI5	Boiler 1	EU001PD002	Natural gas	10100601	PM10-PRI	ENG JUDGMENT	NATURAL GAS	0.00	E6FT3						0.00E+00	TON	7.6	lb/E6FT3
EU001	EQUI5	Boiler 1	EU001PD002	Natural gas	10100601	SO2	ENG JUDGMENT	NATURAL GAS	0.00	E6FT3						0.00E+00	TON	5.5	lb/E6FT3
EU001	EQUI5	Boiler 1	EU001PD002	Natural gas	10100601	VOC	ENG JUDGMENT	NATURAL GAS	0.00	E6FT3						0.00	TON	5.5	lb/E6FT3
EU001	EQUI5	Boiler 1	EU001PD003	#2 fuel oil	10100501	CO	ENG JUDGMENT	DISTILLATE	3.96	E3GAL	5.00E+00	LB/E3GAL				9.90E-03	TON	5	lb/E3GAL
EU001	EQUI5	Boiler 1	EU001PD003	#2 fuel oil	10100501	LEAD	ENG JUDGMENT	DISTILLATE	3.96	E3GAL	9.00E-06	LB/E3GAL	79.00	100.00	79.00	3.70E-09	TON	9.00E-06	lb/E3GAL
EU001	EQUI5	Boiler 1	EU001PD003	#2 fuel oil	10100501	NOX	ENG JUDGMENT	DISTILLATE	3.96	E3GAL	2.40E+01	LB/E3GAL				0.047520001	TON	24	lb/E3GAL
EU001	EQUI5	Boiler 1	EU001PD003	#2 fuel oil	10100501	PM	ENG JUDGMENT	DISTILLATE	3.96	E3GAL	3.30E+00	LB/E3GAL	100	99	99	6.53E-05	TON	3.30E+00	lb/E3GAL
EU001	EQUI5	Boiler 1	EU001PD003	#2 fuel oil	10100501	PM10-PRI	ENG JUDGMENT	DISTILLATE	3.96	E3GAL	2.30E+00	LB/E3GAL	100	98	98	4.55E-05	TON	2.3	lb/E3GAL
EU001	EQUI5	Boiler 1	EU001PD003	#2 fuel oil	10100501	SO2	ENG JUDGMENT	DISTILLATE	3.96	E3GAL	4.26E+00	LB/E3GAL				9.33E-03	TON	4.26	lb/E3GAL
EU001	EQUI5	Boiler 1	EU001PD003	#2 fuel oil	10100501	VOC	ENG JUDGMENT	DISTILLATE	3.96	E3GAL	2.0E-01	LB/E3GAL				0.000396	TON	0.2	lb/E3GAL
EU001	EQUI5	Boiler 1	EU001PD004	Mineral spirits	10101301	CO	ENG JUDGMENT	WASTE LIQUID	0.00	E3GAL						0.00E+00	TON	5	lb/E3GAL
EU001	EQUI5	Boiler 1	EU001PD004	Mineral spirits	10101301	LEAD	ENG JUDGMENT	WASTE LIQUID	0.00	E3GAL						0.00E+00	TON	2.2	lb/E3GAL
EU001	EQUI5	Boiler 1	EU001PD004	Mineral spirits	10101301	NOX	ENG JUDGMENT	WASTE LIQUID	0.00	E3GAL						0.00	TON	19	lb/E3GAL
EU001	EQUI5	Boiler 1	EU001PD004	Mineral spirits	10101301	PM	ENG JUDGMENT	WASTE LIQUID	0.00	E3GAL						0.00E+00	TON	6.40E+01	lb/E3GAL
EU001	EQUI5	Boiler 1	EU001PD004	Mineral spirits	10101301	PM10-PRI	ENG JUDGMENT	WASTE LIQUID	0.00	E3GAL						0.00E+00	TON	3.57	lb/E3GAL
EU001	EQUI5	Boiler 1	EU001PD004	Mineral spirits	10101301	SO2	ENG JUDGMENT	WASTE LIQUID	0.00	E3GAL						0.00E+00	TON	25.58	lb/E3GAL
EU001	EQUI5	Boiler 1	EU001PD004	Mineral spirits	10101301	VOC	ENG JUDGMENT	WASTE LIQUID	0.00	E3GAL						0.00	TON	1	lb/E3GAL
EU001	EQUI5	Boiler 1	EU001PD005	Waste oil	10101302	CO	ENG JUDGMENT	WASTE OIL	.02	E3GAL	5.00E+00	LB/E3GAL				5.00E-05	TON	5	lb/E3GAL
EU001	EQUI5	Boiler 1	EU001PD005	Waste oil	10101302	LEAD	ENG JUDGMENT	WASTE OIL	.02	E3GAL	2.20E+00	LB/E3GAL	79.00	100.00	79.00	4.62E-06	TON	2.2	lb/E3GAL
EU001	EQUI5	Boiler 1	EU001PD005	Waste oil	10101302	NOX	ENG JUDGMENT	WASTE OIL	.02	E3GAL	1.90E+01	LB/E3GAL				0.00019	TON	19	lb/E3GAL
EU001	EQUI5	Boiler 1	EU001PD005	Waste oil	10101302	PM	ENG JUDGMENT	WASTE OIL	.02	E3GAL	4.27E+00	LB/E3GAL	100	99	99	6.10E-06	TON	6.40E+01	lb/E3GAL
EU001	EQUI5	Boiler 1	EU001PD005	Waste oil	10101302	PM10-PRI	ENG JUDGMENT	WASTE OIL	.02	E3GAL	3.57E+00	LB/E3GAL	100	98	98	5.10E-06	TON	3.57	lb/E3GAL
EU001	EQUI5	Boiler 1	EU001PD005	Waste oil	10101302	SO2	ENG JUDGMENT	WASTE OIL	.02	E3GAL	2.56E+01	LB/E3GAL				2.94E-05	TON	25.58	lb/E3GAL
EU001	EQUI5	Boiler 1	EU001PD005	Waste oil	10101302	VOC	ENG JUDGMENT	WASTE OIL	.02	E3GAL	1.00E+00	LB/E3GAL				0.00001	TON	1	lb/E3GAL
EU001	EQUI5	Boiler 1	EU001PD006	Bituminous Coal	10100202	CO	ENG JUDGMENT	COAL,BIT	130.00	TON	5.00E-01	LB/TON				3.25E-02	TON	0.5	lb/ton
EU001	EQUI5	Boiler 1	EU001PD006	Bituminous Coal	10100202	LEAD	ENG JUDGMENT	COAL,BIT	130.00	TON	1.00E-02	LB/TON	79.00	100.00	79.00	1.77E-04	TON	1.30E-02	lb/ton
EU001	EQUI5	Boiler 1	EU001PD006	Bituminous Coal	10100202	NOX	ENG JUDGMENT	COAL,BIT	130.00	TON	2.20E+01	LB/TON				1.429999948	TON	22	lb/ton
EU001	EQUI5	Boiler 1	EU001PD006	Bituminous Coal	10100202	PM	ENG JUDGMENT	HEAT	4,611.00	E6BTU	4.20E-02	LB/E6BTU	100	99	99	9.00E-02	TON	4.10E-02	lb/E6BTU
EU001	EQUI5	Boiler 1	EU001PD006	Bituminous Coal	10100202	PM10-PRI	ENG JUDGMENT	HEAT	4,611.00	E6BTU	4.20E-02	LB/E6BTU	100	98	98	1.15E-01	TON	5.00E-02	lb/E6BTU
EU001	EQUI5	Boiler 1	EU001PD006	Bituminous Coal	10100202	SO2	ENG JUDGMENT	COAL,BIT	130.00	TON	3.41E+01	LB/TON				2.63E+00	TON	34.08	lb/ton
EU001	EQUI5	Boiler 1	EU001PD006	Bituminous Coal	10100202	VOC	ENG JUDGMENT	COAL,BIT	130.00	TON	6.00E-02	LB/TON				0.0039	TON	6.00E-02	lb/ton
EU002	EQUI8	Boiler 2	EU002PD001	Subbituminous Coal	10100222	CO	ENG JUDGMENT	COAL,SUBBIT	14,999.00	TON	6.00E-01	LB/TON				3.749749899	TON	0.5	lb/ton
EU002	EQUI8	Boiler 2	EU002PD001	Subbituminous Coal	10100222	LEAD	ENG JUDGMENT	COAL,SUBBIT	14,999.00	TON	1.00E-02	LB/TON	79.00	100.00	79.00	0.015748948	TON	1.00E-02	lb/ton
EU002	EQUI8	Boiler 2	EU002PD001	Subbituminous Coal	10100222	NOX	ENG JUDGMENT	COAL,SUBBIT	14,999.00	TON	1.20E+01	LB/TON				89.99	TON	12	lb/ton
EU002	EQUI8	Boiler 2	EU002PD001	Subbituminous Coal	10100222	PM	ENG JUDGMENT	HEAT	173,508.01	E6BTU	4.10E-02	LB/E6BTU	100	99	99	3.56	TON	4.10E-02	lb/E6BTU
EU002	EQUI8	Boiler 2	EU002PD001	Subbituminous Coal	10100222	PM10-PRI	ENG JUDGMENT	HEAT	173,508.01	E6BTU	5.00E-02	LB/E6BTU	100	98	98	4.3377	TON	5.00E-02	lb/E6BTU
EU002	EQUI8	Boiler 2	EU002PD001	Subbituminous Coal	10100222	SO2	ENG JUDGMENT	COAL,SUBBIT	14,999.00	TON	1.32E+01	LB/TON				99.00	TON	13.2	lb/ton
EU002	EQUI8	Boiler 2	EU002PD001	Subbituminous Coal	10100222	VOC	ENG JUDGMENT	COAL,SUBBIT	14,999.00	TON	6.00E-02	LB/TON				0.449970007	TON	6.00E-02	lb/ton
EU002	EQUI8	Boiler 2	EU002PD002	Natural gas	10100601	CO	ENG JUDGMENT	NATURAL GAS	61.00	E6FT3						2.562000036	TON	84	lb/E6FT3
EU002	EQUI8	Boiler 2	EU002PD002	Natural gas	10100601	LEAD	ENG JUDGMENT	NATURAL GAS	61.00	E6FT3						3.2025E-06	TON	5.00E-04	lb/E6FT3
EU002	EQUI8	Boiler 2	EU002PD002	Natural gas	10100601	NOX	ENG JUDGMENT	NATURAL GAS	61.00	E6FT3						8.539999962	TON	280	lb/E6FT3
EU002	EQUI8	Boiler 2	EU002PD002	Natural gas	10100601	PM	ENG JUDGMENT	NATURAL GAS	61.00	E6FT3						0.002317998	TON	7.6	lb/E6FT3
EU002	EQUI8	Boiler 2	EU002PD002	Natural gas	10100601	PM10-PRI	ENG JUDGMENT	NATURAL GAS	61.00	E6FT3						0.002317998	TON	7.6	lb/E6FT3
EU002	EQUI8	Boiler 2	EU002PD002	Natural gas	10100601	SO2	ENG JUDGMENT	NATURAL GAS	61.00	E6FT3						0.018300001	TON	0.6	lb/E6FT3
EU002	EQUI8	Boiler 2	EU002PD002	Natural gas	10100601	VOC	ENG JUDGMENT	NATURAL GAS	61.00	E6FT3						0.167750001	TON	5.5	lb/E6FT3
EU002	EQUI8	Boiler 2	EU002PD003	#2 fuel oil	10100501	CO	ENG JUDGMENT	DISTILLATE	3.30	E3GAL	5.00E+00	LB/E3GAL				0.00825	TON	5	lb/E3GAL
EU002	EQUI8	Boiler 2	EU002PD003	#2 fuel oil	10100501	LEAD	ENG JUDGMENT	DISTILLATE	3.30	E3GAL	9.00E-06	LB/E3GAL	79.00	100.00	79.00	3.1E-09	TON	9.00E-06	lb/E3GAL
EU002	EQUI8	Boiler 2	EU002PD003	#2 fuel oil	10100501	NOX	ENG JUDGMENT	DISTILLATE	3.30	E3GAL	2.40E+01	LB/E3GAL				0.0396	TON	24	lb/E3GAL
EU002	EQUI8	Boiler 2	EU002PD003	#2 fuel oil	10100501	PM	ENG JUDGMENT	DISTILLATE	3.30	E3GAL	3.30E+00	LB/E3GAL	100	99	99	5.44499E-05	TON	3.30E+00	lb/E3GAL
EU002	EQUI8	Boiler 2	EU002PD003	#2 fuel oil	10100501	PM10-PRI	ENG JUDGMENT	DISTILLATE	3.30	E3GAL	2.30E+00	LB/E3GAL	100	98	98	0.00003795	TON	2.3	lb/E3GAL
EU002	EQUI8	Boiler 2	EU002PD003	#2 fuel oil	10100501	SO2	ENG JUDGMENT	DISTILLATE	3.30	E3GAL	4.26E+00	LB/E3GAL				0.0077715	TON	4.26	lb/E3GAL
EU002	EQUI8	Boiler 2	EU002PD003	#2 fuel oil	10100501	VOC	ENG JUDGMENT	DISTILLATE	3.30	E3GAL	2.0E-01	LB/E3GAL				0.00033	TON	0.2	lb/E3GAL

EU002	EQUI8	Boiler 2	EU002PD004	Mineral spirits	10101301	CO	ENG JUDGMENT	WASTE LIQUID	0.00	E3GAL							0.00	TON	5	lb/E3GAL
EU002	EQUI8	Boiler 2	EU002PD004	Mineral spirits	10101301	LEAD	ENG JUDGMENT	WASTE LIQUID	0.00	E3GAL							0.00	TON	2.2	lb/E3GAL
EU002	EQUI8	Boiler 2	EU002PD004	Mineral spirits	10101301	NOX	ENG JUDGMENT	WASTE LIQUID	0.00	E3GAL							0.00	TON	19	lb/E3GAL
EU002	EQUI8	Boiler 2	EU002PD004	Mineral spirits	10101301	PM	ENG JUDGMENT	WASTE LIQUID	0.00	E3GAL							0.00	TON	6.40E+01	lb/E3GAL
EU002	EQUI8	Boiler 2	EU002PD004	Mineral spirits	10101301	PM10-PRI	ENG JUDGMENT	WASTE LIQUID	0.00	E3GAL							0.00	TON	3.57	lb/E3GAL
EU002	EQUI8	Boiler 2	EU002PD004	Mineral spirits	10101301	SO2	ENG JUDGMENT	WASTE LIQUID	0.00	E3GAL							0.00	TON	25.58	lb/E3GAL
EU002	EQUI8	Boiler 2	EU002PD004	Mineral spirits	10101301	VOC	ENG JUDGMENT	WASTE LIQUID	0.00	E3GAL							0.00	TON	1	lb/E3GAL
EU002	EQUI8	Boiler 2	EU002PD005	Waste oil	10101302	CO	ENG JUDGMENT	WASTE OIL	.02	E3GAL	5.00E+00	LB/E3GAL					0.00005	TON	5	lb/E3GAL
EU002	EQUI8	Boiler 2	EU002PD005	Waste oil	10101302	LEAD	ENG JUDGMENT	WASTE OIL	.02	E3GAL	2.20E+00	LB/E3GAL	79.00	100.00	79.00	0.00000462	TON	2.2	lb/E3GAL	
EU002	EQUI8	Boiler 2	EU002PD005	Waste oil	10101302	NOX	ENG JUDGMENT	WASTE OIL	.02	E3GAL	1.90E+01	LB/E3GAL				0.00019	TON	19	lb/E3GAL	
EU002	EQUI8	Boiler 2	EU002PD005	Waste oil	10101302	PM	ENG JUDGMENT	WASTE OIL	.02	E3GAL	4.27E+00	LB/E3GAL	100	99	99	0.0000061	TON	4.27E+00	lb/E3GAL	
EU002	EQUI8	Boiler 2	EU002PD005	Waste oil	10101302	PM10-PRI	ENG JUDGMENT	WASTE OIL	.02	E3GAL	3.57E+00	LB/E3GAL	100	98	98	0.0000051	TON	3.57	lb/E3GAL	
EU002	EQUI8	Boiler 2	EU002PD005	Waste oil	10101302	SO2	ENG JUDGMENT	WASTE OIL	.02	E3GAL	2.56E+01	LB/E3GAL				0.0000294	TON	25.58	lb/E3GAL	
EU002	EQUI8	Boiler 2	EU002PD005	Waste oil	10101302	VOC	ENG JUDGMENT	WASTE OIL	.02	E3GAL	1.00E+00	LB/E3GAL				0.00001	TON	1	lb/E3GAL	
EU002	EQUI8	Boiler 2	EU002PD006	Bituminous Coal	10100202	CO	ENG JUDGMENT	COAL,BIT	128.00	TON	5.00E-01	LB/TON				0.032000002	TON	0.5	lb/ton	
EU002	EQUI8	Boiler 2	EU002PD006	Bituminous Coal	10100202	LEAD	ENG JUDGMENT	COAL,BIT	128.00	TON	1.00E-02	LB/TON	79.00	100.00	79.00	0.00017472	TON	1.30E-02	lb/ton	
EU002	EQUI8	Boiler 2	EU002PD006	Bituminous Coal	10100202	NOX	ENG JUDGMENT	COAL,BIT	128.00	TON	2.20E+01	LB/TON				1.407999992	TON	22	lb/ton	
EU002	EQUI8	Boiler 2	EU002PD006	Bituminous Coal	10100202	PM	ENG JUDGMENT	HEAT	1,941.00	E6BTU	4.20E-02	LB/E6BTU	100	99	99	0.04	TON	4.20E-02	lb/E6BTU	
EU002	EQUI8	Boiler 2	EU002PD006	Bituminous Coal	10100202	PM10-PRI	ENG JUDGMENT	HEAT	1,941.00	E6BTU	4.20E-02	LB/E6BTU	100	98	98	0.0398	TON	4.20E-02	lb/E6BTU	
EU002	EQUI8	Boiler 2	EU002PD006	Bituminous Coal	10100202	SO2	ENG JUDGMENT	COAL,BIT	128.00	TON	3.41E+01	LB/TON				1.11	TON	3.41E+01	lb/ton	
EU002	EQUI8	Boiler 2	EU002PD006	Bituminous Coal	10100202	VOC	ENG JUDGMENT	COAL,BIT	128.00	TON	6.00E-02	LB/TON				0.00384	TON	6.00E-02	lb/ton	
EU003	EQUI6	Boiler 3	EU003PD001	Subbituminous Coal	10100222	CO	ENG JUDGMENT	COAL,SUBBIT	13,799.00	TON	6.00E-01	LB/TON				3.449749947	TON	0.5	lb/ton	
EU003	EQUI6	Boiler 3	EU003PD001	Subbituminous Coal	10100222	LEAD	ENG JUDGMENT	COAL,SUBBIT	13,799.00	TON	1.00E-02	LB/TON	79.00	100.00	79.00	0.014488948	TON	1.00E-02	lb/ton	
EU003	EQUI6	Boiler 3	EU003PD001	Subbituminous Coal	10100222	NOX	ENG JUDGMENT	COAL,SUBBIT	13,799.00	TON	1.20E+01	LB/TON				82.79	TON	12	lb/ton	
EU003	EQUI6	Boiler 3	EU003PD001	Subbituminous Coal	10100222	PM	ENG JUDGMENT	HEAT	303,639.02	E6BTU	4.10E-02	LB/E6BTU	100	99	99	6.22	TON	4.10E-02	lb/E6BTU	
EU003	EQUI6	Boiler 3	EU003PD001	Subbituminous Coal	10100222	PM10-PRI	ENG JUDGMENT	HEAT	254,157.35	E6BTU	5.00E-02	LB/E6BTU	100	98	98	7.591	TON	5.00E-02	lb/E6BTU	
EU003	EQUI6	Boiler 3	EU003PD001	Subbituminous Coal	10100222	SO2	ENG JUDGMENT	COAL,SUBBIT	13,799.00	TON	1.32E+01	LB/TON				91.08	TON	13.2	lb/ton	
EU003	EQUI6	Boiler 3	EU003PD001	Subbituminous Coal	10100222	VOC	ENG JUDGMENT	COAL,SUBBIT	13,799.00	TON	6.00E-02	LB/TON				0.413969994	TON	6.00E-02	lb/ton	
EU003	EQUI6	Boiler 3	EU003PD002	Natural gas	10100601	CO	ENG JUDGMENT	NATURAL GAS	61.00	E6FT3						2.562000036	TON	84	lb/E6FT3	
EU003	EQUI6	Boiler 3	EU003PD002	Natural gas	10100601	LEAD	ENG JUDGMENT	NATURAL GAS	61.00	E6FT3						3.2025E-06	TON	5.00E-04	lb/E6FT3	
EU003	EQUI6	Boiler 3	EU003PD002	Natural gas	10100601	NOX	ENG JUDGMENT	NATURAL GAS	61.00	E6FT3						8.539999962	TON	280	lb/E6FT3	
EU003	EQUI6	Boiler 3	EU003PD002	Natural gas	10100601	PM	ENG JUDGMENT	NATURAL GAS	61.00	E6FT3						0.002317998	TON	7.6	lb/E6FT3	
EU003	EQUI6	Boiler 3	EU003PD002	Natural gas	10100601	PM10-PRI	ENG JUDGMENT	NATURAL GAS	61.00	E6FT3						0.002317998	TON	7.6	lb/E6FT3	
EU003	EQUI6	Boiler 3	EU003PD002	Natural gas	10100601	SO2	ENG JUDGMENT	NATURAL GAS	61.00	E6FT3						0.018300001	TON	0.6	lb/E6FT3	
EU003	EQUI6	Boiler 3	EU003PD002	Natural gas	10100601	VOC	ENG JUDGMENT	NATURAL GAS	61.00	E6FT3						0.167750001	TON	5.5	lb/E6FT3	
EU003	EQUI6	Boiler 3	EU003PD003	#2 fuel oil	10100501	CO	ENG JUDGMENT	DISTILLATE	3.03	E3GAL	5.00E+00	LB/E3GAL				0.007575	TON	5	lb/E3GAL	
EU003	EQUI6	Boiler 3	EU003PD003	#2 fuel oil	10100501	LEAD	ENG JUDGMENT	DISTILLATE	3.03	E3GAL	9.00E-06	LB/E3GAL	79.00	100.00	79.00	2.9E-09	TON	9.00E-06	lb/E3GAL	
EU003	EQUI6	Boiler 3	EU003PD003	#2 fuel oil	10100501	NOX	ENG JUDGMENT	DISTILLATE	3.03	E3GAL	2.40E+01	LB/E3GAL				0.036359999	TON	24	lb/E3GAL	
EU003	EQUI6	Boiler 3	EU003PD003	#2 fuel oil	10100501	PM	ENG JUDGMENT	DISTILLATE	3.03	E3GAL	3.30E+00	LB/E3GAL	100	99	99	4.99949E-05	TON	3.30E+00	lb/E3GAL	
EU003	EQUI6	Boiler 3	EU003PD003	#2 fuel oil	10100501	PM10-PRI	ENG JUDGMENT	DISTILLATE	3.03	E3GAL	2.30E+00	LB/E3GAL	100	98	98	0.000034845	TON	2.3	lb/E3GAL	
EU003	EQUI6	Boiler 3	EU003PD003	#2 fuel oil	10100501	SO2	ENG JUDGMENT	DISTILLATE	3.03	E3GAL	4.26E+00	LB/E3GAL				0.00713565	TON	4.26	lb/E3GAL	
EU003	EQUI6	Boiler 3	EU003PD003	#2 fuel oil	10100501	VOC	ENG JUDGMENT	DISTILLATE	3.03	E3GAL	2.0E-01	LB/E3GAL				0.000303	TON	0.2	lb/E3GAL	
EU003	EQUI6	Boiler 3	EU003PD004	Mineral spirits	10101301	CO	ENG JUDGMENT	WASTE LIQUID	0.00	E3GAL							0.00	TON	5	lb/E3GAL
EU003	EQUI6	Boiler 3	EU003PD004	Mineral spirits	10101301	LEAD	ENG JUDGMENT	WASTE LIQUID	0.00	E3GAL							0.00	TON	2.2	lb/E3GAL
EU003	EQUI6	Boiler 3	EU003PD004	Mineral spirits	10101301	NOX	ENG JUDGMENT	WASTE LIQUID	0.00	E3GAL							0.00	TON	19	lb/E3GAL
EU003	EQUI6	Boiler 3	EU003PD004	Mineral spirits	10101301	PM	ENG JUDGMENT	WASTE LIQUID	0.00	E3GAL							0.00	TON	6.40E+01	lb/E3GAL
EU003	EQUI6	Boiler 3	EU003PD004	Mineral spirits	10101301	PM10-PRI	ENG JUDGMENT	WASTE LIQUID	0.00	E3GAL							0.00	TON	3.57	lb/E3GAL
EU003	EQUI6	Boiler 3	EU003PD004	Mineral spirits	10101301	SO2	ENG JUDGMENT	WASTE LIQUID	0.00	E3GAL							0.00	TON	25.58	lb/E3GAL
EU003	EQUI6	Boiler 3	EU003PD004	Mineral spirits	10101301	VOC	ENG JUDGMENT	WASTE LIQUID	0.00	E3GAL							0.00	TON	1	lb/E3GAL

EU003	EQUI6	Boiler 3	EU003PD005	Waste oil	10101302	CO	ENG JUDGMENT	WASTE OIL	.01	E3GAL	5.00E+00	LB/E3GAL				0.000025	TON	5	lb/E3GAL
EU003	EQUI6	Boiler 3	EU003PD005	Waste oil	10101302	LEAD	ENG JUDGMENT	WASTE OIL	.01	E3GAL	2.20E+00	LB/E3GAL	79.00	100.00	79.00	0.00000231	TON	2.2	lb/E3GAL
EU003	EQUI6	Boiler 3	EU003PD005	Waste oil	10101302	NOX	ENG JUDGMENT	WASTE OIL	.01	E3GAL	1.90E+01	LB/E3GAL				0.000095	TON	19	lb/E3GAL
EU003	EQUI6	Boiler 3	EU003PD005	Waste oil	10101302	PM	ENG JUDGMENT	WASTE OIL	.01	E3GAL	4.27E+00	LB/E3GAL	100	99	99	0.00000305	TON	6.40E+01	lb/E3GAL
EU003	EQUI6	Boiler 3	EU003PD005	Waste oil	10101302	PM10-PRI	ENG JUDGMENT	WASTE OIL	.01	E3GAL	3.57E+00	LB/E3GAL	100	98	98	0.00000255	TON	3.57	lb/E3GAL
EU003	EQUI6	Boiler 3	EU003PD005	Waste oil	10101302	SO2	ENG JUDGMENT	WASTE OIL	.01	E3GAL	2.56E+01	LB/E3GAL				0.0000147	TON	25.58	lb/E3GAL
EU003	EQUI6	Boiler 3	EU003PD005	Waste oil	10101302	VOC	ENG JUDGMENT	WASTE OIL	.01	E3GAL	1.00E+00	LB/E3GAL				0.000005	TON	1	lb/E3GAL
EU003	EQUI6	Boiler 3	EU003PD006	Bituminous Coal	10100202	CO	ENG JUDGMENT	COAL,BIT	129.00	TON	5.00E-01	LB/TON				0.032249998	TON	0.5	lb/ton
EU003	EQUI6	Boiler 3	EU003PD006	Bituminous Coal	10100202	LEAD	ENG JUDGMENT	COAL,BIT	129.00	TON	1.00E-02	LB/TON	79.00	100.00	79.00	0.000176085	TON	1.30E-02	lb/ton
EU003	EQUI6	Boiler 3	EU003PD006	Bituminous Coal	10100202	NOX	ENG JUDGMENT	COAL,BIT	129.00	TON	2.20E+01	LB/TON				1.41900003	TON	22	lb/ton
EU003	EQUI6	Boiler 3	EU003PD006	Bituminous Coal	10100202	PM	ENG JUDGMENT	HEAT	3,398.00	E6BTU	4.20E-02	LB/E6BTU	100	99	99	0.07	TON	4.10E-02	lb/E6BTU
EU003	EQUI6	Boiler 3	EU003PD006	Bituminous Coal	10100202	PM10-PRI	ENG JUDGMENT	HEAT	3,398.00	E6BTU	4.20E-02	LB/E6BTU	100	98	98	0.08495	TON	4.20E-02	lb/E6BTU
EU003	EQUI6	Boiler 3	EU003PD006	Bituminous Coal	10100202	SO2	ENG JUDGMENT	COAL,BIT	129.00	TON	3.41E+01	LB/TON				1.94	TON	34.08	lb/ton
EU003	EQUI6	Boiler 3	EU003PD006	Bituminous Coal	10100202	VOC	ENG JUDGMENT	COAL,BIT	129.00	TON	6.00E-02	LB/TON				0.00387	TON	6.00E-02	lb/ton
EU004	EQUI7	Boiler 4	EU004PD001	Subbituminous Coal	10100222	CO	ENG JUDGMENT	COAL,SUBBIT	13,199.00	TON	5.00E-01	LB/TON				3.30E+00	TON	0.5	lb/ton
EU004	EQUI7	Boiler 4	EU004PD001	Subbituminous Coal	10100222	LEAD	ENG JUDGMENT	COAL,SUBBIT	13,199.00	TON	1.00E-02	LB/TON	79.00	100.00	79.00	1.39E-02	TON	1.00E-02	lb/ton
EU004	EQUI7	Boiler 4	EU004PD001	Subbituminous Coal	10100222	NOX	ENG JUDGMENT	COAL,SUBBIT	13,199.00	TON	1.20E+01	LB/TON				79.19	TON	12	lb/ton
EU004	EQUI7	Boiler 4	EU004PD001	Subbituminous Coal	10100222	PM	ENG JUDGMENT	HEAT	195,196.51	E6BTU	4.20E-02	LB/E6BTU	100	99	99	4.00E+00	TON	4.10E-02	lb/E6BTU
EU004	EQUI7	Boiler 4	EU004PD001	Subbituminous Coal	10100222	PM10-PRI	ENG JUDGMENT	HEAT	195,196.51	E6BTU	4.20E-02	LB/E6BTU	100	98	98	4.88E+00	TON	5.00E-02	lb/E6BTU
EU004	EQUI7	Boiler 4	EU004PD001	Subbituminous Coal	10100222	SO2	ENG JUDGMENT	COAL,SUBBIT	13,199.00	TON	1.20E+01	LB/TON				8.71E+01	TON	13.2	lb/ton
EU004	EQUI7	Boiler 4	EU004PD001	Subbituminous Coal	10100222	VOC	ENG JUDGMENT	COAL,SUBBIT	13,199.00	TON	6.00E-02	LB/TON				0.395969987	TON	6.00E-02	lb/ton
EU004	EQUI7	Boiler 4	EU004PD002	Natural gas	10100601	CO	ENG JUDGMENT	NATURAL GAS	0.00	E6FT3						0.00E+00	TON	84	lb/E6FT3
EU004	EQUI7	Boiler 4	EU004PD002	Natural gas	10100601	LEAD	ENG JUDGMENT	NATURAL GAS	0.00	E6FT3						0.00E+00	TON	5.00E-04	lb/E6FT3
EU004	EQUI7	Boiler 4	EU004PD002	Natural gas	10100601	NOX	ENG JUDGMENT	NATURAL GAS	0.00	E6FT3						0.00	TON	280	lb/E6FT3
EU004	EQUI7	Boiler 4	EU004PD002	Natural gas	10100601	PM	ENG JUDGMENT	NATURAL GAS	0.00	E6FT3						0.00E+00	TON	7.60E+00	lb/E6FT3
EU004	EQUI7	Boiler 4	EU004PD002	Natural gas	10100601	PM10-PRI	ENG JUDGMENT	NATURAL GAS	0.00	E6FT3						0.00E+00	TON	7.6	lb/E6FT3
EU004	EQUI7	Boiler 4	EU004PD002	Natural gas	10100601	SO2	ENG JUDGMENT	NATURAL GAS	0.00	E6FT3						0.00E+00	TON	5.5	lb/E6FT3
EU004	EQUI7	Boiler 4	EU004PD002	Natural gas	10100601	VOC	ENG JUDGMENT	NATURAL GAS	0.00	E6FT3						0.00	TON	5.5	lb/E6FT3
EU004	EQUI7	Boiler 4	EU004PD003	#2 fuel oil	10100501	CO	ENG JUDGMENT	DISTILLATE	2.91	E3GAL	5.00E+00	LB/E3GAL				7.28E-03	TON	5	lb/E3GAL
EU004	EQUI7	Boiler 4	EU004PD003	#2 fuel oil	10100501	LEAD	ENG JUDGMENT	DISTILLATE	2.91	E3GAL	9.00E-06	LB/E3GAL	79.00	100.00	79.00	2.70E-09	TON	9.00E-06	lb/E3GAL
EU004	EQUI7	Boiler 4	EU004PD003	#2 fuel oil	10100501	NOX	ENG JUDGMENT	DISTILLATE	2.91	E3GAL	2.40E+01	LB/E3GAL				0.034920003	TON	24	lb/E3GAL
EU004	EQUI7	Boiler 4	EU004PD003	#2 fuel oil	10100501	PM	ENG JUDGMENT	DISTILLATE	2.91	E3GAL	3.30E+00	LB/E3GAL	100	99	99	4.80E-05	TON	3.30E+00	lb/E3GAL
EU004	EQUI7	Boiler 4	EU004PD003	#2 fuel oil	10100501	PM10-PRI	ENG JUDGMENT	DISTILLATE	2.91	E3GAL	2.30E+00	LB/E3GAL	100	98	98	3.35E-05	TON	2.3	lb/E3GAL
EU004	EQUI7	Boiler 4	EU004PD003	#2 fuel oil	10100501	SO2	ENG JUDGMENT	DISTILLATE	2.91	E3GAL	4.26E+00	LB/E3GAL				6.85E-03	TON	4.26	lb/E3GAL
EU004	EQUI7	Boiler 4	EU004PD003	#2 fuel oil	10100501	VOC	ENG JUDGMENT	DISTILLATE	2.91	E3GAL	2.00E-01	LB/E3GAL				0.000291	TON	0.5	lb/E3GAL
EU004	EQUI7	Boiler 4	EU004PD004	Mineral spirits	10101301	CO	ENG JUDGMENT	WASTE LIQUID	0.00	E3GAL						0.00E+00	TON	5	lb/E3GAL
EU004	EQUI7	Boiler 4	EU004PD004	Mineral spirits	10101301	LEAD	ENG JUDGMENT	WASTE LIQUID	0.00	E3GAL						0.00E+00	TON	2.2	lb/E3GAL
EU004	EQUI7	Boiler 4	EU004PD004	Mineral spirits	10101301	NOX	ENG JUDGMENT	WASTE LIQUID	0.00	E3GAL						0.00	TON	19	lb/E3GAL
EU004	EQUI7	Boiler 4	EU004PD004	Mineral spirits	10101301	PM	ENG JUDGMENT	WASTE LIQUID	0.00	E3GAL						0.00E+00	TON	6.40E+01	lb/E3GAL
EU004	EQUI7	Boiler 4	EU004PD004	Mineral spirits	10101301	PM10-PRI	ENG JUDGMENT	WASTE LIQUID	0.00	E3GAL						0.00E+00	TON	3.57	lb/E3GAL
EU004	EQUI7	Boiler 4	EU004PD004	Mineral spirits	10101301	SO2	ENG JUDGMENT	WASTE LIQUID	0.00	E3GAL						0.00E+00	TON	25.58	lb/E3GAL
EU004	EQUI7	Boiler 4	EU004PD004	Mineral spirits	10101301	VOC	ENG JUDGMENT	WASTE LIQUID	0.00	E3GAL						0.00	TON	1	lb/E3GAL
EU004	EQUI7	Boiler 4	EU004PD005	Waste oil	10101302	CO	ENG JUDGMENT	WASTE OIL	.01	E3GAL	5.00E+00	LB/E3GAL				2.50E-05	TON	5	lb/E3GAL
EU004	EQUI7	Boiler 4	EU004PD005	Waste oil	10101302	LEAD	ENG JUDGMENT	WASTE OIL	.01	E3GAL	2.20E+00	LB/E3GAL	79.00	100.00	79.00	2.31E-06	TON	2.2	lb/E3GAL
EU004	EQUI7	Boiler 4	EU004PD005	Waste oil	10101302	NOX	ENG JUDGMENT	WASTE OIL	.01	E3GAL	1.90E+01	LB/E3GAL				0.000095	TON	19	lb/E3GAL
EU004	EQUI7	Boiler 4	EU004PD005	Waste oil	10101302	PM	ENG JUDGMENT	WASTE OIL	.01	E3GAL	4.27E+00	LB/E3GAL	100	99	99	3.05E-06	TON	6.40E+01	lb/E3GAL
EU004	EQUI7	Boiler 4	EU004PD005	Waste oil	10101302	PM10-PRI	ENG JUDGMENT	WASTE OIL	.01	E3GAL	3.57E+00	LB/E3GAL	100	98	98	2.55E-06	TON	3.57	lb/E3GAL
EU004	EQUI7	Boiler 4	EU004PD005	Waste oil	10101302	SO2	ENG JUDGMENT	WASTE OIL	.01	E3GAL	2.56E+01	LB/E3GAL				1.47E-05	TON	25.58	lb/E3GAL
EU004	EQUI7	Boiler 4	EU004PD005	Waste oil	10101302	VOC	ENG JUDGMENT	WASTE OIL	.01	E3GAL	1.00E+00	LB/E3GAL				0.000005	TON	1	lb/E3GAL
EU004	EQUI7	Boiler 4	EU004PD006	Bituminous Coal	10100202	CO	ENG JUDGMENT	COAL,BIT	124.00	TON	0.50					3.10E-02	TON	0.5	lb/ton
EU004	EQUI7	Boiler 4	EU004PD006	Bituminous Coal	10100202	LEAD	ENG JUDGMENT	COAL,BIT	124.00	TON	0.01		79.00	100.00	79.00	1.69E-04	TON	1.30E-02	lb/ton
EU004	EQUI7	Boiler 4	EU004PD006	Bituminous Coal	10100202	NOX	ENG JUDGMENT	COAL,BIT	124.00	TON	22.00					1.363999963	TON	22	lb/E3GAL
EU004	EQUI7	Boiler 4	EU004PD006	Bituminous Coal	10100202	PM	ENG JUDGMENT	HEAT	2,184.00	E6BTU	0.04		99.00	100.00	99.00	4.00E-02	TON	4.10E-02	lb/E6BTU
EU004	EQUI7	Boiler 4	EU004PD006	Bituminous Coal	10100202	PM10-PRI	ENG JUDGMENT	HEAT	2,184.00	E6BTU	0.05		99.00	100.00	99.00	5.46E-02	TON	5.00E-02	lb/E6BTU
EU004	EQUI7	Boiler 4	EU004PD006	Bituminous Coal	10100202	SO2	ENG JUDGMENT	COAL,BIT	124.00	TON	0.00					1.24E+00	TON	34.08	lb/ton
EU004	EQUI7	Boiler 4	EU004PD006	Bituminous Coal	10100202	VOC	ENG JUDGMENT	COAL,BIT	124.00	TON	0.06					0.00372	TON	6.00E-02	lb/ton
EU005	EQUI1	Standby Generator	EU005PD001	Diesel	20300101	CO	ENG JUDGMENT	DIESEL FUEL	0.00	E3GAL						0.00	TON		
EU005	EQUI1	Standby Generator	EU005PD001	Diesel	20300101	LEAD	ENG JUDGMENT	DIESEL FUEL	0.00	E3GAL						0.00	TON		
EU005	EQUI1	Standby Generator	EU005PD001	Diesel	20300101	NOX	ENG JUDGMENT	DIESEL FUEL	0.00	E3GAL						0.00	TON		
EU005	EQUI1	Standby Generator	EU005PD001	Diesel	20300101	PM	ENG JUDGMENT	DIESEL FUEL	0.00	E3GAL						0.00	TON		
EU005	EQUI1	Standby Generator	EU005PD001	Diesel	20300101	PM10-PRI	ENG JUDGMENT	DIESEL FUEL	0.00	E3GAL						0.00	TON		
EU005	EQUI1	Standby Generator	EU005PD001	Diesel	20300101	SO2	ENG JUDGMENT	DIESEL FUEL	0.00	E3GAL						0.00	TON		
EU005	EQUI1	Standby Generator	EU005PD001	Diesel	20300101	VOC	ENG JUDGMENT	DIESEL FUEL	0.00	E3GAL						0.00	TON		

EU006	EQUI2	Pneumatic Ash Handling System	EU006PD001	Convey fly ash to silo	30501011	CO	ENG JUDGMENT	COAL	2,357.20	TON	0.00	TON
EU006	EQUI2	Pneumatic Ash Handling System	EU006PD001	Convey fly ash to silo	30501011	LEAD	ENG JUDGMENT	COAL	2,357.20	TON	0.00	TON
EU006	EQUI2	Pneumatic Ash Handling System	EU006PD001	Convey fly ash to silo	30501011	NOX	ENG JUDGMENT	COAL	2,357.20	TON	0.00	TON
EU006	EQUI2	Pneumatic Ash Handling System	EU006PD001	Convey fly ash to silo	30501011	PM	ENG JUDGMENT	COAL	2,357.20	TON	0.002357198	TON
EU006	EQUI2	Pneumatic Ash Handling System	EU006PD001	Convey fly ash to silo	30501011	PM10-PRI	ENG JUDGMENT	COAL	2,357.20	TON	0.001178599	TON
EU006	EQUI2	Pneumatic Ash Handling System	EU006PD001	Convey fly ash to silo	30501011	SO2	ENG JUDGMENT	COAL	2,357.20	TON	0.00	TON
EU006	EQUI2	Pneumatic Ash Handling System	EU006PD001	Convey fly ash to silo	30501011	VOC	ENG JUDGMENT	COAL	2,357.20	TON	0.00	TON
EU006	EQUI2	Pneumatic Ash Handling System	EU006PD002	Fly ash storage silo	30501009	CO	ENG JUDGMENT	COAL	2,357.20	TON	0.00	TON
EU006	EQUI2	Pneumatic Ash Handling System	EU006PD002	Fly ash storage silo	30501009	LEAD	ENG JUDGMENT	COAL	2,357.20	TON	0.00	TON
EU006	EQUI2	Pneumatic Ash Handling System	EU006PD002	Fly ash storage silo	30501009	NOX	ENG JUDGMENT	COAL	2,357.20	TON	0.00	TON
EU006	EQUI2	Pneumatic Ash Handling System	EU006PD002	Fly ash storage silo	30501009	PM	ENG JUDGMENT	COAL	2,357.20	TON	2.20398E-05	TON
EU006	EQUI2	Pneumatic Ash Handling System	EU006PD002	Fly ash storage silo	30501009	PM10-PRI	ENG JUDGMENT	COAL	2,357.20	TON	1.04895E-05	TON
EU006	EQUI2	Pneumatic Ash Handling System	EU006PD002	Fly ash storage silo	30501009	SO2	ENG JUDGMENT	COAL	2,357.20	TON	0.00	TON
EU006	EQUI2	Pneumatic Ash Handling System	EU006PD002	Fly ash storage silo	30501009	VOC	ENG JUDGMENT	COAL	2,357.20	TON	0.00	TON
EU006	EQUI2	Pneumatic Ash Handling System	EU006PD003	Convey fly ash to truck	30501011	CO	ENG JUDGMENT	COAL	2,357.20	TON	0.00	TON
EU006	EQUI2	Pneumatic Ash Handling System	EU006PD003	Convey fly ash to truck	30501011	LEAD	ENG JUDGMENT	COAL	2,357.20	TON	0.00	TON
EU006	EQUI2	Pneumatic Ash Handling System	EU006PD003	Convey fly ash to truck	30501011	NOX	ENG JUDGMENT	COAL	2,357.20	TON	0.00	TON
EU006	EQUI2	Pneumatic Ash Handling System	EU006PD003	Convey fly ash to truck	30501011	PM	ENG JUDGMENT	COAL	2,357.20	TON	0.002357198	TON
EU006	EQUI2	Pneumatic Ash Handling System	EU006PD003	Convey fly ash to truck	30501011	PM10-PRI	ENG JUDGMENT	COAL	2,357.20	TON	0.001178599	TON
EU006	EQUI2	Pneumatic Ash Handling System	EU006PD003	Convey fly ash to truck	30501011	SO2	ENG JUDGMENT	COAL	2,357.20	TON	0.00	TON
EU006	EQUI2	Pneumatic Ash Handling System	EU006PD003	Convey fly ash to truck	30501011	VOC	ENG JUDGMENT	COAL	2,357.20	TON	0.00	TON
EU006	EQUI2	Pneumatic Ash Handling System	EU006PD004	Load fly ash to truck	30501015	CO	ENG JUDGMENT	COAL	2,357.20	TON	0.00	TON
EU006	EQUI2	Pneumatic Ash Handling System	EU006PD004	Load fly ash to truck	30501015	LEAD	ENG JUDGMENT	COAL	2,357.20	TON	0.00	TON
EU006	EQUI2	Pneumatic Ash Handling System	EU006PD004	Load fly ash to truck	30501015	NOX	ENG JUDGMENT	COAL	2,357.20	TON	0.00	TON
EU006	EQUI2	Pneumatic Ash Handling System	EU006PD004	Load fly ash to truck	30501015	PM	ENG JUDGMENT	COAL	2,357.20	TON	0.001178599	TON
EU006	EQUI2	Pneumatic Ash Handling System	EU006PD004	Load fly ash to truck	30501015	PM10-PRI	ENG JUDGMENT	COAL	2,357.20	TON	0.000589299	TON
EU006	EQUI2	Pneumatic Ash Handling System	EU006PD004	Load fly ash to truck	30501015	SO2	ENG JUDGMENT	COAL	2,357.20	TON	0.00	TON
EU006	EQUI2	Pneumatic Ash Handling System	EU006PD004	Load fly ash to truck	30501015	VOC	ENG JUDGMENT	COAL	2,357.20	TON	0.00	TON
EU006	EQUI2	Pneumatic Ash Handling System	EU006PD005	Convey fly ash pump	30501011	CO	ENG JUDGMENT	COAL	2,357.20	TON	0.00	TON
EU006	EQUI2	Pneumatic Ash Handling System	EU006PD005	Convey fly ash pump	30501011	LEAD	ENG JUDGMENT	COAL	2,357.20	TON	0.00	TON
EU006	EQUI2	Pneumatic Ash Handling System	EU006PD005	Convey fly ash pump	30501011	NOX	ENG JUDGMENT	COAL	2,357.20	TON	0.00	TON
EU006	EQUI2	Pneumatic Ash Handling System	EU006PD005	Convey fly ash pump	30501011	PM	ENG JUDGMENT	COAL	2,357.20	TON	0.002357198	TON
EU006	EQUI2	Pneumatic Ash Handling System	EU006PD005	Convey fly ash pump	30501011	PM10-PRI	ENG JUDGMENT	COAL	2,357.20	TON	0.001178599	TON
EU006	EQUI2	Pneumatic Ash Handling System	EU006PD005	Convey fly ash pump	30501011	SO2	ENG JUDGMENT	COAL	2,357.20	TON	0.00	TON
EU006	EQUI2	Pneumatic Ash Handling System	EU006PD005	Convey fly ash pump	30501011	VOC	ENG JUDGMENT	COAL	2,357.20	TON	0.00	TON

Total(TON)	AMMONIA	0.000
	CO	20.284
	LEAD[1]	0.064
	PM25-FIL	0.000
	PM-FIL	0.000
	PM10-FIL[1,2]	0.000
	PM-CON[1,2]	0.000
	NOX[1]	382.836
	SO2[1]	402.988
	VOC[1]	2.152
	[1]Total Billable	788.040

Facility: Du Facility: Duluth Steam Cooperative Association **Boiler 2 HHV Boiler 3 HHV**
Facility ID: : Facility ID: 13700022 (AI ID 4233) **18.27479648 18.2747394**
Inventory Y Inventory Year: 2010

Unit ID	Subject Item	Unit Desc	Process ID	Proc Desc	SCC	Pollutant	Emissions Calculation Method	Throughput Material	Throughput Amount	Throughput Units	Emission Factor	EF Units	Capt (%)	Cont (%)	Total Comb (%)	Emissions	Original Emissions	Emiss Units
EU001	EQUI5	Boiler 1	EU001PD001	Subbituminous Coal	10100222	CO	USEPA EF NCE	COAL,SUBBIT	15,869.00	TON	5.000E-1	LB/TON				3.97E+00	3.97E+00	TON
EU001	EQUI5	Boiler 1	EU001PD001	Subbituminous Coal	10100222	LEAD	USEPA EF NCE	COAL,SUBBIT	15,869.00	TON	1.000E-2	LB/TON				7.94E-02	7.94E-02	TON
EU001	EQUI5	Boiler 1	EU001PD001	Subbituminous Coal	10100222	NOX	USEPA EF NCE	COAL,SUBBIT	15,869.00	TON	1.200E+1	LB/TON				9.52E+01	9.52E+01	TON
EU001	EQUI5	Boiler 1	EU001PD001	Subbituminous Coal	10100222	PM	STACK TEST NCE	HEAT	289,990.00	E6BTU	4.200E-2	LB/E6BTU	100	99	99	6.09E+00	6.09E+00	TON
EU001	EQUI5	Boiler 1	EU001PD001	Subbituminous Coal	10100222	PM10-PRI	STACK TEST NCE	HEAT	289,990.00	E6BTU	4.200E-2	LB/E6BTU	100	98	98	6.09E+00	6.09E+00	TON
EU001	EQUI5	Boiler 1	EU001PD001	Subbituminous Coal	10100222	SO2	MAT BALANCE	COAL,SUBBIT	15,869.00	TON	1.320E+1	LB/TON				1.05E+02	1.05E+02	TON
EU001	EQUI5	Boiler 1	EU001PD001	Subbituminous Coal	10100222	VOC	USEPA EF NCE	COAL,SUBBIT	15,869.00	TON	6.000E-2	LB/TON				4.76E-01	4.76E-01	TON
EU001	EQUI5	Boiler 1	EU001PD003	#2 fuel oil	10100501	CO	USEPA EF NCE	DISTILLATE	3.41	E3GAL	5.000E+0	LB/E3GAL				8.53E-03	8.53E-03	TON
EU001	EQUI5	Boiler 1	EU001PD003	#2 fuel oil	10100501	LEAD	USEPA EF NCE	DISTILLATE	3.41	E3GAL	9.000E-6	LB/E3GAL				1.54E-08	1.54E-08	TON
EU001	EQUI5	Boiler 1	EU001PD003	#2 fuel oil	10100501	NOX	USEPA EF NCE	DISTILLATE	3.41	E3GAL	2.400E+1	LB/E3GAL				4.09E-02	4.09E-02	TON
EU001	EQUI5	Boiler 1	EU001PD003	#2 fuel oil	10100501	PM	USEPA EF CE	DISTILLATE	3.41	E3GAL	3.300E+0	LB/E3GAL	100	99	99	5.63E-05	5.63E-05	TON
EU001	EQUI5	Boiler 1	EU001PD003	#2 fuel oil	10100501	PM10-PRI	USEPA EF CE	DISTILLATE	3.41	E3GAL	2.300E+0	LB/E3GAL	100	98	98	7.85E-05	7.85E-05	TON
EU001	EQUI5	Boiler 1	EU001PD003	#2 fuel oil	10100501	SO2	USEPA EF NCE	DISTILLATE	3.41	E3GAL	4.260E+0	LB/E3GAL				7.27E-03	7.27E-03	TON
EU001	EQUI5	Boiler 1	EU001PD003	#2 fuel oil	10100501	VOC	USEPA EF NCE	DISTILLATE	3.41	E3GAL	2.000E-1	LB/E3GAL				3.41E-04	3.41E-04	TON
EU001	EQUI5	Boiler 1	EU001PD004	Mineral spirits	10101301	VOC	USEPA EF NCE	WASTE LIQUID	.00	E3GAL	1.000E+0	LB/E3GAL				1.50E-06	1.50E-06	TON
EU001	EQUI5	Boiler 1	EU001PD005	Waste oil	10101302	CO	USEPA EF NCE	WASTE OIL	.17	E3GAL	5.000E+0	LB/E3GAL				4.35E-04	4.35E-04	TON
EU001	EQUI5	Boiler 1	EU001PD005	Waste oil	10101302	LEAD	USEPA EF NCE	WASTE OIL	.17	E3GAL	2.200E+0	LB/E3GAL				1.91E-04	1.91E-04	TON
EU001	EQUI5	Boiler 1	EU001PD005	Waste oil	10101302	NOX	USEPA EF NCE	WASTE OIL	.17	E3GAL	1.900E+1	LB/E3GAL				1.65E-03	1.65E-03	TON
EU001	EQUI5	Boiler 1	EU001PD005	Waste oil	10101302	PM	USEPA EF CE	WASTE OIL	.17	E3GAL	4.270E+0	LB/E3GAL	100	99	99	3.72E-06	3.72E-06	TON
EU001	EQUI5	Boiler 1	EU001PD005	Waste oil	10101302	PM10-PRI	USEPA EF CE	WASTE OIL	.17	E3GAL	3.570E+0	LB/E3GAL	100	98	98	6.21E-06	6.21E-06	TON
EU001	EQUI5	Boiler 1	EU001PD005	Waste oil	10101302	SO2	USEPA EF NCE	WASTE OIL	.17	E3GAL	2.558E+1	LB/E3GAL				2.23E-03	2.23E-03	TON
EU001	EQUI5	Boiler 1	EU001PD005	Waste oil	10101302	VOC	USEPA EF NCE	WASTE OIL	.17	E3GAL	1.000E+0	LB/E3GAL				8.70E-05	8.70E-05	TON
EU001	EQUI5	Boiler 1	EU001PD006	Bituminous Coal	10100202	CO	USEPA EF NCE	COAL,BIT	100.00	TON	5.000E-1	LB/TON				2.50E-02	2.50E-02	TON
EU001	EQUI5	Boiler 1	EU001PD006	Bituminous Coal	10100202	LEAD	USEPA EF NCE	COAL,BIT	100.00	TON	1.300E-2	LB/TON				6.50E-04	6.50E-04	TON
EU001	EQUI5	Boiler 1	EU001PD006	Bituminous Coal	10100202	NOX	USEPA EF NCE	COAL,BIT	100.00	TON	2.200E+1	LB/TON				1.10E+00	1.10E+00	TON
EU001	EQUI5	Boiler 1	EU001PD006	Bituminous Coal	10100202	PM	STACK TEST NCE	HEAT	2,728.00	E6BTU	4.200E-2	LB/E6BTU	100	99	99	5.73E-02	5.73E-02	TON
EU001	EQUI5	Boiler 1	EU001PD006	Bituminous Coal	10100202	PM10-PRI	STACK TEST NCE	HEAT	2,728.00	E6BTU	4.200E-2	LB/E6BTU	100	98	98	5.73E-02	5.73E-02	TON
EU001	EQUI5	Boiler 1	EU001PD006	Bituminous Coal	10100202	SO2	MAT BALANCE	COAL,BIT	100.00	TON	3.408E+1	LB/TON				1.70E+00	1.70E+00	TON
EU001	EQUI5	Boiler 1	EU001PD006	Bituminous Coal	10100202	VOC	USEPA EF NCE	COAL,BIT	100.00	TON	6.000E-2	LB/TON				3.00E-03	3.00E-03	TON
EU002	EQUI8	Boiler 2	EU002PD001	Subbituminous Coal	10100222	CO	USEPA EF NCE	COAL,SUBBIT	6,019.00	TON	5.000E-1	LB/TON				1.51E+00	1.51E+00	TON
EU002	EQUI8	Boiler 2	EU002PD001	Subbituminous Coal	10100222	LEAD	USEPA EF NCE	COAL,SUBBIT	6,019.00	TON	1.000E-2	LB/TON				3.01E-02	3.01E-02	TON
EU002	EQUI8	Boiler 2	EU002PD001	Subbituminous Coal	10100222	NOX	USEPA EF NCE	COAL,SUBBIT	6,019.00	TON	1.200E+1	LB/TON				3.61E+01	3.61E+01	TON
EU002	EQUI8	Boiler 2	EU002PD001	Subbituminous Coal	10100222	PM	STACK TEST NCE	HEAT	109,996.00	E6BTU	4.200E-2	LB/E6BTU	100	99	99	2.31E+00	2.31E+00	TON
EU002	EQUI8	Boiler 2	EU002PD001	Subbituminous Coal	10100222	PM10-PRI	STACK TEST NCE	HEAT	109,996.00	E6BTU	4.200E-2	LB/E6BTU	100	98	98	2.31E+00	2.31E+00	TON
EU002	EQUI8	Boiler 2	EU002PD001	Subbituminous Coal	10100222	SO2	MAT BALANCE	COAL,SUBBIT	6,019.00	TON	1.320E+1	LB/TON				3.97E+01	3.97E+01	TON
EU002	EQUI8	Boiler 2	EU002PD001	Subbituminous Coal	10100222	VOC	USEPA EF NCE	COAL,SUBBIT	6,019.00	TON	6.000E-2	LB/TON				1.81E-01	1.81E-01	TON
EU002	EQUI8	Boiler 2	EU002PD002	Natural gas	10100601	CO	USEPA EF NCE	NATURAL GAS	5.14	E6FT3	8.400E+1	LB/E6FT3				2.16E-01	2.16E-01	TON
EU002	EQUI8	Boiler 2	EU002PD002	Natural gas	10100601	LEAD	USEPA EF NCE	NATURAL GAS	5.14	E6FT3	5.000E-4	LB/E6FT3				1.29E-06	1.29E-06	TON
EU002	EQUI8	Boiler 2	EU002PD002	Natural gas	10100601	NOX	USEPA EF NCE	NATURAL GAS	5.14	E6FT3	2.800E+2	LB/E6FT3				7.20E-01	7.20E-01	TON
EU002	EQUI8	Boiler 2	EU002PD002	Natural gas	10100601	PM	USEPA EF CE	NATURAL GAS	5.14	E6FT3	7.600E+0	LB/E6FT3	100	99	99	1.95E-04	1.95E-04	TON
EU002	EQUI8	Boiler 2	EU002PD002	Natural gas	10100601	PM10-PRI	USEPA EF CE	NATURAL GAS	5.14	E6FT3	7.600E+0	LB/E6FT3	100	98	98	3.91E-04	3.91E-04	TON
EU002	EQUI8	Boiler 2	EU002PD002	Natural gas	10100601	SO2	USEPA EF NCE	NATURAL GAS	5.14	E6FT3	6.000E-1	LB/E6FT3				1.54E-03	1.54E-03	TON
EU002	EQUI8	Boiler 2	EU002PD002	Natural gas	10100601	VOC	USEPA EF NCE	NATURAL GAS	5.14	E6FT3	5.500E+0	LB/E6FT3				1.41E-02	1.41E-02	TON
EU002	EQUI8	Boiler 2	EU002PD003	#2 fuel oil	10100501	CO	USEPA EF NCE	DISTILLATE	1.29	E3GAL	5.000E+0	LB/E3GAL				3.24E-03	3.24E-03	TON
EU002	EQUI8	Boiler 2	EU002PD003	#2 fuel oil	10100501	LEAD	USEPA EF NCE	DISTILLATE	1.29	E3GAL	9.000E-6	LB/E3GAL				5.82E-09	5.82E-09	TON
EU002	EQUI8	Boiler 2	EU002PD003	#2 fuel oil	10100501	NOX	USEPA EF NCE	DISTILLATE	1.29	E3GAL	2.400E+1	LB/E3GAL				1.55E-02	1.55E-02	TON
EU002	EQUI8	Boiler 2	EU002PD003	#2 fuel oil	10100501	PM	USEPA EF CE	DISTILLATE	1.29	E3GAL	3.300E+0	LB/E3GAL	100	99	99	2.14E-05	2.14E-05	TON
EU002	EQUI8	Boiler 2	EU002PD003	#2 fuel oil	10100501	PM10-PRI	USEPA EF CE	DISTILLATE	1.29	E3GAL	2.300E+0	LB/E3GAL	100	98	98	2.98E-05	2.98E-05	TON
EU002	EQUI8	Boiler 2	EU002PD003	#2 fuel oil	10100501	SO2	USEPA EF NCE	DISTILLATE	1.29	E3GAL	4.260E+0	LB/E3GAL				2.76E-03	2.76E-03	TON
EU002	EQUI8	Boiler 2	EU002PD003	#2 fuel oil	10100501	VOC	USEPA EF NCE	DISTILLATE	1.29	E3GAL	2.000E-1	LB/E3GAL				1.29E-04	1.29E-04	TON
EU002	EQUI8	Boiler 2	EU002PD004	Mineral spirits	10101301	VOC	USEPA EF NCE	WASTE LIQUID	.00	E3GAL	1.000E+0	LB/E3GAL				5.00E-07	5.00E-07	TON
EU002	EQUI8	Boiler 2	EU002PD005	Waste oil	10101302	CO	USEPA EF NCE	WASTE OIL	.66	E3GAL	5.000E+0	LB/E3GAL				1.65E-03	1.65E-03	TON
EU002	EQUI8	Boiler 2	EU002PD005	Waste oil	10101302	LEAD	USEPA EF NCE	WASTE OIL	.66	E3GAL	2.200E+0	LB/E3GAL				7.26E-04	7.26E-04	TON
EU002	EQUI8	Boiler 2	EU002PD005	Waste oil	10101302	NOX	USEPA EF NCE	WASTE OIL	.66	E3GAL	1.900E+1	LB/E3GAL				6.27E-03	6.27E-03	TON
EU002	EQUI8	Boiler 2	EU002PD005	Waste oil	10101302	PM	USEPA EF CE	WASTE OIL	.66	E3GAL	4.270E+0	LB/E3GAL	100	99	99	1.41E-05	1.41E-05	TON

EU002	EQUI8	Boiler 2	EU002PD005	Waste oil	10101302	PM10-PRI	USEPA EF CE	WASTE OIL	.66	E3GAL	3.570E+0	LB/E3GAL	100	98	98	2.36E-05	2.36E-05	TON
EU002	EQUI8	Boiler 2	EU002PD005	Waste oil	10101302	SO2	USEPA EF NCE	WASTE OIL	.66	E3GAL	2.558E+1	LB/E3GAL				8.44E-03	8.44E-03	TON
EU002	EQUI8	Boiler 2	EU002PD005	Waste oil	10101302	VOC	USEPA EF NCE	WASTE OIL	.66	E3GAL	1.000E+0	LB/E3GAL				3.30E-04	3.30E-04	TON
EU002	EQUI8	Boiler 2	EU002PD006	Bituminous Coal	10100202	CO	USEPA EF NCE	COAL,BIT	20.91	TON	5.000E-1	LB/TON				5.23E-03	5.23E-03	TON
EU002	EQUI8	Boiler 2	EU002PD006	Bituminous Coal	10100202	LEAD	USEPA EF NCE	COAL,BIT	20.91	TON	1.300E-2	LB/TON				1.36E-04	1.36E-04	TON
EU002	EQUI8	Boiler 2	EU002PD006	Bituminous Coal	10100202	NOX	USEPA EF NCE	COAL,BIT	20.91	TON	2.200E+1	LB/TON				2.30E-01	2.30E-01	TON
EU002	EQUI8	Boiler 2	EU002PD006	Bituminous Coal	10100202	PM	STACK TEST NCE	HEAT	571.00	E6BTU	4.200E-2	LB/E6BTU	100	99	99	1.20E-02	1.20E-02	TON
EU002	EQUI8	Boiler 2	EU002PD006	Bituminous Coal	10100202	PM10-PRI	STACK TEST NCE	HEAT	571.00	E6BTU	4.200E-2	LB/E6BTU	100	98	98	1.20E-02	1.20E-02	TON
EU002	EQUI8	Boiler 2	EU002PD006	Bituminous Coal	10100202	SO2	MAT BALANCE	COAL,BIT	20.91	TON	3.408E+1	LB/TON				3.56E-01	3.56E-01	TON
EU002	EQUI8	Boiler 2	EU002PD006	Bituminous Coal	10100202	VOC	USEPA EF NCE	COAL,BIT	20.91	TON	6.000E-2	LB/TON				6.27E-04	6.27E-04	TON
EU003	EQUI6	Boiler 3	EU003PD001	Subbituminous Coal	10100222	CO	USEPA EF NCE	COAL,SUBBIT	14,774.00	TON	5.000E-1	LB/TON				3.69E+00	3.69E+00	TON
EU003	EQUI6	Boiler 3	EU003PD001	Subbituminous Coal	10100222	LEAD	USEPA EF NCE	COAL,SUBBIT	14,774.00	TON	1.000E-2	LB/TON				7.39E-02	7.39E-02	TON
EU003	EQUI6	Boiler 3	EU003PD001	Subbituminous Coal	10100222	NOX	USEPA EF NCE	COAL,SUBBIT	14,774.00	TON	1.200E+1	LB/TON				8.86E+01	8.86E+01	TON
EU003	EQUI6	Boiler 3	EU003PD001	Subbituminous Coal	10100222	PM	STACK TEST NCE	HEAT	269,991.00	E6BTU	4.200E-2	LB/E6BTU	100	99	99	5.67E+00	5.67E+00	TON
EU003	EQUI6	Boiler 3	EU003PD001	Subbituminous Coal	10100222	PM10-PRI	STACK TEST NCE	HEAT	269,991.00	E6BTU	4.200E-2	LB/E6BTU	100	98	98	5.67E+00	5.67E+00	TON
EU003	EQUI6	Boiler 3	EU003PD001	Subbituminous Coal	10100222	SO2	MAT BALANCE	COAL,SUBBIT	14,774.00	TON	1.320E+1	LB/TON				9.75E+01	9.75E+01	TON
EU003	EQUI6	Boiler 3	EU003PD001	Subbituminous Coal	10100222	VOC	USEPA EF NCE	COAL,SUBBIT	14,774.00	TON	6.000E-2	LB/TON				4.43E-01	4.43E-01	TON
EU003	EQUI6	Boiler 3	EU003PD002	Natural gas	10100601	CO	USEPA EF NCE	NATURAL GAS	.47	E6FT3	8.400E+1	LB/E6FT3				1.99E-02	1.99E-02	TON
EU003	EQUI6	Boiler 3	EU003PD002	Natural gas	10100601	LEAD	USEPA EF NCE	NATURAL GAS	.47	E6FT3	5.000E-4	LB/E6FT3				1.19E-07	1.19E-07	TON
EU003	EQUI6	Boiler 3	EU003PD002	Natural gas	10100601	NOX	USEPA EF NCE	NATURAL GAS	.47	E6FT3	2.800E+2	LB/E6FT3				6.64E-02	6.64E-02	TON
EU003	EQUI6	Boiler 3	EU003PD002	Natural gas	10100601	PM	USEPA EF CE	NATURAL GAS	.47	E6FT3	7.600E+0	LB/E6FT3	100	99	99	1.80E-05	1.80E-05	TON
EU003	EQUI6	Boiler 3	EU003PD002	Natural gas	10100601	PM10-PRI	USEPA EF CE	NATURAL GAS	.47	E6FT3	7.600E+0	LB/E6FT3	100	98	98	3.60E-05	3.60E-05	TON
EU003	EQUI6	Boiler 3	EU003PD002	Natural gas	10100601	SO2	USEPA EF NCE	NATURAL GAS	.47	E6FT3	6.000E-1	LB/E6FT3				1.42E-04	1.42E-04	TON
EU003	EQUI6	Boiler 3	EU003PD002	Natural gas	10100601	VOC	USEPA EF NCE	NATURAL GAS	.47	E6FT3	5.500E+0	LB/E6FT3				1.30E-03	1.30E-03	TON
EU003	EQUI6	Boiler 3	EU003PD003	#2 fuel oil	10100501	CO	USEPA EF NCE	DISTILLATE	3.18	E3GAL	5.000E+0	LB/E3GAL				7.94E-03	7.94E-03	TON
EU003	EQUI6	Boiler 3	EU003PD003	#2 fuel oil	10100501	LEAD	USEPA EF NCE	DISTILLATE	3.18	E3GAL	9.000E-6	LB/E3GAL				1.43E-08	1.43E-08	TON
EU003	EQUI6	Boiler 3	EU003PD003	#2 fuel oil	10100501	NOX	USEPA EF NCE	DISTILLATE	3.18	E3GAL	2.400E+1	LB/E3GAL				3.81E-02	3.81E-02	TON
EU003	EQUI6	Boiler 3	EU003PD003	#2 fuel oil	10100501	PM	USEPA EF CE	DISTILLATE	3.18	E3GAL	3.300E+0	LB/E3GAL	100	99	99	5.24E-05	5.24E-05	TON
EU003	EQUI6	Boiler 3	EU003PD003	#2 fuel oil	10100501	PM10-PRI	USEPA EF CE	DISTILLATE	3.18	E3GAL	2.300E+0	LB/E3GAL	100	98	98	7.31E-05	7.31E-05	TON
EU003	EQUI6	Boiler 3	EU003PD003	#2 fuel oil	10100501	SO2	USEPA EF NCE	DISTILLATE	3.18	E3GAL	4.260E+0	LB/E3GAL				6.77E-03	6.77E-03	TON
EU003	EQUI6	Boiler 3	EU003PD003	#2 fuel oil	10100501	VOC	USEPA EF NCE	DISTILLATE	3.18	E3GAL	2.000E-1	LB/E3GAL				3.18E-04	3.18E-04	TON
EU003	EQUI6	Boiler 3	EU003PD004	Mineral spirits	10101301	VOC	USEPA EF NCE	WASTE LIQUID	.00	E3GAL	1.000E+0	LB/E3GAL				1.50E-06	1.50E-06	TON
EU003	EQUI6	Boiler 3	EU003PD005	Waste oil	10101302	CO	USEPA EF NCE	WASTE OIL	.16	E3GAL	5.000E+0	LB/E3GAL				4.05E-04	4.05E-04	TON
EU003	EQUI6	Boiler 3	EU003PD005	Waste oil	10101302	LEAD	USEPA EF NCE	WASTE OIL	.16	E3GAL	2.200E+0	LB/E3GAL				1.78E-04	1.78E-04	TON
EU003	EQUI6	Boiler 3	EU003PD005	Waste oil	10101302	NOX	USEPA EF NCE	WASTE OIL	.16	E3GAL	1.900E+1	LB/E3GAL				1.54E-03	1.54E-03	TON
EU003	EQUI6	Boiler 3	EU003PD005	Waste oil	10101302	PM	USEPA EF CE	WASTE OIL	.16	E3GAL	4.270E+0	LB/E3GAL	100	99	99	3.46E-06	3.46E-06	TON
EU003	EQUI6	Boiler 3	EU003PD005	Waste oil	10101302	PM10-PRI	USEPA EF CE	WASTE OIL	.16	E3GAL	3.570E+0	LB/E3GAL	100	98	98	5.78E-06	5.78E-06	TON
EU003	EQUI6	Boiler 3	EU003PD005	Waste oil	10101302	SO2	USEPA EF NCE	WASTE OIL	.16	E3GAL	2.558E+1	LB/E3GAL				2.07E-03	2.07E-03	TON
EU003	EQUI6	Boiler 3	EU003PD005	Waste oil	10101302	VOC	USEPA EF NCE	WASTE OIL	.16	E3GAL	1.000E+0	LB/E3GAL				8.10E-05	8.10E-05	TON
EU004	EQUI7	Boiler 4	EU004PD001	Subbituminous Coal	10100222	CO	USEPA EF NCE	COAL,SUBBIT	18,058.00	TON	5.000E-1	LB/TON				4.52E+00	4.52E+00	TON
EU004	EQUI7	Boiler 4	EU004PD001	Subbituminous Coal	10100222	LEAD	USEPA EF NCE	COAL,SUBBIT	18,058.00	TON	1.000E-2	LB/TON				9.03E-02	9.03E-02	TON
EU004	EQUI7	Boiler 4	EU004PD001	Subbituminous Coal	10100222	NOX	USEPA EF NCE	COAL,SUBBIT	18,058.00	TON	1.200E+1	LB/TON				1.08E+02	1.08E+02	TON
EU004	EQUI7	Boiler 4	EU004PD001	Subbituminous Coal	10100222	PM	STACK TEST NCE	HEAT	329,989.00	E6BTU	4.200E-2	LB/E6BTU	100	99	99	6.93E+00	6.93E+00	TON
EU004	EQUI7	Boiler 4	EU004PD001	Subbituminous Coal	10100222	PM10-PRI	STACK TEST NCE	HEAT	329,989.00	E6BTU	4.200E-2	LB/E6BTU	100	98	98	6.93E+00	6.93E+00	TON

EU004	EQUI7	Boiler 4	EU004PD001	Subbituminous Coal	10100222	SO2	MAT BALANCE	COAL,SUBBIT	18,058.00	TON	1.320E+1	LB/TON				1.19E+02	1.19E+02	TON
EU004	EQUI7	Boiler 4	EU004PD001	Subbituminous Coal	10100222	VOC	USEPA EF NCE	COAL,SUBBIT	18,058.00	TON	6.000E-2	LB/TON				5.42E-01	5.42E-01	TON
EU004	EQUI7	Boiler 4	EU004PD003	#2 fuel oil	10100501	CO	USEPA EF NCE	DISTILLATE	3.88	E3GAL	5.000E+0	LB/E3GAL				9.71E-03	9.71E-03	TON
EU004	EQUI7	Boiler 4	EU004PD003	#2 fuel oil	10100501	LEAD	USEPA EF NCE	DISTILLATE	3.88	E3GAL	9.000E-6	LB/E3GAL				1.75E-08	1.75E-08	TON
EU004	EQUI7	Boiler 4	EU004PD003	#2 fuel oil	10100501	NOX	USEPA EF NCE	DISTILLATE	3.88	E3GAL	2.400E+1	LB/E3GAL				4.66E-02	4.66E-02	TON
EU004	EQUI7	Boiler 4	EU004PD003	#2 fuel oil	10100501	PM	USEPA EF CE	DISTILLATE	3.88	E3GAL	3.300E+0	LB/E3GAL	100	99	99	6.41E-05	6.41E-05	TON
EU004	EQUI7	Boiler 4	EU004PD003	#2 fuel oil	10100501	PM10-PRI	USEPA EF CE	DISTILLATE	3.88	E3GAL	2.300E+0	LB/E3GAL	100	98	98	8.93E-05	8.93E-05	TON
EU004	EQUI7	Boiler 4	EU004PD003	#2 fuel oil	10100501	SO2	USEPA EF NCE	DISTILLATE	3.88	E3GAL	4.260E+0	LB/E3GAL				8.27E-03	8.27E-03	TON
EU004	EQUI7	Boiler 4	EU004PD003	#2 fuel oil	10100501	VOC	USEPA EF NCE	DISTILLATE	3.88	E3GAL	2.000E-1	LB/E3GAL				3.88E-04	3.88E-04	TON
EU004	EQUI7	Boiler 4	EU004PD004	Mineral spirits	10101301	VOC	USEPA EF NCE	WASTE LIQUID	.00	E3GAL	1.000E+0	LB/E3GAL				1.50E-06	1.50E-06	TON
EU004	EQUI7	Boiler 4	EU004PD005	Waste oil	10101302	CO	USEPA EF NCE	WASTE OIL	.20	E3GAL	5.000E+0	LB/E3GAL				4.95E-04	4.95E-04	TON
EU004	EQUI7	Boiler 4	EU004PD005	Waste oil	10101302	LEAD	USEPA EF NCE	WASTE OIL	.20	E3GAL	2.200E+0	LB/E3GAL				2.18E-04	2.18E-04	TON
EU004	EQUI7	Boiler 4	EU004PD005	Waste oil	10101302	NOX	USEPA EF NCE	WASTE OIL	.20	E3GAL	1.900E+1	LB/E3GAL				1.88E-03	1.88E-03	TON
EU004	EQUI7	Boiler 4	EU004PD005	Waste oil	10101302	PM	USEPA EF CE	WASTE OIL	.20	E3GAL	4.270E+0	LB/E3GAL	100	99	99	4.23E-06	4.23E-06	TON
EU004	EQUI7	Boiler 4	EU004PD005	Waste oil	10101302	PM10-PRI	USEPA EF CE	WASTE OIL	.20	E3GAL	3.570E+0	LB/E3GAL	100	98	98	7.07E-06	7.07E-06	TON
EU004	EQUI7	Boiler 4	EU004PD005	Waste oil	10101302	SO2	USEPA EF NCE	WASTE OIL	.20	E3GAL	2.558E+1	LB/E3GAL				2.53E-03	2.53E-03	TON
EU004	EQUI7	Boiler 4	EU004PD005	Waste oil	10101302	VOC	USEPA EF NCE	WASTE OIL	.20	E3GAL	1.000E+0	LB/E3GAL				9.90E-05	9.90E-05	TON
EU006	EQUI2	Pneumatic Ash Handling System	EU006PD001	Convey fly ash to silo	30501011	PM	USEPA EF CE	COAL	2,358.00	TON	2.000E-1	LB/TON	100	99.9	99.9	0.0002358	0.0002358	TON
EU006	EQUI2	Pneumatic Ash Handling System	EU006PD001	Convey fly ash to silo	30501011	PM10-PRI	USEPA EF CE	COAL	2,358.00	TON	1.000E-1	LB/TON	100	99.9	99.9	0.0001179	0.0001179	TON
EU006	EQUI2	Pneumatic Ash Handling System	EU006PD002	Fly ash storage silo	30501009	PM	USEPA EF CE	COAL	2,358.00	TON	1.870E-3	LB/TON	100	99.9	99.9	2.205E-06	2.205E-06	TON
EU006	EQUI2	Pneumatic Ash Handling System	EU006PD002	Fly ash storage silo	30501009	PM10-PRI	USEPA EF CE	COAL	2,358.00	TON	8.900E-4	LB/TON	100	99.9	99.9	1.049E-06	1.049E-06	TON
EU006	EQUI2	Pneumatic Ash Handling System	EU006PD003	Convey fly ash to truck	30501011	PM	USEPA EF CE	COAL	2,358.00	TON	2.000E-1	LB/TON	100	99.9	99.9	0.0002358	0.0002358	TON
EU006	EQUI2	Pneumatic Ash Handling System	EU006PD003	Convey fly ash to truck	30501011	PM10-PRI	USEPA EF CE	COAL	2,358.00	TON	1.000E-1	LB/TON	100	99.9	99.9	0.0001179	0.0001179	TON
EU006	EQUI2	Pneumatic Ash Handling System	EU006PD004	Load fly ash to truck	30501015	PM	USEPA EF CE	COAL	2,358.00	TON	1.000E-1	LB/TON	100	99.9	99.9	0.1179	0.1179	TON
EU006	EQUI2	Pneumatic Ash Handling System	EU006PD004	Load fly ash to truck	30501015	PM10-PRI	USEPA EF NCE	COAL	2,358.00	TON	6.350E-6	TON/TON	100	99.9	99.9	0.01497	0.01497	TON
EU006	EQUI2	Pneumatic Ash Handling System	EU006PD005	Convey fly ash pump	30501011	PM	USEPA EF CE	COAL	2,358.00	TON	2.000E-1	LB/TON	100	99.9	99.9	0.0002358	0.0002358	TON
EU006	EQUI2	Pneumatic Ash Handling System	EU006PD005	Convey fly ash pump	30501011	PM10-PRI	USEPA EF CE	COAL	2,358.00	TON	1.000E-1	LB/TON	100	99.9	99.9	0.0001179	0.0001179	TON

Total(TON)	CO	13.980
	LEAD*	0.276
	NOX*	330.529
	PM	21.188
	PM10-PRI*	21.085
	SO2*	363.242
	VOC*	1.662
	*Total Billable	716.795

Duluth Steam Plant 1
13700022-101

Attachment 3
SI Inventory and Requirements Report

SI - SI relationships

Agency Interest: None
Agency Interest ID: 4233
Activity: None (Major Amendment)

Details for:
SI Category: Equipment
SI Type: All

Subject Item Category Description	Subject Item Type Description	Subject Item ID	Subject Item Designation	Subject Item Description	Relationship	Related Subject Item ID	% Flow	Related Subject Item Type Description	Start Date (Related Subject Item)	End Date (Related Subject Item)	
Equipment	Boiler	EQUI5	EU001	Boiler 1	is controlled by	TREA1	Null	016-Fabric Filter - High Temp, T>250 Degrees F	6/21/2000	Null	
					sends to	STRU8	100	Stack/Vent	6/21/2000	Null	
		EQUI6	EU003	Boiler 3	is controlled by	TREA1	Null	016-Fabric Filter - High Temp, T>250 Degrees F	6/21/2000	Null	
					sends to	STRU8	100	Stack/Vent	6/21/2000	Null	
		EQUI7	EU004	Boiler 4	is controlled by	TREA1	Null	016-Fabric Filter - High Temp, T>250 Degrees F	6/21/2000	Null	
					sends to	STRU8	100	Stack/Vent	6/21/2000	Null	
		EQUI8	EU002	Boiler 2	is controlled by	TREA1	Null	016-Fabric Filter - High Temp, T>250 Degrees F	6/21/2000	Null	
					sends to	STRU8	100	Stack/Vent	6/21/2000	Null	
	Material Handling Equipment	EQUI2	EU006	Pneumatic Ash Handling System - Material Handling Equipment	is controlled by	TREA2	Null	016-Fabric Filter - High Temp, T>250 Degrees F	6/21/2000	Null	
					sends to	STRU12	100	Stack/Vent	5/16/2003	Null	
	Reciprocating IC Engine	EQUI9	Null	Emergency Generator	sends to	STRU13	100	Stack/Vent	12/1/2016	Null	

Emission Units 1

Agency Interest: None
Agency Interest ID: 4233
Activity: None (Major Amendment)

Details for:
SI Category: None
SI Type: Material Handling Equipment

Subject Item Type Description	Subject Item ID	Subject Item Designation	Subject Item Description	Manufacturer	Model	Max Design Capacity	Max Design Capacity Units (numerator)	Max Design Capacity Units (denominator)	Material	Construction Start Date	Operation Start Date	Modification Date	
Material Handling Equipment	EQUI2	EU006	Pneumatic Ash Handling System - Material Handling Equipment	United Conveyor	Null	28	tons	hours	Ash	1/1/1986	1/1/1986	Null	

Emission Units 2

Agency Interest: None
Agency Interest ID: 4233
Activity: None (Major Amendment)

Details for:
SI Category: Equipment
SI Type: Boiler & Reciprocating IC Engine

Subject Item Type Description	Subject Item ID	Subject Item Designation	Subject Item Description	Manufacturer	Model	Max Design Capacity	Max Design Capacity Units (numerator)	Max Design Capacity Units (denominator)	Material	Construction Start Date	Operation Start Date	Modification Date	
Boiler	EQUI5	EU001	Boiler 1	Edgemore	NA	100000	pounds	hours	Steam	1/1/1932	1/1/1932	Null	
	EQUI6	EU003	Boiler 3	Edgemore	Null	100000	pounds	hours	Steam	1/1/1932	1/1/1932	Null	
	EQUI7	EU004	Boiler 4	Edgemore	Null	100000	pounds	hours	Steam	1/1/1932	1/1/1932	Null	
	EQUI8	EU002	Boiler 2	Edgemore	Null	100000	pounds	hours	Steam	1/1/1932	1/1/1932	Null	
Reciprocating IC Engine	EQUI9	Null	Emergency Generator	Cummings	KTA38-G4	8.95	million British thermal units	hours	Heat	5/1/2016	12/1/2016	Null	

Emission Units 2 (continued)

Agency Interest: None
Agency Interest ID: 4233
Activity: None (Major Amendment)

Details for:
SI Category: Equipment
SI Type: Boiler & Reciprocating IC Engine

Subject Item Type Description	Subject Item ID	Subject Item Designation	Subject Item Description	Firing Method	Engine Use	Engine Displacement	Engine Displacement Units	Subject to CSAPR?	Electric Generating Capacity (MW)	
Boiler	EQUI5	EU001	Boiler 1	Pulverized coal, dry bottom	Null	Null	Null	Null	Null	
	EQUI6	EU003	Boiler 3	Pulverized coal, dry bottom	Null	Null	Null	Null	Null	
	EQUI7	EU004	Boiler 4	Pulverized coal, dry bottom	Null	Null	Null	Null	Null	
	EQUI8	EU002	Boiler 2	Pulverized coal, dry bottom	Null	Null	Null	Null	Null	
Reciprocating IC Engine	EQUI9	Null	Emergency Generator	CI	Emergency/blackstart	38	liters per cylinder	Null	Null	

Stack/Vent, General

Agency Interest: None
Agency Interest ID: 4233
Activity: None (Major Amendment)

Details for:
SI Category: Structure
SI Type: Stack/Vent

Subject Item Type Description	Subject Item ID	Subject Item Designation	Subject Item Description	Stack Height (feet)	Stack Diameter (feet)	Stack Length (feet)	Stack Width (feet)	Stack Flow Rate (cubic ft/min)	Discharge Temperature (°F)	Flow Rate/Temp Information Source	Discharge Direction	
Stack/Vent	STRU8	SV001	Main Stack	240	13	Null	Null	190136	460	Estimate	Upwards with no cap on stack/vent	
	STRU12	SV006	Pneumatic Ash handling System	59	1	Null	Null	813	70	Manufacturer	Upwards with no cap on stack/vent	
	STRU13	Null	Stack for Emergency Generator	25	0.83	Null	Null	7.72	930	Manufacturer	Upwards with a cap on stack/vent	

Fabric Filters, General

Agency Interest: None
Agency Interest ID: 4233
Activity: None (Major Amendment)

Details for:
SI Category: Treatment
SI Type: 016-Fabric Filter - High Temp, T>250 Degrees F

Subject Item Type Description	Subject Item ID	Subject Item Designation	Subject Item Description	Manufacturer	Model	Installation Start Date	Pollutant Controlled	Capture Efficiency (%)	Destruction Collect Efficiency (%)	Subject to CAM?	Large or Other PSEU?	Efficiency Basis	Fabric Filter Minimum Pressure Drop (in. of ..	Fabric Filter Maximum Pressure Drop (in. of ..	Bag leak detector in use?	
016-Fabric Filter - High Temp, T>250 Degrees F	TREA1	CE005	Fabric Filter - High Temperature, i.e., T>250 Degrees F	Industrial Clean Air	Null	1/1/1980	HAPs - Metal	100	79	No	Null	Other	0.3	15	No	
							Particulate Matter	100	99	Yes	Other	Other	0.3	15	No	
							PM < 2.5 micron	100	98	No	Null	Other	0.3	15	No	
							PM < 10 micron	100	98	Yes	Other	Other	0.3	15	No	
	TREA2	CE006	Fabric Filter - High Temperature, i.e., T>250 Degrees F	United Conveyor	0-3205	1/1/1980	Particulate Matter	100	99.9	No	Null	Mfr/Vendor data	0.5	10	No	
							PM < 2.5 micron	100	99.9	No	Null	Mfr/Vendor data	0.5	10	No	
							PM < 10 micron	100	99.9	No	Null	Mfr/Vendor data	0.5	10	No	

Buildings, General

Agency Interest: None
Agency Interest ID: 4233
Activity: None (Major Amendment)

Details for:
SI Category: Structure
SI Type: Building

Subject Item Type Description	Subject Item ID	Subject Item Designation	Subject Item Description	Height	Units (height)	Length	Units (length)	Width	Units (width)	
Building	STRU1	BG001	Steam Plant Main Building	75	feet	135	feet	75	feet	
	STRU2	BG002	Metal Shop	18	feet	83	feet	32	feet	
	STRU3	BG003	Offices	18	feet	63	feet	42	feet	
	STRU4	BG004	Generator Building	10	feet	42	feet	21	feet	
	STRU5	BG005	Baghouse	62	feet	87	feet	61	feet	

Requirements

Agency Interest: Duluth Steam Plant 1
Agency Interest ID: 4233
Activity: (Major Amendment)

Agency Interest Name	SI ID (unpadded)	Subject Item Designation	Subject Item Description	Sequence N..	Requirement (Preview without Citation)	Citation (Preview without Re..	
Duluth Steam Plant 1	COMG1	GP001	Boilers	2	COMG 1 (Boilers) emission limits apply to the combined emissions, heat input, and steam output of all four boilers (EQUI 5, EQUI 6, EQUI 7, and EQUI 8).	Minn. R. 7007.0800, subps. 1-2	
				3	The Permittee shall limit emissions of PM < 10 micron <= 7.7 pounds per hour 24-hour rolling average.	Minn. R. 7007.0100, subp. 7(A), Minn. R. 7007.0100, subp. 7(L), Minn. R. 7007.0100, subp. 7(M), Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0010-0090, Minn. Stat. 116.07, subd. 4a, Minn. Stat. 116.07, subd. 9	
				4	The Permittee shall limit emissions of PM < 10 micron <= 19.9 tons per year 12-month rolling sum.	Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0100, subp. 7(A), Minn. R. 7009.0100, subp. 7(L), Minn. R. 7009.0100, subp. 7(M), Minn. Stat. 116.07, subp. 4a, Minn. Stat. 116.07, subp. 9	
				5	The Permittee shall limit emissions of Sulfur Dioxide <= 425 pounds per hour 3-hour rolling average.	Minn. R. 7007.0100, subp. 7(L), Minn. R. 7007.0100, subp. 7(M), Minn. R. 7007.0100, supb. 7(A), Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0010-0090, Minn. Stat. 116.07, subd. 4a, Minn. Stat. 116.07, subd. 9	
				6	The Permittee shall limit emissions of Sulfur Dioxide <= 425 pounds per hour 24-hour rolling average.	Minn. R. 7007.0100, subp. 7(A), Minn. R. 7007.0100, subp. 7(L), Minn. R. 7007.0100, subp. 7(M), Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0010-0090, Minn. Stat. 116.07, subd. 4a, Minn. Stat. 116.07, subd. 9	
				7	The Permittee shall limit emissions of Sulfur Dioxide <= 1039 tons per year 12-month rolling sum.	Minn. R. 7007.0100, subp. 7(A), Minn. R. 7007.0100, subp. 7(L), Minn. R. 7007.0100, subp. 7(M), Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0010, 0080, Minn. Stat. 116.07, subd. 4a, Minn. Stat. 116.07, subd. 9	
				8	The Permittee shall limit emissions of Nitrogen Oxides <= 594 tons per year 12-month rolling sum.	Minn. R. 7007.0100, subp. 7(A), Minn. R. 7007.0100, subp. 7(L), Minn. R. 7007.0100, subp. 7(M), Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0010-0090, Minn. Stat. 116.07, subd. 4a, Minn. Stat. 116.07, subd. 9	
				9	The Permittee shall limit HAPs - Single <= 9.5 tons per year 12-month rolling sum. This limit applies continuously under all conditions. Single HAP emissions are to be calculated by the 30th day of each month for the previous 12-month period as described in COMG 1.	Title I Condition: Avoid major source under 40 CFR 63.2	
				10	The Permittee shall limit HAPs - Total <= 24.0 tons per year 12-month rolling sum. This limit applies continuously under all conditions.	Title I Condition: Avoid major source under 40 CFR 63.2	

Requirements

Agency Interest: Duluth Steam Plant 1
Agency Interest ID: 4233
Activity: (Major Amendment)

Agency Interest Name	SI ID (unpadded)	Subject Item Designation	Subject Item Description	Sequence N..	Requirement (Preview without Citation)	Citation (Preview without Re..	
Duluth Steam Plant 1	COMG1	GP001	Boilers				
				12	The Permittee shall limit Carbon Monoxide <= 235 tons per year 12-month rolling sum for CO attributed to wood combustion. CO emissions are to be calculated by the 30th day of each month for the previous 12-month period. This is a state-only requirement and is not enforceable by the U.S. Environmental Protection Agency Administrator and citizens under the Clean Air Act.	Minn. R. 4410.4300, subp. 15(A), Minn. R. 7007.0800, subp. 2	
				13	Allowable Fuel Types: Limited to subbituminous coal, natural gas, No. 2 fuel oil, wood, and renewable fuel oil (RFO). The wood, and RFO burned must meet the definition of "Clean Cellulosic Biomass" found in 40 CFR Section 241.2 and shall not meet the definition of "Solid Waste" found in 40 CFR Section 258.2.	Minn. R. 7007.0100, subp. 7(A), Minn. R. 7007.0100, subp. 7(L), Minn. R. 7007.0100, subp. 7(M), Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0010-0090, Minn. Stat. 116.07, subd. 4a, Minn. Stat. 116.07, subd. 9	
				14	The Permittee shall limit Process Throughput <= 95000 tons per year 12-month rolling sum for subbituminous coal. Coal throughput is to be calculated by the 30th day of each month for the previous 12-month period as described later in this permit.	Title I Condition: Avoid major source under 40 CFR 63.2	
				17	The Permittee shall limit Sulfur Content of Fuel <= 0.60 percent by weight of subbituminous coal.	Minn. R. 7007.0100, subp. 7(A), Minn. R. 7007.0100, subp. 7(L), Minn. R. 7007.0100, subp. 7(M), Minn. R. 7007.0800, subp. 9, Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0010-0090, Minn. Stat. 116.07, subd. 4a, Minn. Stat. 116.07, subd. 9	
				20	The Permittee shall limit Coal Ash <= 8.5 percent by weight of subbituminous coal.	Minn. R. 7007.0100, subp. 7(A), Minn. R. 7007.0100, subp. 7(L), Minn. R. 7007.0100, subp. 7(M), Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0010-0090, Minn. Stat. 116.07, subd. 4a, Minn. Stat. 116.07, subd. 9	
				21	The Permittee shall limit Sulfur Content of Fuel <= 15 parts per million for No. 2 fuel oil.	Minn. R. 7005.0100, subp. 35a	
				23	The Permittee shall limit the total Heat Input from Wood, No. 2 Fuel Oil, or Coal <= 345 million Btu per hour 24-hour block average.	Minn. R. 7007.0800, subp. 2, Minn. Stat. 116.07, subd. 4a	
				24	The Permittee shall limit total Steam Flow from Wood, No. 2 Fuel Oil, or Coal <= 300000 pounds per hour 24-hour block average.	Minn. R. 7007.0800, subp. 2, Minn. Stat. 116.07, subd. 4a	
				25	The Permittee shall submit a notification : Due 30 calendar days after Date of Achieving Normal Operation while combusting wood in any COMG 1 Boiler (EQUI 5 - EQUI 8).	Minn. R. 7007.0800, subp. 2	

Requirements

Agency Interest: Duluth Steam Plant 1
Agency Interest ID: 4233
Activity: (Major Amendment)

Agency Interest Name	SI ID (unpadded)	Subject Item Designation	Subject Item Description	Sequence N..	Requirement (Preview without Citation)	Citation (Preview without Re..	
Duluth Steam Plant 1	COMG1	GP001	Boilers				
				26	Sulfur Content of Fuel: Fuel Supplier Certification: The Permittee shall obtain and maintain a fuel supplier certification for each shipment of No. 2 fuel oil, certifying that the sulfur content does not exceed 15 ppm for No. 2 fuel oil.	Minn. R. 7007.0800, subps. 4-5	
				27	Heat Input: The Permittee shall continuously record the maximum COMG 1 hourly and 24-hour block average heat input in MMBtu of heat input per hour.	Minn. R. 7007.0800, subps. 4-5	
				28	Steam Flow: The Permittee shall continuously record the maximum COMG 1 hourly and 24-hour block average steam production rate in pounds of steam flow per hour.	Minn. R. 7007.0800, subps. 4-5	
				29	Daily Recordkeeping: On each day of operation once combustion of wood commences, the Permittee shall calculate, record, and maintain the total quantity of wood fuel used at the facility. This shall be based on written usage logs. This is a state-only requirement and is not enforceable by the U.S. Environmental Protection Agency Administrator and citizens under the Clean Air Act.	Minn. R. 4410.4300, subp. 15(A), Minn. R. 7007.0800, subps. 4-5	
				30	Chloride: Wood Chloride Content: Once combustion of wood commences, once every month during operation and whenever the source of wood changes, the Permittee shall analyze wood fuel for Chloride content using EPA Reference Method 26 (or another method approved by MPCA) and record the result in a written log. The result of the most recent fuel analysis shall be used to calculate HCl emissions, as described later in this permit.	Minn. R. 7007.0800, subps. 4-5	
				31	Wood Heat Content: Once combustion of wood commences, once every month during operation and whenever the source of wood changes, the Permittee shall analyze wood fuel for heat content and record the result in a written log. The result of the most recent fuel analysis shall be used to calculate wood CO emissions, as described in this permit. This is a state-only requirement and is not enforceable by the U.S. Environmental Protection Agency Administrator and citizens under the Clean Air Act.	Minn. R. 4410.4300, subp. 15(A), Minn. R. 7007.0800, subps. 4-5	
				32	Carbon Monoxide: Wood CO Emission Factor. The Permittee shall calculate the wood CO emission factor using Equation 1 of Appendix D and the results of the most recent performance test required for EQUI 5 through EQUI 8. The wood CO emission factor shall be reset after each annual performance test using the provisions found in COMG 1. Until a wood CO emission factor is developed using these provisions, wood CO emissions shall be calculated using an emission factor of 0.60 lb/MMBtu, as published in Table 1.6-2 of AP-42. This is a state-only requirement and is not enforceable by the U.S. Environmental Protection Agency Administrator and citizens under the Clean Air Act.	Minn. R. 4410.4300, subp. 15(A), Minn. R. 7007.0800, subps. 4-5	
				33	Carbon Monoxide: Monthly Recordkeeping - Wood CO Emissions: Once wood combustion commences, by the 30th of the month, the Permittee shall calculate and record the following: 1) The total usage of wood fuel for the previous calendar month using the daily usage records. This record shall also include the high heating values of wood fuel as determined by the wood fuel analyses; 2) The wood CO emissions for the previous month using the formulas specified in Appendix D of this permit; and 3) The 12-month rolling sum wood CO emissions for the previous 12-month period by summing the monthly wood CO emissions data for the previous 12 months. This is a state-only requirement and is not enforceable by the U.S. Environmental Protection Agency ..	Minn. R. 4410.4300, subp. 15(A), Minn. R. 7007.0800, subps. 4-5	
				35	Carbon Monoxide: Monthly Calculation - Wood CO Emissions: By the 30th of the month once wood combustion commences, the Permittee shall calculate the wood CO emissions using Equation 2 in Appendix D of the permit. This is a state-only requirement and is not enforceable by the U.S. Environmental Protection Agency Administrator and citizens under the Clean Air Act.	Minn. R. 4410.4300, subp. 15(A), Minn. R. 7007.0800, subps. 4-5	

Requirements

Agency Interest: Duluth Steam Plant 1
Agency Interest ID: 4233
Activity: (Major Amendment)

Agency Interest Name	SI ID (unpadded)	Subject Item Designation	Subject Item Description	Sequence N..	Requirement (Preview without Citation)	Citation (Preview without Re..	
Duluth Steam Plant 1	COMG1	GP001	Boilers				
				36	Recordkeeping for Subbituminous Coal Throughput: By the 30th day of the month, the Permittee shall calculate and record the total amount of coal used in all the boilers for the previous calendar month using the monthly records, and the total coal throughput for previous month.	Minn. R. 7007.0800, subps. 4-5, Title I Condition: Avoid major source under 40 CFR 63.2	
				38	Coal and Wood Fuel Sampling, Sulfur and Chloride Content Monitoring: The Permittee shall collect a coal and/or wood sample once a month and analyze each sample for sulfur and/or chloride content in weight percent, in accordance with current ASTM methods. Sampling and analysis is required for both coal and wood if both are combusted in a calendar month. Records must be maintained of the sulfur and/or chloride content in weight percent of the coal and/or wood.	Minn. R. 7007.0100, subp. 7(A), Minn. R. 7007.0100, subp. 7(L), Minn. R. 7007.0100, subp. 7(M), Minn. R. 7007.0800, subp. 4, Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0010-0090, Minn. Stat. 116.07, subd. 4a, Minn. Stat. 116.07, subd. 9	
				40	Hydrochloric acid: Monthly Recordkeeping - HCl Emissions: By the 30th day of each calendar month, the Permittee shall calculate and record the HCl emission rate (in tons per month) for the previous calendar month. The Permittee shall use the chloride content of each coal and/or wood type received and the quantities of each coal and/or wood type combusted in the preceding calendar month to perform the calculation, and shall assume that all chloride is converted to HCl upon combustion. The Permittee shall maintain a record of the chloride analyses for coal and wood, the calculations used to determine HCl emissions, and the total monthly HCl emissions.	Minn. R. 7007.0800, subps. 4-5	
				41	HAPs - Single: Monthly Recordkeeping - HAPs: Within 30 days after the end of each calendar month, the Permittee shall calculate and record the 12-month rolling sum of HCl emissions from coal and wood by summing the monthly HCl emissions for the previous 12 months. The Permittee shall use this number to demonstrate compliance with the HAPs-Single and the HAPs-Total limits.	Minn. R. 7007.0800, subps. 4-5, Title I Condition: Avoid major source under 40 CFR 63.2	
				42	The Permittee is not required to install and operate CEMS, but must conduct the required Performance Tests. For additional applicable performance test requirements, refer to the general performance testing requirements at the Total Facility (TFAC) section of the permit and to individual performance testing requirements at EQUI 5, EQUI 6, EQUI 7, and EQUI 8.	Minn. R. 7017.2020, subp. 1	
				43	Carbon Monoxide: Protocol for Re-Setting the Emission Factor Used For Calculating Wood CO Emissions: The Permittee shall conduct performance testing under conditions that produce the maximum CO emission rate, using US E.P.A. reference method 10 to measure the wood CO emission factor as required in COMG 1 of this permit. The Permittee shall report the test results in lb/MMBtu in the performance test report required by Minn. R. 7017.2035, subp. 1. The emission factor used for calculating wood CO emissions shall be re-set to the 3-hour average emission rate in lb/MMBtu, measured during the most recent MPCA-approved wood CO emission factor performance test. The new emission factor used for calculating wood CO emissions determined using this Protocol appl..	Minn. R. 4410.4300, subp. 15(A), Minn. R. 7007.0800, subp. 2	
				44	Carbon Monoxide: The Permittee must apply for and obtain a major permit amendment if the Permittee wishes to deviate from the Protocol for Re-setting the Emission Factor Used for Calculating Wood CO Emissions established by this permit.	Minn. R. 7007.1500, subp. 1	
				45	Notwithstanding the Protocol detailed above, the MPCA reserves the right to set operational limits and requirements as allowed under Minn. R. 7017.2025. If the MPCA sets limits, the new limits shall be implemented upon receipt of the NOC letter that notifies the Permittee of preliminary approval. The limits set according to Minn. R. 7017.2025 are final upon issuance of a permit amendment incorporating the change.	Minn. R. 7017.2025	
				48	NESHAP SUBPART JJJJJJ REQUIREMENTS - This Standard is Not Delegated to MPCA. The Permittee shall follow the 40 CFR pt. 63, subp. JJJJJJ requirements for boilers in the Coal Subcategory, as defined in 40 CFR Section 63.11237, listed in this permit. At a time when any boiler (EQUI 5 - EQUI 8) can be classified as being in the Biomass Subcategory, as defined in 40 CFR Section 63.11237, the Permittee shall follow the 40 CFR pt. 63, subp. JJJJJJ requirements for boilers in the Biomass Subcategory listed in this permit for that boiler. A boiler can be classified as being in the Biomass subcategory when more than 15 percent of the boiler's heat input is produced by burning biomass in a given month and operation is intended to cont..	Minn. R. 7007.0800, subp. 2	

Requirements

Agency Interest: Duluth Steam Plant 1
Agency Interest ID: 4233
Activity: (Major Amendment)

Agency Interest Name	SI ID (unpadded)	Subject Item Designation	Subject Item Description	Sequence N..	Requirement (Preview without Citation)	Citation (Preview without Re..	
Duluth Steam Plant 1	COMG1	GP001	Boilers				
				49	Within 30 days of any boiler (EQUI 5 - EQUI 8) changing classification to the Biomass Subcategory, as defined in 40 CFR Section 63.11237, the Permittee shall submit to MPCA a notification containing the information specified in 40 CFR Section 63.11225(g).	Minn. R. 7007.0800, subp. 2	
				50	The Permittee must conduct initial performance testing on one boiler per year after changing to the Biomass Subcategory, as defined in 40 CFR Section 63.11237, beginning within 12 months of achieving normal operation. Each boiler must be tested once within 48 months of achieving normal operation after changing to the Biomass Subcategory.	Minn. R. 7017.2020, subp. 1, Minn. R. 4410.4300, subp. 15(A)	
				51	The following requirements apply to any COMG 1 boiler in the Coal Subcategory, as defined in 40 CFR Section 63.11237.	40 CFR 63.11200(a), Minn. R. 7007.0800, subps. 1-2	
				52	The Permittee shall limit emissions of Carbon Monoxide <= 420 parts per million by volume on a dry basis corrected to 3 percent oxygen. This limit applies to each boiler individually.	40 CFR 63.11201(a), 40 CFR pt. 63, subp. JJJJJJ(Table 1)(Item 6)	
				55	Mercury <= 2.2E-5 pounds per million Btu heat input. This limit applies to each boiler individually.	40 CFR 63.11201(a), 40 CFR pt. 63, subp. JJJJJJ(Table 1)(Item 6)	
				56	Startups and Shutdowns. The Permittee must minimize the boiler's startup and shutdown periods and conduct startups and shutdowns according to the manufacturer's recommended procedures. If manufacturer's recommended procedures are not available, the Permittee must follow recommended procedures for a unit of similar design for which manufacturer's recommended procedures are available.	40 CFR 63.11201(b), 40 CFR pt. 63, subp. JJJJJJ(Table 2)(Item 1)	
				57	Energy Assessment. The Permittee must have a one-time energy assessment performed by a qualified energy assessor. An energy assessment completed on or after January 1, 2008, that meets or is amended to meet the energy assessment requirements in this table satisfies the energy assessment requirement. Energy assessor approval and qualification requirements are waived in instances where past or amended energy assessments are used to meet the energy assessment requirements. A facility that operates under an energy management program compatible with ISO 50001 that includes the affected units also satisfies the energy assessment requirement. The energy assessment must include the following with extent of the evaluation for items (1) to (4) appropriate for the on-site technical hours listed in 40 CFR Section 63.11237: (1) A visual inspection of the boiler system, (2) An evaluation of operating characteristics of the affected boiler systems, speci..	40 CFR 63.11201(b), 40 CFR pt. 63, subp. JJJJJJ(Table 2)(Item 16)	
				58	Fuel Analysis. Except during periods of startup and shutdown, the Permittee must maintain the fuel type or fuel mixture (annual average) such that the mercury emission rate calculated according to 40 CFR Section 63.11211(c) is less than the applicable emission limit for mercury.	40 CFR 63.11201(c), 40 CFR pt. 63, sub. JJJJJJ(Table 3)(Item 6)	
				59	Operating Load. Except during periods of startup and shutdown, the Permittee must maintain the operating load of each unit such that it does not exceed 110 percent of the average operating load recorded during the most recent performance stack test.	40 CFR 63.11201(c), 40 CFR pt. 63, sub. JJJJJJ(Table 3)(Item 7)	

Requirements

Agency Interest: Duluth Steam Plant 1
Agency Interest ID: 4233
Activity: (Major Amendment)

Agency Interest Name	SI ID (unpadded)	Subject Item Designation	Subject Item Description	Sequence N..	Requirement (Preview without Citation)	Citation (Preview without Re..	
Duluth Steam Plant 1	COMG1	GP001	Boilers				
				60	Oxygen Analyzer System. Except during periods of startup and shutdown, the Permittee must maintain the 30-day rolling average oxygen level at or above the minimum oxygen level as defined in 40 CFR Section 63.11237. This requirement does not apply to units that install an oxygen trim system since these units will set the trim system to the level specified in 40 CFR Section 63.11224(a)(7). Minimum oxygen level is defined in 40 CFR Section 63.11237 as the lowest hourly average oxygen level measured according to 40 CFR pt. 63, subp. JJJJJJ, Table 6 during the most recent performance stack test demonstrating compliance with the applicable carbon monoxide emission limit.	40 CFR 63.11201(c), 40 CFR pt. 63, sub. JJJJJJ(Table 3)(Item 8)	
				61	The standards in 40 CFR Section 63.11201 apply at all times the affected boiler is operating, except during periods of startup and shutdown as defined in 40 CFR Section 63.11237, during which time the Permittee must comply only with 40 CFR pt. 63, subp. JJJJJJ, Table 2.	40 CFR 63.11201(d)	
				62	At all times the Permittee must operate and maintain any affected source, 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 the Permittee to make any further efforts to reduce emissions if levels required by 40 CFR pt. 63, subp. JJJJJJ have been achieved. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator that 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 CFR 63.11205(a)	
				64	The Permittee must demonstrate compliance with all applicable emission limits using performance stack testing, fuel analysis, or a continuous monitoring system (CMS), including a continuous emission monitoring system (CEMS), a continuous opacity monitoring system (COMS), or a continuous parameter monitoring system (CPMS), where applicable. The Permittee may demonstrate compliance with the applicable mercury emission limit using fuel analysis if the emission rate calculated according to 40 CFR Section 63.11211(c) is less than the applicable emission limit. Otherwise, the Permittee must demonstrate compliance using stack testing.	40 CFR 63.11205(b)	
				65	Site-Specific Monitoring Plan. The Permittee must develop a site-specific monitoring plan according to the site-specific monitoring requirements in this permit for the use of any CEMS, COMS, or CPMS. This requirement also applies to the Permittee if the Permittee petitions the EPA Administrator for alternative monitoring parameters under 40 CFR Section 63.8(f).	40 CFR 63.11205(c), 40 CFR 63.11224(c)	
				67	Site-Specific Monitoring Plan. For the oxygen analyzer system, the Permittee must develop and submit to the Administrator for approval upon request, a site-specific monitoring plan that addresses the requirements below: (i) Installation of the CMS sampling probe or other interface at a measurement location relative to each affected process unit such that the measurement is representative of control of the exhaust emissions; (ii) Performance and equipment specifications for the sample interface, the pollutant concentration or parametric signal analyzer, and the data collection and reduction systems; and (iii) Performance evaluation procedures and acceptance criteria (e.g., calibrations). (iv) Ongoing operation and maintenance procedures in accordance with the general requirements of ..	40 CFR 63.11205(c)(1), 40 CFR 63.11224(c)(1) and (2)	
				68	Site-Specific Monitoring Plan. The Permittee must submit this site-specific monitoring plan, if requested, at least 60 days before the initial performance evaluation of the CMS.	40 CFR 63.11205(c)(1), 40 CFR 63.11224(c)(1)	
				69	Site-Specific Monitoring Plan. The Permittee must conduct a performance evaluation of each CMS in accordance with the site-specific monitoring plan.	40 CFR 63.11205(c)(2), 40 CFR 63.11224(c)(3)	
				70	Site-Specific Monitoring Plan. The Permittee must operate and maintain the CMS in continuous operation according to the site-specific monitoring plan.	40 CFR 63.11205(c)(3), 40 CFR 63.11224(c)(4)	

Requirements

Agency Interest: Duluth Steam Plant 1
Agency Interest ID: 4233
Activity: (Major Amendment)

Agency Interest Name	SI ID (unpadded)	Subject Item Designation	Subject Item Description	Sequence N..	Requirement (Preview without Citation)	Citation (Preview without Re..	
Duluth Steam Plant 1	COMG1	GP001	Boilers				
				71	The Permittee must demonstrate initial compliance with the applicable emission limits no later than 180 days after March 21, 2014 and according to the applicable provisions in 40 CFR Section 63.7(a)(2), except as provided in 40 CFR Section 63.11210(j).	40 CFR 63.11210(b)	
				72	The Permittee must demonstrate initial compliance with the applicable work practice standards and management practices no later than March 21, 2014 and according to the applicable provisions in 40 CFR Section 63.7(a)(2), except as provided in 40 CFR Section 63.11210(j).	40 CFR 63.11210(c)	
				74	For affected boilers that switch fuels or make a physical change to the boiler that results in the applicability of a different subcategory within 40 CFR pt. 63, subp. JJJJJJ, the Permittee must demonstrate compliance within 180 days of the effective date of the fuel switch or the physical change. Notification of such changes must be submitted according to 40 CFR Section 63.11225(g).	40 CFR 63.11210(h)	
				76	Carbon Monoxide: Performance Tests. The Permittee must demonstrate initial compliance with the CO emission limit specified in 40 CFR pt. 63, subp. JJJJJJ, Table 1 that applies by conducting performance (stack) tests according to 40 CFR Section 63.11212 and 40 CFR pt. 63, subp. JJJJJJ, Table 4.	40 CFR 63.11210(a)	
				77	Carbon Monoxide: Performance Tests. To demonstrate compliance with the emission limits of 40 CFR pt. 63, subp. JJJJJJ through performance (stack) testing, the Permittee's initial compliance requirements include conducting performance tests according to 40 CFR Section 63.11212 and CFR pt. 63, subp. JJJJJJ, Table 4, establishing operating limits according to 40 CFR Section 63.11222, CFR pt. 63, subp. JJJJJJ, Table 6 and 40 CFR Section 63.11211(b), as applicable, and conducting CMS performance evaluations according to 40 CFR Section 63.11224. For affected boilers that burn a single type of fuel, the Permittee is exempted from the compliance requirements of conducting a fuel analysis for each type of fuel burned in the boiler. For purposes of 40 CFR pt. 63, subp. JJJJJJ, boilers that use a supplemental fuel only for startup, unit shutdown, and transient flame stability purposes still qualify as affected boilers that burn a single type of fuel, and the supplemental fuel is not subject to the fuel analysis requirements under 40 CFR Section 63.11213 and 40 CFR pt. 63, subp. JJJJJJ, Tabl..	40 CFR 63.11211(a)	
				78	Carbon Monoxide: Performance Tests. Stack tests and procedure requirements: (a) The Permittee must conduct all performance tests according to 40 CFR Section 63.7(c), (d), (f), and (h). The Permittee must also develop a site-specific test plan according to the requirements in 40 CFR Section 63.7(c). (b) The Permittee must conduct each stack test according to the requirements in 40 CFR pt. 63, subp. JJJJJJ, Table 4. Boilers that use a CEMS for CO are exempt from the initial CO performance testing in 40 CFR pt. 63, subp. JJJJJJ, Table 4 and the oxygen concentration operating limit requirement specified in 40 CFR pt. 63, subp. JJJJJJ, Table 3. (c) The Permittee must conduct performance stack tests at the representative operating load conditions while burning the type of fuel or mixture of fuels that have the highest emissions potential..	40 CFR 63.11210(a), 40 CFR 63.11211(a), 40 CFR 63.11212	
				79	Carbon Monoxide: Performance Tests. To conduct a performance test for CO, the Permittee must: a. Select the sampling ports location and the number of traverse points using Method 1 in Appendix A-1 to 40 CFR pt. 60. b. Determine oxygen and carbon dioxide concentrations of the stack gas using Method 3A or 3B in Appendix A-2 to 40 CFR pt. 60, or ASTM D6522-00 (Reapproved 2005), or ANSI/ASME PTC 19.10-1981. c. Measure the moisture content of the stack gas using Method 4 in Appendix A-3 to 40 CFR pt. 60. d. Measure the carbon monoxide emission concentration using Method 10, 10A, or 10B in Appendix A-4 to 40 CFR pt. 60 or ASTM D6522-00 and a minimum 1 hour sampling time per run.	40 CFR 63.11210(a), 40 CFR 63.11211(a), 40 CFR pt. 63, sub. JJJJJJ(Table 4)(Item 3)	
				81	Carbon Monoxide: Oxygen Analyzer System. The Permittee must install, calibrate, operate, and maintain an oxygen analyzer system, as defined in 40 CFR Section 63.11237, according to the manufacturer's recommendations and 40 CFR Section 63.11224(a)(7) and (d), as applicable, by March 21, 2014. Oxygen monitors and oxygen trim systems must be installed to monitor oxygen in the boiler flue gas, boiler firebox, or other appropriate intermediate location.	40 CFR 63.11211(a), 40 CFR 63.11224(a)	
				82	Carbon Monoxide: Oxygen Analyzer System. The Permittee must operate the oxygen analyzer system at or above the minimum oxygen level that is established as the operating limit according to 40 CFR pt. 63, subp. JJJJJJ, Table 6 when firing the fuel or fuel mixture utilized during the most recent CO performance stack test. Operation of oxygen trim systems to meet these requirements shall not be done in a manner which compromises furnace safety.	40 CFR 63.11224(a), 40 CFR 63.11224(a)(7)	

Requirements

Agency Interest: Duluth Steam Plant 1
Agency Interest ID: 4233
Activity: (Major Amendment)

Agency Interest Name	SI ID (unpadded)	Subject Item Designation	Subject Item Description	Sequence N..	Requirement (Preview without Citation)	Citation (Preview without Re..	
Duluth Steam Plant 1	COMG1	GP001	Boilers	83	Carbon Monoxide: Oxygen Analyzer System. The Permittee must install, operate, and maintain the oxygen analyzer system according to the procedures below: (1) The oxygen analyzer system must complete a minimum of one cycle of operation every 15 minutes. The Permittee must have data values from a minimum of four successive cycles of operation representing each of the four 15-minute periods in an hour, or at least two 15-minute data values during an hour when CMS calibration, quality assurance, or maintenance activities are being performed, to have a valid hour of data. (2) The Permittee must calculate hourly arithmetic averages from each hour of CPMS data in units of the operating limit and determine the 30-day rolling average of all recorded readings, except as provided in 40 CFR Section 63.11221(c). Calculate a 30-day rolling average from all of the hourly aver..	40 CFR 63.11224(a), 40 CFR 63.11224(d)	
				84	Carbon Monoxide: Oxygen Analyzer System. The Permittee must establish a unit-specific limit for minimum oxygen level using data from the oxygen analyzer system specified in 40 CFR Section 63.11224(a) according to the following requirements: (a) Collect oxygen data every 15 minutes during the entire period of the performance stack tests; (b) Determine the average hourly oxygen concentration for each individual test run in the three-run performance stack test by computing the average of all the 15-minute readings taken during each test run.	40 CFR 63.11211(a), 40 CFR pt. 63, sub. JJJJJJ(Table 6)(Item 3)	
				85	Carbon Monoxide: Operating Load. The Permittee must establish a unit-specific limit for maximum operating load according to 40 CFR Section 63.11212(c) using data from the operating load monitors (fuel feed monitors or steam generation monitors) according to the following requirements: (a) Collect operating load data (fuel feed rate or steam generation data) every 15 minutes during the entire period of the performance test. (b) Determine the average operating load by computing the hourly averages using all of the 15-minute readings taken during each performance test. (c) Determine the average of the three test run averages during the performance test, and multiply this by 1.1 (110 percent) as the operating limit.	40 CFR 63.11211, 40 CFR pt. 63, sub. JJJJJJ(Table 6)(Item 4)	
				86	Mercury: Fuel Analysis. The Permittee must demonstrate initial compliance with the mercury emission limit specified in 40 CFR pt. 63, subp. JJJJJJ, Table 1 that applies by conducting fuel analyses according to 40 CFR Section 63.11213 and CFR pt. 63, subp. JJJJJJ, Table 5.	40 CFR 63.11210(a)	
				87	Mercury: Fuel Analysis. The Permittee must conduct fuel analyses according to 40 CFR Section 63.11213 and 40 CFR pt. 63, subp. JJJJJJ, Table 5 and follow the procedures below: (1) If the Permittee burns more than one fuel type, the Permittee must determine the fuel type, or mixture, the Permittee could burn in the boiler that would result in the maximum emission rates of mercury. (2) The Permittee must determine the 90th percentile confidence level fuel mercury concentration of the composite samples analyzed for each fuel type using Equation 2 in Appendix E of the permit. (3) To demonstrate compliance with the applicable mercury emission limit, the emission rate that the Permittee calculates for the boiler using the above equation must be less than the applicable mercury emission limit.	40 CFR 63.11211(c)	
				88	Mercury: Fuel Analysis. The Permittee must conduct fuel analyses according to the procedures in 40 CFR Section 63.11213(b) and (c) and 40 CFR pt. 63, subp. JJJJJJ, Table 5, as applicable. The Permittee is not required to conduct fuel analyses for fuels used for only startup, unit shutdown, and transient flame stability purposes. The Permittee is required to conduct fuel analyses only for fuels and units that are subject to emission limits for mercury in 40 CFR pt. 63, subp. JJJJJJ, Table 1.	40 CFR 63.11213(a)	
				89	Mercury: Fuel Analysis. At a minimum, the Permittee must obtain three composite fuel samples for each fuel type according to the procedures in 40 CFR pt. 63, subp. JJJJJJ, Table 5. Each composite sample must consist of a minimum of three samples collected at approximately equal intervals during a test run period.	40 CFR 63.11213(b)	
				91	Mercury: Fuel Analysis. The Permittee must determine the concentration of mercury in the fuel in units of pounds per million Btu of each composite sample for each fuel type according to the procedures in 40 CFR pt. 63, subp. JJJJJJ, Table 5.	40 CFR 63.11213(c)	
				92	Mercury: Fuel Analysis. Requirements for fuel analysis: a. Collect fuel samples using procedure in 40 CFR Section 63.11213(b) or ASTM D2234/D2234Ma (for coal) or ASTM D6323a (for biomass) or equivalent. b. Compose fuel samples using procedure in 40 CFR Section 63.11213(b) or equivalent. c. Prepare composited fuel samples using EPA SW-846-3050B (for solid samples) or EPA SW-846-3020A (for liquid samples) or ASTM D2013/D2013M (for coal) or ASTM D5198 (for biomass) or equivalent. d. Determine heat content of the fuel type using ASTM D5865 (for coal) or ASTM E711 (for biomass) or equivalent. e. Determine moisture content of the fuel type using ASTM D3173 or ASTM E871 or equivalent...	40 CFR 63.11210(a), 40 CFR pt. 63, sub. JJJJJJ(Table 5)(Item 1)	

Requirements

Agency Interest: Duluth Steam Plant 1
Agency Interest ID: 4233
Activity: (Major Amendment)

Agency Interest Name	SI ID (unpadded)	Subject Item Designation	Subject Item Description	Sequence N..	Requirement (Preview without Citation)	Citation (Preview without Re..	
Duluth Steam Plant 1	COMG1	GP001	Boilers				
				93	Energy Assessment. The Permittee must submit a signed certification in the Notification of Compliance Status report that an energy assessment of the boiler and its energy use systems was completed according to 40 CFR pt. 63, subp. JJJJJJ, Table 2 and is an accurate depiction of the facility.	40 CFR 63.11214(c)	
				95	Startups and Shutdowns. The Permittee must minimize the boiler's startup and shutdown periods following the manufacturer's recommended procedures, if available. If manufacturer's recommended procedures are not available, the Permittee must follow recommended procedures for a unit of similar design for which manufacturer's recommended procedures are available. The Permittee must submit a signed statement in the Notification of Compliance Status report that indicates that the Permittee conducted startups and shutdowns according to the manufacturer's recommended procedures or procedures specified for a boiler of similar design if manufacturer's recommended procedures are not available.	40 CFR 63.11214(d)	
				97	The Permittee must monitor and collect data according to 40 CFR Section 63.11221 and the site-specific monitoring plan required by 40 CFR Section 63.11205(c).	40 CFR 63.11221(a)	
				98	The Permittee must operate the monitoring system and collect data at all required intervals at all times the affected source is operating and compliance is required, except for periods of monitoring system malfunctions or out-of-control periods (see 40 CFR Section 63.8(c)(7)), repairs associated with monitoring system malfunctions or out-of-control periods, and required monitoring system quality assurance or quality control activities including, as applicable, calibration checks, required zero and span adjustments, and scheduled CMS maintenance as defined in the site-specific monitoring plan. A monitoring system malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring system to provide valid data. Monitoring system failures that are caused in part by poor maintenance or careless operation are not malfunctions. The Permittee is required to complete monitoring system repairs in response to monitoring system malfunctions or out-of-control periods and to return the monitoring system to operation as expeditiously as practicable.	40 CFR 63.11221(b)	
				99	The Permittee may not use data collected during monitoring system malfunctions or out-of-control periods, repairs associated with monitoring system malfunctions or out-of-control periods, or required monitoring system quality assurance or quality control activities in calculations used to report emissions or operating levels. Any such periods must be reported according to the requirements in 40 CFR Section 63.11225. The Permittee must use all the data collected during all other periods in assessing the operation of the control device and associated control system.	40 CFR 63.11221(c)	
				100	Except for periods of monitoring system malfunctions or monitoring system out-of-control periods, repairs associated with monitoring system malfunctions or monitoring system out-of-control periods, and required monitoring system quality assurance or quality control activities (including, as applicable, calibration checks, required zero and span adjustments, and scheduled CMS maintenance as defined in the site-specific monitoring plan), failure to collect required data is a deviation of the monitoring requirements.	40 CFR 63.11221(d)	
				101	Following the date on which the initial compliance demonstration is completed or is required to be completed under 40 CFR Sections 63.7 and 63.11196, whichever date comes first, the Permittee must continuously monitor the operating parameters. Operation above the established maximum, below the established minimum, or outside the allowable range of the operating limits specified in 40 CFR Section 63.11222(a) constitutes a deviation from the operating limits established under 40 CFR pt. 63, subp. JJJJJJ, except during performance tests conducted to determine compliance with the emission and operating limits or to establish new operating limits. Operating limits are confirmed or reestablished during performance tests.	40 CFR 63.11222(a)(1)	
				102	The Permittee must report each instance in which the Permittee did not meet each emission limit and operating limit in 40 CFR pt. 63, subp. JJJJJJ, Tables 1 and 3 that apply. These instances are deviations from the emission limits in 40 CFR pt. 63, subp. JJJJJJ. These deviations must be reported according to the requirements in 40 CFR Section 63.11225.	40 CFR 63.11222(b)	
				103	Carbon Monoxide: Performance Tests. The Permittee must conduct performance (stack) tests used to demonstrate compliance with the CO emissions limit according to 40 CFR Section 63.11212 on a triennial basis, except as specified in 40 CFR Section 63.11220(b) through (d). Triennial performance tests must be completed no more than 37 months after the previous performance test.	40 CFR 63.11220(a)	

Requirements

Agency Interest: Duluth Steam Plant 1
Agency Interest ID: 4233
Activity: (Major Amendment)

Agency Interest Name	SI ID (unpadded)	Subject Item Designation	Subject Item Description	Sequence N..	Requirement (Preview without Citation)	Citation (Preview without Re..	
Duluth Steam Plant 1	COMG1	GP001	Boilers				
				105	Carbon Monoxide: Oxygen Analyzer System. The Permittee must demonstrate continuous compliance with the oxygen analyzer system operating limit by: a. Continuously monitoring the oxygen content of flue gas according to 40 CFR Section 63.11224 (This requirement does not apply to units that install an oxygen trim system since these units will set the trim system to the level specified in 40 CFR Section 63.11224(a)(7)); and b. Reducing the data to 30-day rolling averages; and c. Maintaining the 30-day rolling average oxygen content at or above the minimum oxygen level established during the most recent CO performance test.	40 CFR 63.11222(a), 40 CFR pt. 63, subp. JJJJJJ(Table 7)(Item 7)	
				106	Carbon Monoxide: Operating Load. The Permittee must demonstrate continuous compliance with the operating load operating limit by: a. Collecting operating load data (fuel feed rate or steam generation data) every 15 minutes; and b. Reducing the data to 30-day rolling averages; and c. Maintaining the 30-day rolling average at or below the operating limit established during the performance test according to 40 CFR Section 63.11212(c) and 40 CFR pt. 63, subp. JJJJJJ, Table 6.	40 CFR 63.11222(a), 40 CFR pt. 63, subp. JJJJJJ(Table 7)(Item 9)	
				107	Mercury: Fuel Analysis. The Permittee must conduct a fuel analysis according to 40 CFR Section 63.11213 for each type of fuel burned as specified in 40 CFR Section 63.11220(c)(1) and (2) below: (1) When demonstrating initial compliance with the mercury emission limit, if the mercury constituents in the fuel or fuel mixture are measured to be equal to or less than half of the mercury emission limit, the Permittee does not need to conduct further fuel analysis sampling but must continue to comply with all applicable operating limits and monitoring requirements. (2) When demonstrating initial compliance with the mercury emission limit, if the mercury constituents in the fuel or fuel mixture are greater than half of the mercury emission limit, the Permittee must conduct quarterly sampling. If the Permittee plans to burn a new type of fuel or fuel mixture, the Permittee must conduct a fuel analysis before burning the new type of fuel or mixture in ..	40 CFR 63.11220(c)	
				109	Mercury: Fuel Analysis. The Permittee must keep records of the type and amount of all fuels burned in each boiler during the reporting period to demonstrate that all fuel types and mixtures of fuels burned would result in lower emissions of mercury than the applicable emission limit.	40 CFR 63.11222(a)(2)	
				110	Mercury: Fuel Analysis. If the Permittee plans to burn a new type of fuel, the Permittee must determine the mercury concentration for any new fuel type in units of pounds per million Btu, using the procedures in Equation 1 of 40 CFR Section 63.11211 based on supplier data or the Permittee's own fuel analysis, and meet the requirements in 40 CFR Section 63.11222(a)(3)(i) or (ii) below: (i) The recalculated mercury emission rate must be less than the applicable emission limit. (ii) If the mercury concentration is higher than mercury fuel input during the previous performance test, then the Permittee must conduct a new performance test within 60 days of burning the new fuel type or fuel mixture according to the procedures in 40 CFR Section 63.11212 to demonstrate that the mercury emissions do not exceed the emission limit.	40 CFR 63.11222(a)(3)	
				111	Mercury: Fuel Analysis. The Permittee must demonstrate continuous compliance with the fuel analysis operating limit by: a. Only burning the fuel types and fuel mixtures used to demonstrate compliance with the applicable emission limit according to 40 CFR Section 63.11213 as applicable; and b. Keeping monthly records of fuel use according to 40 CFR Sections 63.11222(a)(2) and 63.11225(b)(4).	40 CFR 63.11222(a), 40 CFR pt. 63, subp. JJJJJJ(Table 7)(Item 6)	
				112	Startup and Shutdown. The Permittee must minimize the boiler's startup and shutdown periods following the manufacturer's recommended procedures, if available. If manufacturer's recommended procedures are not available, the Permittee must follow recommended procedures for a unit of similar design for which manufacturer's recommended procedures are available. The Permittee must submit a signed statement in the Notification of Compliance Status report that indicates that the Permittee conducted startups and shutdowns according to the manufacturer's recommended procedures or procedures specified for a boiler of similar design if manufacturer's recommended procedures are not available.	40 CFR 63.11223(g)	
				113	The Permittee must submit all of the notifications in 40 CFR Sections 63.7(b); 63.8(e) and (f); and 63.9(b) through (e), (g), and (h) that apply by the dates specified in those sections except as specified in 40 CFR Section 63.11225(a)(2) and (4).	40 CFR 63.11225(a)(1)	
				116	Initial Notification. An Initial Notification must be submitted no later than January 20, 2014 or within 120 days after the source becomes subject to 40 CFR pt. 63, subp. JJJJJJ.	40 CFR 63.11225(a)(2)	

Requirements

Agency Interest: Duluth Steam Plant 1
Agency Interest ID: 4233
Activity: (Major Amendment)

Agency Interest Name	SI ID (unpadded)	Subject Item Designation	Subject Item Description	Sequence N..	Requirement (Preview without Citation)	Citation (Preview without Re..	
Duluth Steam Plant 1	COMG1	GP001	Boilers				
				117	Notification of Intent. The Permittee must submit a Notification of Intent to conduct a performance test at least 60 days before the performance stack test is scheduled to begin.	40 CFR 63.11225(a)(3)	
				118	Notification of Compliance Status. The Permittee must submit the Notification of Compliance Status no later than 120 days after March 21, 2014 unless the Permittee must conduct a performance stack test. If the Permittee must conduct a performance stack test, the Permittee must submit the Notification of Compliance Status within 60 days of completing the performance stack test. The Permittee must submit the Notification of Compliance Status in accordance with 40 CFR Section 63.11225(a)(4)(i) and (vi). The Notification of Compliance Status must include the information and certification(s) of compliance in 40 CFR Section 63.11225(a)(4)(i) through (v), as applicable, and signed by a responsible official. (i) The Permittee must submit the information required in 40 CFR Section 63.9(h)(2), except the information listed in 40 CFR Section 63.9(h)(2)(i)(B), (D), (E), and (F). The Permittee must submit the data specified in 40 CFR Section 63.11225(e). If the Permittee conducts other monitoring procedures ..	40 CFR 63.11225(a)(4)	
				121	Notification of Compliance Status. If the Permittee is using data from a previously conducted emission test to serve as documentation of conformance with the emission standards and operating limits of 40 CFR pt. 63, subp. JJJJJJ, the Permittee must include in the Notification of Compliance Status the date of the test and a summary of the results, not a complete test report, relative to 40 CFR pt. 63, subp. JJJJJJ.	40 CFR 63.11225(a)(5)	
				122	Notification of Solid Waste Combustion. If the Permittee intends to commence or recommence combustion of solid waste, the Permittee must provide 30 days prior notice of the date upon which the Permittee will commence or recommence combustion of solid waste. The notification must identify: (1) The name of the owner or operator of the affected source, the location of the source, the boiler(s) that will commence burning solid waste, and the date of the notice. (2) The currently applicable subcategory under this 40 CFR pt. 63, subp. JJJJJJ. (3) The date on which the Permittee became subject to the currently applicable emission limits. (4) The date upon which the Permittee will commence combusting solid waste.	40 CFR 63.11225(f)	
				126	Notification of 40 CFR pt. 63, subp. JJJJJJ Applicability. If the Permittee has switched fuels or made a physical change to the boiler and the fuel switch or change resulted in the applicability of a different subcategory within 40 CFR pt. 63, subp. JJJJJJ, in the boiler becoming subject to 40 CFR pt. 63, subp. JJJJJJ, or in the boiler switching out of 40 CFR pt. 63, subp. JJJJJJ due to a change to 100 percent natural gas, or the Permittee has taken a permit limit that resulted in the Permittee being subject to 40 CFR pt. 63, subp. JJJJJJ, the Permittee must provide notice of the date upon which the Permittee switched fuels, made the physical change, or took a permit limit within 30 days of the change. The notification must identify: (1) The name of the owner or operator of the affected source, the location of the source, the boiler(s) that have switched fuels, were physically changed, or took a permit limit, and the date of the notice. (2) The date upon which the fuel switch, physical change, or permit limit occurred.	40 CFR 63.11225(g)	
				127	Compliance Certification Report. The Permittee must prepare, by March 1 of each year, and submit to the Administrator upon request, an annual Compliance Certification Report for the previous calendar year containing the information specified below in 40 CFR Section 63.11225(b)(1) through (4). The Permittee must submit the report by March 15 if the Permittee had any instance described by 40 CFR Section 63.11225(b)(3).	40 CFR 63.11225(b)	
				128	Compliance Certification Report. Content of Compliance Certification Report: (1) Company name and address. (2) Statement by a 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 40 CFR pt. 63, subp. JJJJJJ. The notification must include the following certification(s) of compliance, as applicable, and signed by a responsible official: - For units that do not qualify for a statutory exemption as provided in section 129(g)(1) of the Clean Air Act: "No secondary materials that are solid waste were combusted in any affected unit." - "This facility complies with the requirement in 40 CFR Sections 63.11214(d) and 63.11223(g) to min..	40 CFR 63.11225(b)(1) - (4)	
				129	As required in 40 CFR Section 63.10(b)(2)(xiv), the Permittee must keep a copy of each notification and report that the Permittee submitted to comply with 40 CFR pt. 63, subp. JJJJJJ and all documentation supporting any Initial Notification or Notification of Compliance Status that the Permittee submitted.	40 CFR 63.11225(c)(1)	
				130	The Permittee must keep records to document conformance with the work practices, emission reduction measures, and management practices required by 40 CFR Section 63.11214 and 40 CFR Section 63.11223 as specified below: (iii) For each boiler required to conduct an energy assessment, the Permittee must keep a copy of the energy assessment report. (iv) For each boiler subject to an emission limit in 40 CFR pt. 63, subp. JJJJJJ, Table 1, the Permittee must also keep records of monthly fuel use by each boiler, including the type(s) of fuel and amount(s) used.	40 CFR 63.11225(c)(2)	

Requirements

Agency Interest: Duluth Steam Plant 1
Agency Interest ID: 4233
Activity: (Major Amendment)

Agency Interest Name	SI ID (unpadded)	Subject Item Designation	Subject Item Description	Sequence N..	Requirement (Preview without Citation)	Citation (Preview without Re..	
Duluth Steam Plant 1	COMG1	GP001	Boilers				
				131	The Permittee must maintain a copy of all calculations and supporting documentation that were done to demonstrate compliance with the mercury emission limits. Supporting documentation should include results of any fuel analyses. The Permittee can use the results from one fuel analysis for multiple boilers provided they are all burning the same fuel type.	40 CFR 63.11225(c)(3)	
				132	The Permittee must maintain records of the occurrence and duration of each malfunction of the boiler, or of the associated air pollution control and monitoring equipment.	40 CFR 63.11225(c)(4)	
				133	The Permittee must maintain records of actions taken during periods of malfunction to minimize emissions in accordance with the general duty to minimize emissions in 40 CFR Section 63.11205(a), including corrective actions to restore the malfunctioning boiler, air pollution control, or monitoring equipment to its normal or usual manner of operation.	40 CFR 63.11225(c)(5)	
				138	The Permittee must keep the records of all inspection and monitoring data required by 40 CFR Sections 63.11221 and 63.11222, and the information identified in 40 CFR Section 63.11225(c)(6)(i) through (vi) for each required inspection or monitoring. (i) The date, place, and time of the monitoring event. (ii) Person conducting the monitoring. (iii) Technique or method used. (iv) Operating conditions during the activity. (v) Results, including the date, time, and duration of the period from the time the monitoring indicated a problem to the time that monitoring indicated proper operation. (vi) Maintenance or corrective action taken (if applicable).	40 CFR 63.11225(c)(6)	
				139	The records must be in a form suitable and readily available for expeditious review. The Permittee must keep each record for 5 years following the date of each recorded action. The Permittee must keep each record on-site or be accessible from a central location by computer or other means that instantly provide access at the site 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 CFR 63.11225(d)	
				140	Within 60 days after the date of completing each performance test (defined in 40 CFR Section 63.2) as required by 40 CFR pt. 63, subp. JJJJJJ the Permittee must submit the results of the performance tests, including any associated fuel analyses, required by 40 CFR pt. 63, subp. JJJJJJ to EPA's WebFIRE database by using CEDRI that is accessed through EPA's CDX (www.epa.gov/cdx). Performance test data must be submitted in the file format generated through use of EPA's Electronic Reporting Tool (ERT) (see http://www.epa.gov/ttn/chief/ert/index.html). Only data collected using test methods on the ERT Web site are subject to this requirement for submitting reports electronically to WebFIRE. Owners or operators who claim that some of the information being submitted for performance tests is confidential business information (CBI) must submit a complete ERT file including information claimed to be CBI on a compact disk or other commonly used electronic storage media (including, but not limited to, flash drives) to EPA. The electronic media must be clearly marked as CBI and mailed to U.S...	40 CFR 63.11225(e)(1)	
				143	The following requirements apply to any COMG 1 boiler in the Biomass Subcategory, as defined in 40 CFR Section 63.11237.	40 CFR 63.11200(b), Minn. R. 7007.0800, subps. 1-2	
				145	Startups and Shutdowns. The Permittee must minimize the boiler's startup and shutdown periods and conduct startups and shutdowns according to the manufacturer's recommended procedures. If manufacturer's recommended procedures are not available, the Permittee must follow recommended procedures for a unit of similar design for which manufacturer's recommended procedures are available.	40 CFR 63.11201(b), 40 CFR pt. 63, subp. JJJJJJ(Table 2)(Item 1)	
				146	Tune-Ups. The Permittee must conduct an initial tune-up as specified in 40 CFR Section 63.11214, and conduct a tune-up of the boiler biennially as specified in 40 CFR Section 63.11223.	40 CFR 63.11201(b), 40 CFR pt. 63, subp. JJJJJJ(Table 2)(Item 6)	

Requirements

Agency Interest: Duluth Steam Plant 1
Agency Interest ID: 4233
Activity: (Major Amendment)

Agency Interest Name	SI ID (unpadded)	Subject Item Designation	Subject Item Description	Sequence N..	Requirement (Preview without Citation)	Citation (Preview without Re..	
Duluth Steam Plant 1	COMG1	GP001	Boilers	147	Energy Assessment. The Permittee must have a one-time energy assessment performed by a qualified energy assessor. An energy assessment completed on or after January 1, 2008, that meets or is amended to meet the energy assessment requirements in this table satisfies the energy assessment requirement. Energy assessor approval and qualification requirements are waived in instances where past or amended energy assessments are used to meet the energy assessment requirements. A facility that operates under an energy management program compatible with ISO 50001 that includes the affected units also satisfies the energy assessment requirement. The energy assessment must include the following with extent of the evaluation for items (1) to (4) appropriate for the on-site technical hours listed in 40 CFR Section 63.11237: (1) A visual inspection of the boiler system, (2) An evaluation of operating characteristics of the affected boiler systems, specifications of energy use systems, operating and maintenance procedures, and unusual operating constraints, (3) An inventory of major ..	40 CFR 63.11201(b), 40 CFR pt. 63, subp. JJJJJJ(Table 2)(Item 16)	
				148	The standards in 40 CFR Section 63.11201 apply at all times the affected boiler is operating, except during periods of startup and shutdown as defined in 40 CFR Section 63.11237, during which time the Permittee must comply only with 40 CFR pt. 63, subp. JJJJJJ, Table 2.	40 CFR 63.11201(d)	
				149	At all times the Permittee must operate and maintain any affected source, 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 the Permittee to make any further efforts to reduce emissions if levels required by 40 CFR pt. 63, subp. JJJJJJ have been achieved. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator that 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 CFR 63.11205(a)	
				150	The Permittee must demonstrate initial compliance with the applicable work practice standards and management practices no later than March 21, 2014 and according to the applicable provisions in 40 CFR Section 63.7(a)(2), except as provided in 40 CFR Section 63.11210(j).	40 CFR 63.11210(c)	
				155	For affected boilers that switch fuels or make a physical change to the boiler that results in the applicability of a different subcategory within 40 CFR pt. 63, subp. JJJJJJ, the Permittee must demonstrate compliance within 180 days of the effective date of the fuel switch or the physical change. Notification of such changes must be submitted according to 40 CFR Section 63.11225(g).	40 CFR 63.11210(h)	
				157	Tune-Ups. The Permittee must conduct a performance tune-up according to 40 CFR Section 63.11223(b) and must submit a signed statement in the Notification of Compliance Status report that indicates that the Permittee conducted a tune-up of the boiler.	40 CFR 63.11214(b)	
				158	Tune-Ups. The Permittee must conduct the tune-up while burning the type of fuel (or fuels in the case of boilers that routinely burn two types of fuels at the same time) that provided the majority of the heat input to the boiler over the 12 months prior to the tune-up.	40 CFR 63.11223(a)	
				159	Tune-Ups. The Permittee must conduct a tune-up of the boiler as specified below: (1) 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 unit shutdown, not to exceed 36 months from the previous inspection). Units that produce electricity for sale may delay the burner inspection until the first outage, not to exceed 36 months from the previous inspection. (2) 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. (3) 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). Units that produce electricity ..	40 CFR 63.11223(a), 40 CFR 63.11223(b)(1) - (7)	
				160	Energy Assessment. The Permittee must submit a signed certification in the Notification of Compliance Status report that an energy assessment of the boiler and its energy use systems was completed according to 40 CFR pt. 63, subp. JJJJJJ, Table 2 and is an accurate depiction of the facility.	40 CFR 63.11214(c)	

Requirements

Agency Interest: Duluth Steam Plant 1
Agency Interest ID: 4233
Activity: (Major Amendment)

Agency Interest Name	SI ID (unpadded)	Subject Item Designation	Subject Item Description	Sequence N..	Requirement (Preview without Citation)	Citation (Preview without Re..	
Duluth Steam Plant 1	COMG1	GP001	Boilers				
				161	Tune-Ups. The Permittee must conduct a tune-up of the boiler biennially to demonstrate continuous compliance as specified in 40 CFR Section 63.11223(b)(1) through (7). Each biennial tune-up must be conducted no more than 25 months after the previous tune-up.	40 CFR 63.11223(b)	
				163	The Permittee must submit all of the notifications in 40 CFR Sections 63.7(b); 63.8(e) and (f); and 63.9(b) through (e), (g), and (h) that apply by the dates specified in those sections except as specified in 40 CFR Section 63.11225(a)(2) and (4).	40 CFR 63.11225(a)(1)	
				164	Initial Notification. The Permittee must submit an Initial Notification no later than January 20, 2014 or within 120 days after the source becomes subject 40 CFR pt. 63, subp. JJJJJJ.	40 CFR 63.11225(a)(2)	
				167	Notification of Compliance Status. The Permittee must submit the Notification of Compliance Status no later than 120 days after March 21, 2014.	40 CFR 63.11225(a)(4)	
				168	Notification of Compliance Status. The Permittee must submit the Notification of Compliance Status in accordance with 40 CFR Section 63.11225(a)(4)(i) and (vi). The Notification of Compliance Status must include the information and certification(s) of compliance in 40 CFR Section 63.11225(a)(4)(i) through (v), as applicable, and signed by a responsible official. (i) The Permittee must submit the information required in 40 CFR Section 63.9(h)(2), except the information listed in 40 CFR Section 63.9(h)(2)(i)(B), (D), (E), and (F). If the Permittee conducts any performance tests or CMS performance evaluations, the Permittee must submit that data as specified in 40 CFR Section 63.11225(e). If the Permittee conducts any opacity or visible emission observations, or other monitoring procedures or methods, the Permittee must submit that data to the Administrator at the appropriate address listed in 40 CFR Section 63.13...	40 CFR 63.11225(a)(4)	
				171	Notification of Solid Waste Combustion. If the Permittee intends to commence or recommence combustion of solid waste, the Permittee must provide 30 days prior notice of the date upon which the Permittee will commence or recommence combustion of solid waste. The notification must identify: (1) The name of the owner or operator of the affected source, the location of the source, the boiler(s) that will commence burning solid waste, and the date of the notice. (2) The currently applicable subcategory under 40 CFR pt. 63, subp. JJJJJJ. (3) The date on which the Permittee became subject to the currently applicable emission limits. (4) The date upon which the Permittee will commence combusting solid waste.	40 CFR 63.11225(f)	
				172	Notification of 40 CFR pt. 63, subp. JJJJJJ Applicability. If the Permittee has switched fuels or made a physical change to the boiler and the fuel switch or change resulted in the applicability of a different subcategory within 40 CFR pt. 63, subp. JJJJJJ, in the boiler becoming subject to 40 CFR pt. 63, subp. JJJJJJ, or in the boiler switching out of 40 CFR pt. 63, subp. JJJJJJ due to a change to 100 percent natural gas, or the Permittee has taken a permit limit that resulted in the Permittee being subject to 40 CFR pt. 63, subp. JJJJJJ, the Permittee must provide notice of the date upon which the Permittee switched fuels, made the physical change, or took a permit limit within 30 days of the change. The notification must identify: (1) The name of the owner or operator of the affected source, the location of the source, the boiler(s) that have switched fuels, were physically changed, or took a permit limit, and the date of the notice. (2) The date upon which the fuel switch, physical change, or permit limit occurred.	40 CFR 63.11225(g)	
				173	Compliance Certification Report. The Permittee must prepare, by March 1 of each year, and submit to the Administrator upon request, an annual Compliance Certification Report for the previous calendar year containing the information specified in 40 CFR Section 63.11225(b)(1) through (4). The Permittee must submit the report by March 15 if the Permittee had any instance described by 40 CFR Section 63.11225(b)(3). For boilers that are subject only to a requirement to conduct a biennial tune-up according to 40 CFR Section 63.11223(a) and not subject to emission limits or operating limits, the Permittee may prepare only a biennial report as specified in 40 CFR Section 63.11225(b)(1) and (2).	40 CFR 63.11225(b)	
				174	Compliance Certification Report. Content of Compliance Certification Report: (1) Company name and address. (2) Statement by a 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 40 CFR pt. 63, subp. JJJJJJ. The notification must include the following certification(s) of compliance, as applicable, and signed by a responsible official: - "This facility complies with the requirements in 40 CFR Section 63.11223 to conduct a biennial tune-up of each boiler." - For units that do not qualify for a statutory exemption as provided in section 129(g)(1) of the Clean ..	40 CFR 63.11225(b)(1) - (3)	

Requirements

Agency Interest: Duluth Steam Plant 1
Agency Interest ID: 4233
Activity: (Major Amendment)

Agency Interest Name	SI ID (unpadded)	Subject Item Designation	Subject Item Description	Sequence N..	Requirement (Preview without Citation)	Citation (Preview without Re..	
Duluth Steam Plant 1	COMG1	GP001	Boilers				
				175	As required in 40 CFR Section 63.10(b)(2)(xiv), the Permittee must keep a copy of each notification and report that the Permittee submitted to comply with 40 CFR pt. 63, subp. JJJJJJ and all documentation supporting any Initial Notification or Notification of Compliance Status submitted.	40 CFR 63.11223(a), 40 CFR 63.11225(c)(1)	
				176	The Permittee must keep records to document conformance with the work practices, emission reduction measures, and management practices required by 40 CFR Section 63.11214 and 40 CFR Section 63.11223 as specified below: (i) 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. (iii) For each boiler required to conduct an energy assessment, the Permittee must keep a copy of the energy assessment report.	40 CFR 63.11223(a), 40 CFR 63.11225(c)(2)	
				177	The Permittee must maintain records of the occurrence and duration of each malfunction of the boiler, or of the associated air pollution control and monitoring equipment.	40 CFR 63.11223(a), 40 CFR 63.11225(c)(4)	
				178	The Permittee must maintain records of actions taken during periods of malfunction to minimize emissions in accordance with the general duty to minimize emissions in 40 CFR Section 63.11205(a), including corrective actions to restore the malfunctioning boiler, air pollution control, or monitoring equipment to its normal or usual manner of operation.	40 CFR 63.11223(a), 40 CFR 63.11225(c)(5)	
				179	The Permittee must keep the records of all inspection and monitoring data required by 40 CFR Sections 63.11221 and 63.11222, and the information identified below for each required inspection or monitoring. (i) The date, place, and time of the monitoring event. (ii) Person conducting the monitoring. (iii) Technique or method used. (iv) Operating conditions during the activity. (v) Results, including the date, time, and duration of the period from the time the monitoring indicated a problem to the time that monitoring indicated proper operation. (vi) Maintenance or corrective action taken (if applicable).	40 CFR 63.11223(a), 40 CFR 63.11225(c)(6)	
				180	The records must be in a form suitable and readily available for expeditious review. The Permittee must keep each record for 5 years following the date of each recorded action. The Permittee must keep each record on-site or be accessible from a central location by computer or other means that instantly provide access at the site 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 CFR 63.11225(d)	
				181	The Permittee shall comply with the following 40 CFR pt. 63 General Provisions.	40 CFR 63.11235	
				182	Methods for determining compliance will be, in part, based on the results of performance tests, conformance with operation and maintenance requirements, review of records, and inspection of the source as specified in 40 CFR Section 63.6(f)(2) The Permittee many use the results of performance testing conducted previously if it meets the requirements of 40 CFR Section 63.6(f)(iii).	40 CFR 63.6(f)(2), Minn. R. 7011.7000	
				183	Finding of compliance. The Commissioner or the Administrator will make a finding concerning an affected source's compliance with a non-opacity emission standard upon obtaining all the compliance information required by the relevant standard.	40 CFR 63.6(f)(3), Minn. R. 7011.7000	

Requirements

Agency Interest: Duluth Steam Plant 1
Agency Interest ID: 4233
Activity: (Major Amendment)

Agency Interest Name	SI ID (unpadded)	Subject Item Designation	Subject Item Description	Sequence N..	Requirement (Preview without Citation)	Citation (Preview without Re..	
Duluth Steam Plant 1	COMG1	GP001	Boilers				
				184	The Permittee may establish the use of an alternative nonopacity emission standard by following the procedure specified in 40 CFR Section 63.6(g).	40 CFR 63.6(g), Minn. R. 7011.7000	
				185	Until an extension of compliance has been granted by the Administrator, the Permittee shall comply with all applicable requirements of 40 CFR pt. 63, subp. A.	40 CFR 63.6(i)(1), Minn. R. 7011.7000	
				186	The Administrator may grant an extension of compliance with an emission standard, as specified in 40 CFR Section 63.6(i).	40 CFR 63.6(i), Minn. R. 7011.7000	
				187	Methods for determining compliance. Compliance with opacity emission standards shall be determined by conducting observations in accordance with Test Method 9 in 40 CFR, pt. 60, Appendix A or the method specified in 40 CFR Section 63.6(h)(7)(ii). Whenever a visible emission test method is not specified, compliance with visible emission standards in this part shall be determined by conducting observations in accordance with Test Method 22 in 40 CFR pt. 60, Appendix A.	40 CFR 63.6(h)(2), Minn. R. 7011.7000	
				189	Notification of opacity or visible emission observations. The Permittee shall notify the Commissioner and the Administrator in writing of the anticipated date for conducting opacity or visible emission observations in accordance with 40 CFR Section 63.9(f).	40 CFR 63.6(h)(4)	
				190	Conduct of opacity or visible emission observations. For initial compliance, opacity or visible emission observations shall be conducted concurrently with the initial performance test unless otherwise specified in 40 CFR Section 63.6(h)(5)(A) and (B).	40 CFR 63.6(h)(5), Minn. R. 7011.7000	
				191	Recordkeeping. The Permittee shall make available, upon request by the Commissioner or Administrator, such records to determine the conditions under which the visual observations were made and shall provide evidence indicating proof of current visible observer emission certification.	40 CFR 63.6(h)(6), Minn. R. 7011.7000	
				192	Use of a continuous opacity monitoring system. i) The Permittee required to use a continuous opacity monitoring system (COMS) shall record the monitoring data produced during a performance test and shall furnish the Commissioner and the Administrator a written report of the monitoring results in accordance with the provisions of 40 CFR Section 63.10(e)(4). ii) The Permittee may submit, for compliance purposes, COMS data results produced during any performance test required under 40 CFR Section 63.7 in lieu of Method 9 data in accordance with the process specified in 40 CFR Section 63.6(h)(7). iii) COMS data shall be reduced to 6-minute averages over the duration of the mass emission performance test. iv) The Permittee is responsible for demonstrating that he/she has complied with the performance e..	40 CFR 63.6(h)(7), Minn. R. 7011.7000	
				193	Finding of compliance. The Commissioner or the Administrator will make a finding concerning an affected source's compliance with an opacity or visible emission standard upon obtaining all the compliance information required by the relevant standard and any information available needed to determine whether proper operation and maintenance practices are being used.	40 CFR 63.6(h)(8), Minn. R. 7011.7000	

Requirements

Agency Interest: Duluth Steam Plant 1
Agency Interest ID: 4233
Activity: (Major Amendment)

Agency Interest Name	SI ID (unpadded)	Subject Item Designation	Subject Item Description	Sequence N..	Requirement (Preview without Citation)	Citation (Preview without Re..	
Duluth Steam Plant 1	COMG1	GP001	Boilers				
				194	If the Commissioner or the Administrator finds that affected source is in compliance with all relevant standards for which initial performance tests were conducted, but during the time such performance tests were conducted fails to meet any relevant opacity emission standard, the Permittee may petition the Administrator to make appropriate adjustment to the opacity emission standard for the affected source. Until the Administrator notifies the Permittee, the relevant opacity emission standard remains applicable.	40 CFR 63.6(h)(9), Minn. R. 7011.7000	
				195	Notification of performance test. 1) The Permittee must notify the Commissioner and the Administrator of their intention to conduct a performance test at least 60 calendar days before the performance test is initially scheduled to begin. 2) In the event the Permittee is unable to conduct the performance test on the date specified due to unforeseeable circumstances, the Permittee must notify the Commissioner and the Administrator as soon as practicable and without delay prior to the scheduled performance test date and specify the date when the performance test is rescheduled.	40 CFR 63.7(b), Minn. R. 7017.2015	
				196	Submission of site-specific test plan. Before conducting a required performance test, the Permittee shall develop and, if requested by the Commissioner or the Administrator, shall submit a site-specific test plan for approval in accordance with the requirements of 40 CFR Section 63.7(c)(2).	40 CFR 63.7(c)(2), Minn. R. 7017.2015	
				197	Approval of site-specific test plan. The Administrator will notify the Permittee of approval or intention to deny approval of the site-specific test plan (if review of the site-specific test plan is requested) within 30 calendar days after receipt of the original plan and within 30 calendar days after receipt of any supplementary information.	40 CFR 63.7(c)(3), Minn. R. 7017.2015	
				199	Performance testing facilities. The Permittee, at the request of the Commissioner or the Administrator, shall provide performance testing facilities as specified in 40 CFR Section 63.7(d).	40 CFR 63.7(d), Minn. R. 7017.2015	
				200	Conduct of performance tests. Performance tests shall be conducted and data shall be reduced in accordance with the test methods and procedures set forth in 40 CFR Section 63.7(e), in each relevant standard, and, if required, in applicable appendices of 40 CFR parts 51, 60, 61. The Commissioner has delegation to approve a minor or intermediate modification (if validated by Method 301) to a reference method or specified monitoring procedure as allowed for in 40 CFR Section 63.7(e)(2)(i) and (ii).	40 CFR 63.7(e)(2), Minn. R. 7017.2015	
				202	Unless otherwise specified in a relevant standard or test method, each performance test shall consist of three separate runs using the applicable test method. Each run shall be conducted for the time and under the conditions specified in the relevant standard. For the purpose of determining compliance with a relevant standard, the arithmetic mean of the results of the three runs shall apply, unless otherwise approved in accordance with provisions of 40 CFR Section 63.7(e)(3).	40 CFR 63.7(e)(3), Minn. R. 7017.2015	
				203	Data analysis, recordkeeping, and reporting. Unless otherwise specified in a relevant standard or test method, or as otherwise approved by the Commissioner or Administrator in writing, results of a performance test shall include the analysis of samples, determination of emissions, and raw data. A performance test is "completed" when field sample collection is terminated. The Permittee shall report the results of the performance test to the Commissioner or Administrator before the close of business on the 60th day following the completion of the performance test, unless specified otherwise in a relevant standard or as approved otherwise in writing. The results of the performance test shall be submitted as part of the notification of compliance status required under 40 CFR Section 63.9(h) to the appropriate permitting authority.	40 CFR 63.7(g), Minn. R. 7017.2015	
				204	Waiver of performance tests. Until a waiver of a performance testing requirement has been granted by the Commissioner or the Administrator under 40 CFR Section 63.7(h), the Permittee remains subject to the requirements of 40 CFR Section 63.7(h).	40 CFR 63.7(h), Minn. R. 7017.2015	

Requirements

Agency Interest: Duluth Steam Plant 1
Agency Interest ID: 4233
Activity: (Major Amendment)

Agency Interest Name	SI ID (unpadded)	Subject Item Designation	Subject Item Description	Sequence N..	Requirement (Preview without Citation)	Citation (Preview without Re..	
Duluth Steam Plant 1	COMG1	GP001	Boilers				
				205	Conduct of monitoring. Monitoring shall be conducted as set forth in 40 CFR Section 63.8(a)(b)(1).	40 CFR 63.8(b)(1), Minn. R. 7017.2015	
				207	When the emissions from two or more affected sources are combined before being released to the atmosphere, the owner or operator may install an applicable CMS for each emission stream or for the combined emissions streams, provided the monitoring is sufficient to demonstrate compliance with the relevant standard unless other approved in accordance with 40 CFR Section 63.8(a)(b)(2).	40 CFR 63.8(a) and (b)(2), Minn. R. 7019.2015	
				208	The Permittee of a new or reconstructed major affected source for which an application for approval of construction or reconstruction is required under 40 CFR Section 63.5(d) must provide the following information in writing to the the Commissioner and the Administrator: 1) A notification of intention to construct a new major-emitting affected source, reconstruct a major-emitting affected source, or reconstruct a major source such that the source becomes a major-emitting affected source; and 2) A notification of the actual date of startup of the source, delivered or postmarked within 15 calendar days after that date.	40 CFR 63.9(b)(4), Minn. R. 7019.0100	
				209	Notification of performance test. The Permittee shall notify the Commissioner and the Administrator in writing of his or her intention to conduct a performance test at least 60 calendar days before the performance test is scheduled to begin.	40 CFR 63.9(e), Minn. R. 7019.0100	
				210	Notification of opacity and visible emission observations. The Permittee shall notify the Commissioner and the Administrator in writing of the anticipated date for conducting opacity or visible emission observations. The notification shall be submitted with the notification of the performance test date, or if no performance test is required or visibility or other conditions prevent the opacity or visible emission observations from being conducted concurrently with the initial performance test. The Permittee shall deliver or postmark the notification not less than 30 days before the opacity or visible emission observations are scheduled to take place.	40 CFR 63.9(f), Minn. R. 7019.0100	
				211	Notification of compliance status. Each time a notification of compliance status is required under 40 CFR pt. 63, subp. A, the Permittee shall submit to the Commissioner a notification of compliance status containing the information required by 40 CFR Section 63.9(h), signed by the responsible official who shall certify its accuracy, attesting to whether the source has complied with the relevant standard. The notification must be sent by the 60th day following the completion of the relevant compliance demonstration activity specified in the relevant standard. If no performance test is required but opacity or visible emission observations are required, the notification of compliance status shall be sent by the 30th day following the completion of opacity or visible emission observations. Notifications may be combined as long as the due date requirement for each notification is met.	40 CFR 63.9(h), Minn. R. 7019.0100	
				212	The Permittee shall submit reports to the Commissioner and shall send a copy of each report to the Administrator.	40 CFR 63.10(a), Minn. R. 7019.0100	
				213	Recordkeeping. The Permittee shall maintain files of all information (including all reports and notifications) required by 40 CFR pt. 63 in a form suitable and readily available for expeditious inspection and review. The files shall be retained for at least 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. At a minimum, the most recent 2 years of data must be retained on site.	40 CFR 63.10(b)(1), Minn. R. 7019.0100, subp. 2(B)	
				214	The Permittee shall maintain, at a minimum, the following information in the files: 1) all maintenance performed on the pollution control equipment; 2) all required measurements needed to demonstrate compliance with a relevant standard; 3) all results of performance tests and opacity and visible emission observations; 4) all measurements as may be necessary to determine the conditions of performance tests and performance evaluations; 5) any information demonstrating whether a source is meeting the requirements for a waiver of record keeping or reporting requirements under this part; 6) all documents supporting initial notifications and notifications of compliance status.	40 CFR 63.10(b)(2), Minn. R. 7019.0100, subp. 2(B)	

Requirements

Agency Interest: Duluth Steam Plant 1
Agency Interest ID: 4233
Activity: (Major Amendment)

Agency Interest Name	SI ID (unpadded)	Subject Item Designation	Subject Item Description	Sequence N..	Requirement (Preview without Citation)	Citation (Preview without Re..	
Duluth Steam Plant 1	COMG1	GP001	Boilers				
				215	Notwithstanding the requirements in 40 CFR Sections 63.10(d) and 63.10(e), the Permittee shall submit reports to the Commissioner and the Administrator in accordance with the reporting requirements in the relevant standard.	40 CFR 63.10(d)(1), Minn. R. 7019.0100	
				216	Progress reports. The Permittee who is required to submit progress reports as a condition of receiving an extension of compliance under 40 CFR Section 63.6(i) shall submit such reports to the Commissioner and the Administrator by the dates specified in the written extension of compliance.	40 CFR 60.10(d)(4), Minn. R. 7019.0100	
	EQUI2	EU006	Pneumatic Ash Handling System - Material Handling Equipment	2	The Permittee shall limit the Ash Handling System Process Throughput <= 8415 tons per year 12-month rolling sum.	Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2)and Minn. R. 7007.3000	
				3	Particulate Matter <= 0.30 grains per dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735.	Minn. R. 7011.0715, subp. 1(A)	
				4	Opacity <= 20 percent opacity.	Minn. R. 7011.0715, subp. 1(B)	
				3680	Process Throughput: Monthly Recordkeeping of Ash Throughput. By the 30th of the month, the Permittee shall calculate and record the total ash handled in tons for the previous calendar month.	Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000	
				3690	Process Throughput: Monthly Recordkeeping of Ash Throughput. By the 30th of the month, the Permittee shall calculate and record the 12 month rolling sum of ash throughput for the previous 12 month period by summing the monthly data for the previous 12 months.	Minn. R. 7007.0800, subps. 4-5	
	EQUI5	EU001	Boiler 1	2	The Permittee shall vent emissions from EQUI 5 to control equipment meeting the requirements of TREA 1 whenever EQUI 5 combusts coal, No. 2 fuel oil, or wood.	Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000	
				4	Filterable Particulate Matter <= 0.40 pounds per million Btu heat input. The potential to emit from the unit is 0.050 lb/MMBtu due to equipment design and allowable fuels.	Minn. R. 7011.0510, subp. 1	

Requirements

Agency Interest: Duluth Steam Plant 1
Agency Interest ID: 4233
Activity: (Major Amendment)

Agency Interest Name	SI ID (unpadded)	Subject Item Designation	Subject Item Description	Sequence N..	Requirement (Preview without Citation)	Citation (Preview without Re..	
Duluth Steam Plant 1	EQUI5	EU001	Boiler 1				
				5	Opacity <= 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity.	Minn. R. 7011.0510, subp. 2	
				6	Sulfur Dioxide <= 4.0 pounds per million Btu heat input. The potential to emit from the unit is 1.22 lb/MMBtu due to equipment design and allowable fuels.	Minn. R. 7011.0510, subp. 1	
				13	The Permittee shall limit boiler Heat Input <= 92 million Btu per hour 24-hour block average while combusting any wood. This heat input equals 80% of the boiler capacity.	Minn. R. 7007.0800, subp. 2, Minn. Stat. 116.07, subd. 4a	
				14	Carbon Monoxide performance test : The Permittee shall conduct performance test : Due every 48 months starting 05/16/2011 to measure CO emissions from Boiler No. 1. The performance test shall be conducted while burning subbituminous coal at 80% capacity using EPA Method 10 or other method approved by MPCA in the performance test plan approval. During each test, a second boiler should be operating to satisfy the residual load demand at the time of the test. The coal CO emission factor developed from this performance tests will be used to calculate wood CO emission factor using Equation 1 in Appendix D of the permit. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by th..	Minn. R. 4410.4300, subp. 15(A), Minn. R. 7017.2020, subp. 1	
				15	Carbon Monoxide initial performance test for Biomass Subcategory : The Permittee shall conduct initial performance test : Due 1460 calendar days after Date of Achieving Normal Operation of boilers after changing to the Biomass Subcategory, as defined in 40 CFR Section 63.11237, to measure CO emissions from Boiler No. 1. The performance test shall be conducted while co-firing wood and subbituminous coal at 80% capacity using EPA Method 10 or other method approved by MPCA in the performance test plan approval. The amount of wood burned during the performance test shall be 20% of the heat input. If the Permittee is unable to achieve the 20% heat input threshold for wood, the performance test shall be conducted while burning wood at a level consistent with normal operating conditions as approved by MPCA in the performance test plan approval. During each test, a second boiler should be operating to satisfy the residual load demand at the time of the test. ..	Minn. R. 4410.4300, subp. 15(A), Minn. R. 7017.2020, subp. 1	
				16	Carbon Monoxide performance test for Biomass Subcategory : The Permittee shall conduct performance test : Due after Initial Performance Test Date every 48 months. The Permittee shall test CO emissions from Boiler No. 1 before the end of each 48 month period after conducting the initial performance test for the Biomass Subcategory, as defined in 40 CFR Section 63.11237. The performance test shall be conducted while co-firing wood and subbituminous coal at 80% capacity using EPA Method 10 or other method approved by MPCA in the performance test plan approval. The amount of wood burned during the performance test shall be 20% of the heat input. If the Permittee is unable to achieve the 20% heat input threshold for wood, the performance test shall be conducted while burning wood at a level consistent with normal operating conditions as approved by MPCA in the performance test plan approval. During each test, a second boiler should be operating to satisfy the residual load demand at the time of the test...	Minn. R. 4410.4300, subp. 15(A), Minn. R. 7017.2020, subp. 1	
				18	Particulate Matter : The Permittee shall conduct performance test : Due every 48 months starting 05/16/2011 to measure PM emissions from Boiler No. 1. The performance test shall be conducted while while burning subbituminous coal at full capacity using EPA Method 5 or other method approved by MPCA in the performance test plan approval. During each test, a second boiler should be operating to satisfy the residual load demand at the time of the test. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date.	Minn. R. 7017.2020, subp. 1	
				19	Sulfur Dioxide : The Permittee shall conduct performance test : Due every 48 months starting 05/16/2011 to measure SO2 emissions from Boiler No. 1. The performance test shall be conducted while burning subbituminous coal at full capacity using EPA Method 6C or other method approved by MPCA in the performance test plan approval. During each test, a second boiler should be operating to satisfy the residual load demand at the time of the test. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date.	Minn. R. 7017.2020, subp. 1	
				20	Opacity : The Permittee shall conduct performance test : Due every 48 months starting 05/16/2011 to measure Opacity emissions from Boiler No. 1. The performance test shall be conducted while burning subbituminous coal at full capacity using EPA Method 9 or other method approved by MPCA in the performance test plan approval. During each test, a second boiler should be operating to satisfy the residual load demand at the time of the test. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date.	Minn. R. 7017.2020, subp. 1	

Requirements

Agency Interest: Duluth Steam Plant 1
Agency Interest ID: 4233
Activity: (Major Amendment)

Agency Interest Name	SI ID (unpadded)	Subject Item Designation	Subject Item Description	Sequence N..	Requirement (Preview without Citation)	Citation (Preview without Re..	
Duluth Steam Plant 1	EQUI5	EU001	Boiler 1				
				21	The Permittee is not required to install and operate CEMS, but must conduct this required Performance Test. For additional applicable performance test requirements, see the general performance testing requirements at the Total Facility (TFAC) section of this permit.	Minn. R. 7017.2020, subp. 1	
				3610	Recordkeeping: Maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of the pulverizer including; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative.	40 CFR 60.7(b), Minn. R. 7019.0100, subp. 1	
				3620	Heat Input: Recordkeeping: The Permittee shall maintain a continuous record of the maximum hourly (total load) heat input.	Minn. R. 7007.0800, subps. 4-5	
				3630	Heat Input: Recordkeeping: The Permittee shall calculate and record the 24-hour Block Average heat input on a daily basis.	Minn. R. 7007.0800, subps. 4-5	
				19650	Steam Flow: Recordkeeping: The Permittee shall maintain a continuous record of the maximum hourly steam production rate.	Minn. R. 7007.0800, subps. 4-5	
				20230	PM < 10 micron: The Permittee shall conduct an initial performance test due 180 calendar days after Initial Startup Date and at a minimum every 60 months thereafter to measure PM10 emissions. The Commissioner will set the subsequent test frequency as stated in a Notice of Compliance (NOC) or Notice of Verification (NOV) letter with review of the initial performance test. Subsequent tests shall be completed no less than every 60-months by the due date (month and day) based on the initial test date or more frequently as stated in the NOC/NOV letter. If the Commissioner sets a test frequency at less than every 60 months, the Permittee must apply for an administrative amendment to incorporate the prescribed test frequency into the permit. A major amendment is required to reduce the test frequency once set in the permit. ..	Minn. R. 7017.2020, subp. 1	
	EQUI6	EU003	Boiler 3	2	The Permittee shall vent emissions from EQUI 6 to control equipment meeting the requirements of TREA 1 whenever EQUI 6 combusts coal, No. 2 fuel oil, or wood.	Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000	
				3	Filterable Particulate Matter <= 0.40 pounds per million Btu heat input. The potential to emit from the unit is 0.050 lb/MMBtu due to equipment design and allowable fuels.	Minn. R. 7011.0510, subp. 1	
				4	Opacity <= 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity.	Minn. R. 7011.0510, subp. 2	

Requirements

Agency Interest: Duluth Steam Plant 1
Agency Interest ID: 4233
Activity: (Major Amendment)

Agency Interest Name	SI ID (unpadded)	Subject Item Designation	Subject Item Description	Sequence N..	Requirement (Preview without Citation)	Citation (Preview without Re..	
Duluth Steam Plant 1	EQUI6	EU003	Boiler 3				
				5	Sulfur Dioxide <= 4.0 pounds per million Btu heat input. The potential to emit from the unit is 1.22 lb/MMBtu due to equipment design and allowable fuels.	Minn. R. 7011.0510, subp. 1	
				8	The Permittee shall limit Heat Input <= 92 million Btu per hour 24-hour block average while combusting any wood. This heat input equals 80% of the boiler capacity.	Minn. R. 7007.0800, subp. 2, Minn. Stat. 116.07, subd. 4a	
				9	Carbon Monoxide performance test : The Permittee shall conduct performance test : Due every 48 months starting 05/16/2013 to test CO emissions from Boiler No. 3. The performance test shall be conducted while burning subbituminous coal at 80% capacity using EPA Method 10 or other method approved by MPCA in the performance test plan approval. During each test, a second boiler should be operating to satisfy the residual load demand at the time of the test. The coal CO emission factor developed from this performance tests will be used to calculate wood CO emission factor using Equation 1 in Appendix D of the permit. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by th..	Minn. R. 4410.4300, subp. 15(A), Minn. R. 7017.2020, subp. 1	
				11	Carbon Monoxide initial performance test for Biomass Subcategory : The Permittee shall conduct initial performance test : Due 1460 calendar days after Date of Achieving Normal Operation of boilers after changing to the Biomass Subcategory, as defined in 40 CFR Section 63.11237, to measure CO emissions from Boiler No. 3. The performance test shall be conducted while co-firing wood and subbituminous coal at 80% capacity using EPA Method 10 or other method approved by MPCA in the performance test plan approval. The amount of wood burned during the performance test shall be 20% of the heat input. If the Permittee is unable to achieve the 20% heat input threshold for wood, the performance test shall be conducted while burning wood at a level consistent with normal operating conditions as approved by MPCA in the performance test plan approval. During each test, a second boiler should be operating to satisfy the residual load demand at the time of the test. ..	Minn. R. 4410.4300, subp. 15(A), Minn. R. 7017.2020, subp. 1	
				13	Carbon Monoxide performance test for Biomass Subcategory : The Permittee shall conduct performance test : Due after Initial Performance Test Date. The Permittee shall test CO emissions from Boiler No. 3 before the end of each 48 month period after conducting the initial performance test for the Biomass Subcategory, as defined in 40 CFR Section 63.11237. The performance test shall be conducted while co-firing wood and subbituminous coal at 80% capacity using EPA Method 10 or other method approved by MPCA in the performance test plan approval. The amount of wood burned during the performance test shall be 20% of the heat input. If the Permittee is unable to achieve the 20% heat input threshold for wood, the performance test shall be conducted while burning wood at a level consistent with normal operating conditions as approved by MPCA in the performance test plan approval. During each test, a second boiler should be operating to satisfy the residual load demand at the time of the test...	Minn. R. 4410.4300, subp. 15(A), Minn. R. 7017.2020, subp. 1	
				14	Particulate Matter : The Permittee shall conduct performance test : Due every 48 months starting 05/16/2013 to test PM emissions from Boiler No. 3. The performance test shall be conducted while burning subbituminous coal at full capacity using EPA Method 5 or other method approved by MPCA in the performance test plan approval. During each test, a second boiler should be operating to satisfy the residual load demand at the time of the test. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date.	Minn. R. 7017.2020, subp. 1	
				15	Sulfur Dioxide : The Permittee shall conduct performance test : Due every 48 months starting 05/16/2013 to test SO2 emissions from Boiler No. 3. The performance test shall be conducted while burning subbituminous coal at full capacity using EPA Method 6C or other method approved by MPCA in the performance test plan approval. During each test, a second boiler should be operating to satisfy the residual load demand at the time of the test. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date.	Minn. R. 7017.2020, subp. 1	
				16	Opacity : The Permittee shall conduct performance test : Due every 48 months starting 05/16/2013 to measure Opacity emissions from Boiler No. 3. The performance test shall be conducted while burning subbituminous coal at full capacity using EPA Method 9 or other method approved by MPCA in the performance test plan approval. During each test, a second boiler should be operating to satisfy the residual load demand at the time of the test. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date.	Minn. R. 7017.2020, subp. 1	
				18	The Permittee is not required to install and operate CEMS, but must conduct this required Performance Test. For additional applicable performance test requirements, see the general performance testing requirements at the Total Facility (TFAC) section of this permit.	Minn. R. 7017.2020, subp. 1	

Requirements

Agency Interest: Duluth Steam Plant 1
Agency Interest ID: 4233
Activity: (Major Amendment)

Agency Interest Name	SI ID (unpadded)	Subject Item Designation	Subject Item Description	Sequence N..	Requirement (Preview without Citation)	Citation (Preview without Re..	
Duluth Steam Plant 1	EQUI6	EU003	Boiler 3				
				19	Recordkeeping: Maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of the pulverizer including; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative.	40 CFR 60.7(b), Minn. R. 7019.0100, subp. 1	
				20	Heat Input: Recordkeeping: The Permittee shall maintain a continuous record of the maximum hourly (total load) heat input.	Minn. R. 7007.0800, subps. 4-5	
				21	Heat Input: Recordkeeping: The Permittee shall calculate and record the 24-hour Block Average heat input on a daily basis.	Minn. R. 7007.0800, subps. 4-5	
				19650	Steam Flow: Recordkeeping: The Permittee shall maintain a continuous record of the maximum steam production rate.	Minn. R. 7007.0800, subps. 4-5	
				20230	PM < 10 micron: The Permittee shall conduct an initial performance test due 180 calendar days after Initial Startup Date and at a minimum every 60 months thereafter to measure PM10 emissions. The Commissioner will set the subsequent test frequency as stated in a Notice of Compliance (NOC) or Notice of Verification (NOV) letter with review of the initial performance test. Subsequent tests shall be completed no less than every 60-months by the due date (month and day) based on the initial test date or more frequently as stated in the NOC/NOV letter. If the Commissioner sets a test frequency at less than every 60 months, the Permittee must apply for an administrative amendment to incorporate the prescribed test frequency into the permit. A major amendment is required to reduce the test frequency once set in the permit. ..	Minn. R. 7017.2020, subp. 1	
	EQUI7	EU004	Boiler 4	2	The Permittee shall vent emissions from EQUI 7 to control equipment meeting the requirements of TREA 1 whenever EQUI 7 combusts coal, No. 2 fuel oil, or wood.	Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000	
				3	Filterable Particulate Matter <= 0.40 pounds per million Btu heat input. The potential to emit from the unit is 0.050 lb/MMBtu due to equipment design and allowable fuels.	Minn. R. 7011.0510, subp. 1	
				4	Opacity <= 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity.	Minn. R. 7011.0510, subp. 2	
				5	Sulfur Dioxide <= 4.0 pounds per million Btu heat input. The potential to emit from the unit is 1.22 lb/MMBtu due to equipment design and allowable fuels.	Minn. R. 7011.0510, subp. 1	

Requirements

Agency Interest: Duluth Steam Plant 1
Agency Interest ID: 4233
Activity: (Major Amendment)

Agency Interest Name	SI ID (unpadded)	Subject Item Designation	Subject Item Description	Sequence N..	Requirement (Preview without Citation)	Citation (Preview without Re..	
Duluth Steam Plant 1	EQUI7	EU004	Boiler 4				
				8	The Permittee shall limit Heat Input <= 92 million Btu per hour 24-hour block average while combusting any wood. This heat input equals 80% of the boiler capacity.	Minn. R. 7007.0800, subp. 2, Minn. Stat. 116.07, subd. 4a	
				9	Carbon Monoxide performance test : The Permittee shall conduct performance test : Due every 48 months starting 05/16/2014 to test CO emissions from Boiler No. 4. The performance test shall be conducted while burning subbituminous coal at 80% capacity using EPA Method 10 or other method approved by MPCA in the performance test plan approval. During each test, a second boiler should be operating to satisfy the residual load demand at the time of the test. The coal CO emission factor developed from this performance tests will be used to calculate wood CO emission factor using Equation 1 in Appendix D of the permit. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by th..	Minn. R. 4410.4300, subp. 15(A), Minn. R. 7017.2020, subp. 1	
				11	Carbon Monoxide initial performance test for Biomass Subcategory : The Permittee shall conduct initial performance test : Due 1460 calendar days after Date of Achieving Normal Operation after changing to the Biomass Subcategory, as defined in 40 CFR Section 63.11237, to measure CO emissions from Boiler No. 4. The performance test shall be conducted while co-firing wood and subbituminous coal at 80% capacity using EPA Method 10 or other method approved by MPCA in the performance test plan approval. The amount of wood burned during the performance test shall be 20% of the heat input. If the Permittee is unable to achieve the 20% heat input threshold for wood, the performance test shall be conducted while burning wood at a level consistent with normal operating conditions as approved by MPCA in the performance test plan approval. During each test, a second boiler should be operating to satisfy the residual load demand at the time of the test. ..	Minn. R. 4410.4300, subp. 15(A), Minn. R. 7017.2020, subp. 1	
				13	Carbon Monoxide performance test for Biomass Subcategory : The Permittee shall conduct performance test : Due after Date of Achieving Normal Operation every 48 months. The Permittee shall test CO emissions from Boiler No. 4 before the end of each 48 month period after conducting the initial performance test for the Biomass Subcategory, as defined in 40 CFR Section 63.11237. The performance test shall be conducted while co-firing wood and subbituminous coal at 80% capacity using EPA Method 10 or other method approved by MPCA in the performance test plan approval. The amount of wood burned during the performance test shall be 20% of the heat input. If the Permittee is unable to achieve the 20% heat input threshold for wood, the performance test shall be conducted while burning wood at a level consistent with normal operating conditions as approved by MPCA in the performance test plan approval. During each test, a second boiler should be operating to satisfy the residual load demand at the time of the test...	Minn. R. 4410.4300, subp. 15(A), Minn. R. 7017.2020, subp. 1	
				14	Particulate Matter : The Permittee shall conduct performance test : Due every 48 months starting 05/16/2010 to test PM emissions from Boiler No. 4. The performance test shall be conducted while burning subbituminous coal at full capacity using EPA Method 5 or other method approved by MPCA in the performance test plan approval. During each test, a second boiler should be operating to satisfy the residual load demand at the time of the test. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date.	Minn. R. 7017.2020, subp. 1	
				15	Sulfur Dioxide : The Permittee shall conduct performance test : Due every 48 months starting 05/16/2010 to test SO2 emissions from Boiler No. 4. The performance test shall be conducted while burning subbituminous coal at full capacity using EPA Method 6C or other method approved by MPCA in the performance test plan approval. During each test, a second boiler should be operating to satisfy the residual load demand at the time of the test. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date.	Minn. R. 7017.2020, subp. 1	
				16	Opacity : The Permittee shall conduct performance test : Due every 48 months starting 05/16/2010 to test Opacity emissions from Boiler No. 4. The performance test shall be conducted while burning subbituminous coal at full capacity using EPA Method 9 or other method approved by MPCA in the performance test plan approval. During each test, a second boiler should be operating to satisfy the residual load demand at the time of the test. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date.	Minn. R. 7017.2020, subp. 1	
				18	The Permittee is not required to install and operate CEMS, but must conduct this required Performance Test. For additional applicable performance test requirements, see the general performance testing requirements at the Total Facility (TFAC) section of this permit.	Minn. R. 7017.2020, subp. 1	
				19	Recordkeeping: Maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of the pulverizer including; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative.	40 CFR 60.7(b), Minn. R. 7019.0100, subp. 1	

Requirements

Agency Interest: Duluth Steam Plant 1
Agency Interest ID: 4233
Activity: (Major Amendment)

Agency Interest Name	SI ID (unpadded)	Subject Item Designation	Subject Item Description	Sequence N..	Requirement (Preview without Citation)	Citation (Preview without Re..	
Duluth Steam Plant 1	EQUI7	EU004	Boiler 4				
				20	Heat Input: Recordkeeping: The Permittee shall maintain continuous record of the maximum hourly (total load) heat input.	Minn. R. 7007.0800, subps. 4-5	
				21	Heat Input: Recordkeeping: The Permittee shall calculate and record the 24-hour Block Average heat input on a daily basis.	Minn. R. 7007.0800, subps. 4-5	
				19650	Steam Flow: Recordkeeping: The Permittee shall maintain a continuous record of the maximum hourly steam production rate.	Minn. R. 7007.0800, subps. 4-5	
				20230	PM < 10 micron: The Permittee shall conduct an initial performance test due 180 calendar days after Initial Startup Date and at a minimum every 60 months thereafter to measure PM10 emissions. The Commissioner will set the subsequent test frequency as stated in a Notice of Compliance (NOC) or Notice of Verification (NOV) letter with review of the initial performance test. Subsequent tests shall be completed no less than every 60-months by the due date (month and day) based on the initial test date or more frequently as stated in the NOC/NOV letter. If the Commissioner sets a test frequency at less than every 60 months, the Permittee must apply for an administrative amendment to incorporate the prescribed test frequency into the permit. A major amendment is required to reduce the test frequency once set in the permit. ..	Minn. R. 7017.2020, subp. 1	
	EQUI8	EU002	Boiler 2	2	The Permittee shall vent emissions from EQUI 8 to control equipment meeting the requirements of TREA 1 whenever EQUI 8 combusts coal, No. 2 fuel oil, or wood.	Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000	
				3	Filterable Particulate Matter <= 0.40 pounds per million Btu heat input. The potential to emit from the unit is 0.050 lb/MMBtu due to equipment design and allowable fuels.	Minn. R. 7011.0510, subp. 1	
				4	Opacity <= 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity.	Minn. R. 7011.0510, subp. 2	
				5	Sulfur Dioxide <= 4.0 pounds per million Btu heat input. The potential to emit from the unit is 1.22 lb/MMBtu due to equipment design and allowable fuels.	Minn. R. 7011.0510, subp. 1	
				8	The Permittee shall limit boiler Heat Input <= 92 million Btu per hour 24-hour block average while combusting any wood. This heat input equals 80% of the boiler capacity.	Minn. R. 7007.0800, subp. 2, Minn. Stat. 116.07, subd. 4a	

Requirements

Agency Interest: Duluth Steam Plant 1
Agency Interest ID: 4233
Activity: (Major Amendment)

Agency Interest Name	SI ID (unpadded)	Subject Item Designation	Subject Item Description	Sequence N..	Requirement (Preview without Citation)	Citation (Preview without Re..	
Duluth Steam Plant 1	EQUI8	EU002	Boiler 2	9	Carbon Monoxide performance test : The Permittee shall conduct performance test : Due every 48 months starting 05/16/2012 to test CO emissions from Boiler No. 2. The performance test shall be conducted while burning subbituminous coal at 80% capacity using EPA Method 10 or other method approved by MPCA in the performance test plan approval. During each test, a second boiler should be operating to satisfy the residual load demand at the time of the test. The coal CO emission factor developed from this performance tests will be used to calculate wood CO emission factor using Equation 1 in Appendix D of the permit. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by th..	Minn. R. 4410.4300, subp. 15(A), Minn. R. 7017.2020, subp. 1	
				11	Carbon Monoxide initial performance test for Biomass Subcategory : The Permittee shall conduct initial performance test : Due 1460 calendar days after Date of Achieving Normal Operation of boilers after changing to the Biomass Subcategory, as defined in 40 CFR Section 63.11237, to measure CO emissions from Boiler No. 2. The performance test shall be conducted while co-firing wood and subbituminous coal at 80% capacity using EPA Method 10 or other method approved by MPCA in the performance test plan approval. The amount of wood burned during the performance test shall be 20% of the heat input. If the Permittee is unable to achieve the 20% heat input threshold for wood, the performance test shall be conducted while burning wood at a level consistent with normal operating conditions as approved by MPCA in the performance test plan approval. During each test, a second boiler should be operating to satisfy the residual load demand at the time of the test. ..	Minn. R. 4410.4300, subp. 15(A), Minn. R. 7017.2020, subp. 1	
				13	Carbon Monoxide performance test for Biomass Subcategory : The Permittee shall conduct performance test : Due after Initial Performance Test Date every 48 months. The Permittee shall test CO emissions from Boiler No. 1 before the end of each 48 month peiod after conducting the initial performance test for the Biomass Subcategory, as defined in 40 CFR Section 63.11237. The performance test shall be conducted while co-firing wood and subbituminous coal at 80% capacity using EPA Method 10 or other method approved by MPCA in the performance test plan approval. The amount of wood burned during the performance test shall be 20% of the heat input. If the Permittee is unable to achieve the 20% heat input threshold for wood, the performance test shall be conducted while burning wood at a level consistent with normal operating conditions as approved by MPCA in the performance test plan approval. During each test, a second boiler should be operating to satisfy the residual load demand at the time of the test...	Minn. R. 4410.4300, subp. 15(A), Minn. R. 7017.2020, subp. 1	
				14	Particulate Matter : The Permittee shall conduct performance test : Due every 48 months starting 05/16/2012 to test PM emissions from Boiler No. 2. The performance test shall be conducted while burning subbituminous coal at full capacity using EPA Method 10 or other method approved by MPCA in the performance test plan approval. During each test, a second boiler should be operating to satisfy the residual load demand at the time of the test. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date.	Minn. R. 7017.2020, subp. 1	
				15	Sulfur Dioxide : The Permittee shall conduct performance test : Due every 48 months starting 05/16/2012 to measure SO2 emissions from Boiler No. 2. The performance test shall be conducted while burning subbituminous coal at full capacity using EPA Method 6C or other method approved by MPCA in the performance test plan approval. During each test, a second boiler should be operating to satisfy the residual load demand at the time of the test. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date.	Minn. R. 7017.2020, subp. 1	
				16	Opacity : The Permittee shall conduct performance test : Due every 48 months starting 05/16/2012 to test Opacity emissions from Boiler No. 2. The performance test shall be conducted while burning subbituminous coal at full capacity using EPA Method 9 or other method approved by MPCA in the performance test plan approval. During each test, a second boiler should be operating to satisfy the residual load demand at the time of the test. Testing conducted during the 60 days prior to the performance test due date satisfies the performance test due date, and will not reset the test due date for future testing as required: 1) by this permit; 2) by the most recently approved Performance Test Frequency Plan; or 3) within a Notice of Compliance letter. Testing conducted more than two months prior to the performance test due date satisfies this test due date requirement and will reset the performance test due date.	Minn. R. 7017.2020, subp. 1	
				18	The Permittee is not required to install and operate CEMS, but must conduct this required Performance Test. For additional applicable performance test requirements, see the general performance testing requirements at the Total Facility (TFAC) section of this permit.	Minn. R. 7017.2020, subp. 1	
				19	Recordkeeping: Maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of the pulverizer including; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative.	40 CFR 60.7(b), Minn. R. 7019.0100, subp. 1	
				20	Heat Input: Recordkeeping: The Permittee shall maintain a continuous record of the maximum hourly (total load) heat input.	Minn. R. 7007.0800, subps. 4-5	

Requirements

Agency Interest: Duluth Steam Plant 1
Agency Interest ID: 4233
Activity: (Major Amendment)

Agency Interest Name	SI ID (unpadded)	Subject Item Designation	Subject Item Description	Sequence N..	Requirement (Preview without Citation)	Citation (Preview without Re..	
Duluth Steam Plant 1	EQUI8	EU002	Boiler 2				
				21	Heat Input: Recordkeeping: The Permittee shall calculate and record the 24-hour Block Average heat input on a daily basis.	Minn. R. 7007.0800, subps. 4-5	
				19650	Steam Flow: Recordkeeping: The Permittee shall maintain a continuous record of the maximum hourly steam production rate.	Minn. R. 7007.0800, subps. 4-5	
				20230	PM < 10 micron: The Permittee shall conduct an initial performance test due 180 calendar days after Initial Startup Date and at a minimum every 60 months thereafter to measure PM10 emissions. The Commissioner will set the subsequent test frequency as stated in a Notice of Compliance (NOC) or Notice of Verification (NOV) letter with review of the initial performance test. Subsequent tests shall be completed no less than every 60-months by the due date (month and day) based on the initial test date or more frequently as stated in the NOC/NOV letter. If the Commissioner sets a test frequency at less than every 60 months, the Permittee must apply for an administrative amendment to incorporate the prescribed test frequency into the permit. A major amendment is required to reduce the test frequency once set in the permit. ..	Minn. R. 7017.2020, subp. 1	
	EQUI9	Null	Emergency Generator	3520	Opacity <= 20 percent opacity once operating temperatures have been attained.	Minn. R. 7011.2300, subp. 1	
				3535	Sulfur Dioxide <= 0.0015 pounds per million Btu heat input. The potential to emit from the unit is 0.0015 lb/MMBtu due to equipment design and allowable fuels.	Minn. R. 7011.2300, subp. 2(B)	
				3540	Fuel type: No. 2 fuel oil/diesel fuel meeting the requirements of 40 CFR Section 80.510(c) only.	Minn. R. 7005.0100, subp. 35a	
				3550	Hours of Operation: The Permittee shall maintain documentation on site that the unit is an emergency generator by design that qualifies under the U.S. EPA memorandum entitled "Calculating Potential to Emit (PTE) for Emergency Generators" dated September 6, 1995, limiting operation to 500 hours per year.	Minn. R. 7007.0800, subps. 4-5	
				3560	The Permittee shall keep records of fuel type and usage on a monthly basis.	Minn. R. 7007.0800, subp. 5	
				3565	Fuel Supplier Certification: The Permittee shall obtain and maintain a fuel supplier certification for each shipment of diesel fuel oil, certifying that the sulfur content does not exceed 0.0015 percent by weight.	Minn. R. 7007.0800, subps. 4-5	

Requirements

Agency Interest: Duluth Steam Plant 1
Agency Interest ID: 4233
Activity: (Major Amendment)

Agency Interest Name	SI ID (unpadded)	Subject Item Designation	Subject Item Description	Sequence N..	Requirement (Preview without Citation)	Citation (Preview without Re..	
Duluth Steam Plant 1	EQUI9	Null	Emergency Generator	19505	The Permittee must comply with all applicable requirements of 40 CFR pt. 63, subp. ZZZZ as follows: 40 CFR 63.6585(a); 40 CFR 63.6585(c); 40 CFR 63.6585(d); 40 CFR 63.6590 (a)(1)(iii); 40 CFR 63.6595(a)(1); 40 CFR 63.6595(b)(2); 40 CFR 63.6603(a); 40 CFR 63.6604(b); 40 CFR 63.6605(a); ..	40 CFR pt. 63, subp. ZZZZ, Minn. R. 7007.0400, subp. 3, Minn. R. 7007.1150-7007.1500, Minn. R. 7011.8150	
				27820	The Permittee must comply with all applicable requirements of 40 CFR pt. 63, subp. A as follows: 40 CFR 63.1(a); 40 CFR 63.1(b)(1); 40 CFR 63.1(b)(3); 40 CFR 63.1(c)(1); 40 CFR 63.1(c)(2); 40 CFR 63.1(c)(5); 40 CFR 63.1(e); 40 CFR 63.2; 40 CFR 63.3;..	40 CFR 63.6665, 40 CFR pt. 63, subp. A, Minn. R. 7007.0400, subp. 3, Minn. R. 7007.1150-1500, Minn. R. 7011.7000, Minn. R. 7011.8150, Minn. R. 7017.1010 & 7017.2025, Minn. R. 7019.0100	
	TFAC1	13700022	Duluth Steam Plant 1	1	The Permittee is authorized to construct/modify the following equipment: EQUI 5 (Boiler 1) and EQUI 7 (Boiler 4). The authorization to construct expires five years after issuance of Air Emissions Permit No. 13700022-101.	Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000	
				2	Permit Appendices: This permit contains appendices as listed in the permit Table of Contents. The Permittee shall comply with all requirements contained in the following Appendices, Appendix A. Insignificant Activities and General Applicable Requirements Appendix D. Equations for Wood CO Emissions Appendix E. 40 CFR pt. 63, subp. JJJJJJ Equations Appendix F. 40 CFR pt. 63, subp. ZZZZ Requirements Appendix G. 40 CFR pt. 63, subp. A Provisions Appendix H. Best Management Practices for Emergency Generator Appendix I. Fugitive Dust Control Plan Modeling parameters in Appendices B and C are included for reference only as described elsewhere in ..	Minn. R. 7007.0800, subp. 2	
					PERMIT SHIELD: Subject to the limitations in Minn. R. 7007.1800, compliance with the conditions of this permit shall be deemed compliance with the specific provision of the applicable requirement identified in the permit as the basis of each condition. Subject to the limitations of Minn. R. 7007.1800 and 7017.0100, subp. 2, notwithstanding the conditions of this permit specifying compliance practices for applicable requirements, any person (including the Permittee) may also use other credible evidence to establish compliance or noncompliance with applicable requirements. This permit shall not alter or affect the liability of the Permittee for any violation of applicable requirements prior to or at the time of permit issuance.	Minn. R. 7007.1800(A)(2)	
				3	Access areas, roads, parking facilities: The Permittee shall not cause or permit the use of access areas surrounding coal stockpiles and use of all active truck haul roads and parking facilities which are located within a coal handling facility whose coal throughput by truck is less than 200,000 tons unless such areas and roads are treated with water, oils, or chemical agents.	Minn. R. 7011.1105(A)	
					Comply with Fugitive Emission Control Plan: The Permittee shall follow the actions and recordkeeping specified in the fugitive dust control plan in Appendix I of this permit. If the Commissioner determines the Permittee is out of compliance with Minn. R. 7011.0150 or the fugitive control plan, then the Permittee may be required to amend the control plan and/or to install and operate particulate matter ambient monitors as requested by the Commissioner.	Minn. R. 7007.0100, Minn. R. 7007.0800, subp. 2, Minn. R. 7009.0020, Minn. R. 7011.0150, Minn. Stat. 116.07, subd. 4a	
				5	Truck and hauler unloading stations: The Permittee shall control fugitive particulate emissions from the unloading of trucks or haulers by dust suppression methods so that the emissions from such sources are minimized. Clean up all coal spilled on roads or access areas as soon as practicable using methods that minimize the amount of dust suspended.	Minn. R. 7011.1105(I), Minn. R. 7011.1105(C)	
				6	Stockpiles, Stockpile Construction, and Reclaiming: The Permittee shall (1) Control fugitive particulate emissions by dust suppression methods on such operations so that fugitive particulate emissions are minimized, or (2) In the alternative, use an underground bottom feed (plow) of coal to an underground conveyor system provided the exhaust gases from the enclosed spaces do not contain particulate matter in excess of 0.020 grains per dry standard cubic foot (gr/dscf).	Minn. R. 7011.1105(F)	

Requirements

Agency Interest: Duluth Steam Plant 1
Agency Interest ID: 4233
Activity: (Major Amendment)

Agency Interest Name	SI ID (unpadded)	Subject Item Designation	Subject Item Description	Sequence N..	Requirement (Preview without Citation)	Citation (Preview without Re..	
Duluth Steam Plant 1	TFAC1	13700022	Duluth Steam Plant 1	7	Test Burns: Alternative fuels may be burned in any of the boilers on a test burn basis under the following conditions: 1. Emissions of any criteria pollutant do not exceed the significant net emission increase levels as defined by 40 CFR Section 52.21. The Permittee shall calculate the emissions that will result from the trial burn prior to commencement of the burn. 2. No emission limits set in the permit are exceeded. The Permittee shall monitor wherever possible to assure that emission limits are not exceeded. The Permittee shall verify using emission factors that the emission limits will not be exceeded. Solid wastes, as defined in 40 CFR Section 258.2, shall not be burned. This definition includes mineral ..	Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000	
				14	Test Burns: The purpose of the test burn shall be to determine the feasibility of the fuel type for the emission source, and shall be conducted only for as long as necessary to make the determination.	Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000	
				15	These requirements apply if a reasonable possibility (RP) as defined in 40 CFR Section 52.21(r)(6)(vi) exists that a proposed project, analyzed using the actual-to-projected-actual (ATPA) test (either by itself or as part of the hybrid test at Section 52.21(a)(2)(iv)(f)) and found to not be part of a major modification, may result in a significant emissions increase (SEI). If the ATPA test is not used for the project, or if there is no RP that the proposed project could result in a SEI, these requirements do not apply to that project. The Permittee is only subject to the Preconstruction Documentation requirement for a project where a RP occurs only within the meaning of Section 52.21(r)(6)(vi)(b). Even though a particular modification is not subject to New Source Review (NSR), or where there isn't a RP that a proposed project could result in a SEI, a permit amendment, recordkeeping, or notification may still be required by Minn. R. 7007.1150 - 7007.1500.	Minn. R. 7007.0800, subp. 2, Title I Condition: 40 CFR 52.21(r)(6) and Minn. R. 7007.3000	
				16	Preconstruction Documentation -- Before beginning actual construction on a project, the Permittee shall document the following: 1. Project description 2. Identification of any emission unit whose emissions of an NSR pollutant could be affected 3. Pre-change potential emissions of any affected existing emission unit, and the projected post-change potential emissions of any affected existing or new emission unit. 4. A description of the applicability test used to determine that the project is not a major modification for any regulated NSR pollutant, including the baseline actual emissions, the projected actual emissions, the amount of emissions excluded due to increases not associated with the modification and that the emission unit could have accommodated during the baseline period, an explanation of w..	Minn. R. 7007.0800, subps. 4-5, Minn. R. 7007.1200, subp. 4, Title I Condition: 40 CFR 52.21(r)(6) and Minn. R. 7007.3000	
				17	The Permittee shall monitor the actual emissions of any regulated NSR pollutant that could increase as a result of the project and that were analyzed using the ATPA test, and the potential emissions of any regulated NSR pollutant that could increase as a result of the project and that were analyzed using potential emissions in the hybrid test. The Permittee shall calculate and maintain a record of the sum of the actual and potential (if the hybrid test was used in the analysis) emissions of the regulated pollutant, in tons per year on a calendar year basis, for a period of 5 years following resumption of regular operations after the change, or for a period of 10 years following resumption of regular operations after the change if the project increases the design capacity of or potential to emit of any unit associated with the project.	Minn. R. 7007.0800, subps. 4-5, Title I Condition: 40 CFR 52.21(r)(6) and Minn. R. 7007.3000	
				18	The Permittee must submit a report to the Agency if the annual summed (actual, plus potential if used in hybrid test) emissions differ from the preconstruction projection and exceed the baseline actual emissions by a significant amount as listed at 40 CFR Section 52.21(b)(23). Such report shall be submitted to the Agency within 60 days after the end of the year in which the exceedances occur. The report shall contain : a. The name and ID number of the Facility, and the name and telephone number of the Facility contact person. b. The annual emissions (actual, plus potential if any part of the project was analyzed using the hybrid test) for each pollutant for which the preconstruction projection and significant emissions increase a..	Minn. R. 7007.0800, subps. 4-5, Title I Condition: 40 CFR 52.21(r)(6) and Minn. R. 7007.3000	
				19	The Permittee shall comply with National Primary and Secondary Ambient Air Quality Standards, 40 CFR pt. 50, and the Minnesota Ambient Air Quality Standards, Minn. R. 7009.0010 to 7009.0090. Compliance shall be demonstrated upon written request by the MPCA.	Minn. R. 7007.0100, subp. 7(A), 7(L), & 7(M), Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0010-7009.0090, Minn. Stat. 116.07, subd. 4a, Minn. Stat. 116.07, subd. 9	
				20	Circumvention: Do not install or use a device or means that conceals or dilutes emissions, which would otherwise violate a federal or state air pollution control rule, without reducing the total amount of pollutant emitted.	Minn. R. 7011.0020	
				21	Air Pollution Control Equipment: Operate all pollution control equipment whenever the corresponding process equipment and emission units are operated. Control exceptions when combusting certain fuels can be found under TREA 1 of this permit.	Minn. R. 7007.0800, subp. 16(J), Minn. R. 7007.0800, subp. 2	

Requirements

Agency Interest: Duluth Steam Plant 1
Agency Interest ID: 4233
Activity: (Major Amendment)

Agency Interest Name	SI ID (unpadded)	Subject Item Designation	Subject Item Description	Sequence N..	Requirement (Preview without Citation)	Citation (Preview without Re..	
Duluth Steam Plant 1	TFAC1	13700022	Duluth Steam Plant 1	22	Operation and Maintenance Plan: Retain at the stationary source an operation and maintenance plan for all air pollution control equipment. At a minimum, the O & M plan shall identify all air pollution control equipment and control practices and shall include a preventative maintenance program for the equipment and practices, a description of (the minimum but not necessarily the only) corrective actions to be taken to restore the equipment and practices to proper operation to meet applicable permit conditions, a description of the employee training program for proper operation and maintenance of the control equipment and practices, and the records kept to demonstrate plan implementation.	Minn. R. 7007.0800, subp. 14, Minn. R. 7007.0800, subp. 16(J)	
				23	Operation Changes: In any shutdown, breakdown, or deviation the Permittee shall immediately take all practical steps to modify operations to reduce the emission of any regulated air pollutant. The Commissioner may require feasible and practical modifications in the operation to reduce emissions of air pollutants. No emissions units that have an unreasonable shutdown or breakdown frequency of process or control equipment shall be permitted to operate.	Minn. R. 7019.1000, subp. 4	
				24	Fugitive Emissions: Do not cause or permit the handling, use, transporting, or storage of any material in a manner which may allow avoidable amounts of particulate matter to become airborne. Comply with all other requirements listed in Minn. R. 7011.0150.	Minn. R. 7011.0150	
				25	Noise: The Permittee shall comply with the noise standards set forth in Minn. R. 7030.0010 to 7030.0080 at all times during the operation of any emission units. This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.	Minn. R. 7030.0010-7030.0080	
				27	Inspections: The Permittee shall comply with the inspection procedures and requirements as found in Minn. R. 7007.0800, subp. 9(A).	Minn. R. 7007.0800, subp. 9(A)	
				1240	The Permittee shall comply with the General Conditions listed in Minn. R. 7007.0800, subp. 16.	Minn. R. 7007.0800, subp. 16	
				1260	Performance Testing: Conduct all performance tests in accordance with Minn. R. ch. 7017 unless otherwise noted in this permit.	Minn. R. ch. 7017	
				1280	Performance Test Notifications and Submittals: Performance Test Notification and Plan: due 30 days before each Performance Test Performance Test Pre-test Meeting: due 7 days before each Performance Test Performance Test Report: due 45 days after each Performance Test The Notification, Test Plan, and Test Report must be submitted in a format specified by the commissioner.	Minn. R. 7017.2017, Minn. R. 7017.2030, subps. 1-4, Minn. R. 7017.2035, subps. 1-2	
				1300	Limits set as a result of a performance test (conducted before or after permit issuance) apply until superseded as stated in the MPCA's Notice of Compliance letter granting preliminary approval. Preliminary approval is based on formal review of a subsequent performance test on the same unit as specified by Minn. R. 7017.2025, subp. 3. The limit is final upon issuance of a permit amendment incorporating the change.	Minn. R. 7017.2025, subp. 3	

Requirements

Agency Interest: Duluth Steam Plant 1
Agency Interest ID: 4233
Activity: (Major Amendment)

Agency Interest Name	SI ID (unpadded)	Subject Item Designation	Subject Item Description	Sequence N..	Requirement (Preview without Citation)	Citation (Preview without Re..	
Duluth Steam Plant 1	TFAC1	13700022	Duluth Steam Plant 1	1310	Monitoring Equipment Calibration - The Permittee shall either: 1. Calibrate or replace required monitoring equipment every 12 months; or 2. Calibrate at the frequency stated in the manufacturer's specifications. For each monitor, the Permittee shall maintain a record of all calibrations, including the date conducted, and any corrective action that resulted. The Permittee shall include the calibration frequencies, procedures, and manufacturer's specifications (if applicable) in the Operations and Maintenance Plan. Any requirements applying to continuous emission monitors are listed separately in this permit.	Minn. R. 7007.0800, subp. 4(D)	
				1320	Operation of Monitoring Equipment: Unless noted elsewhere in this permit, monitoring a process or control equipment connected to that process is not necessary during periods when the process is shutdown, or during checks of the monitoring systems, such as calibration checks and zero and span adjustments. If monitoring records are required, they should reflect any such periods of process shutdown or checks of the monitoring system.	Minn. R. 7007.0800, subp. 4(D)	
				1330	The Permittee shall submit an application for permit reissuance : Due 180 calendar days before Permit Expiration Date.	Minn. R. 7007.0400, subp. 2	
				1370	Recordkeeping: Retain all records at the stationary source, unless otherwise specified within this permit, for a period of five (5) years from the date of monitoring, sample, measurement, or report. Records which must be retained at this location include all calibration and maintenance records, all original recordings for continuous monitoring instrumentation, and copies of all reports required by the permit. Records must conform to the requirements listed in Minn. R. 7007.0800, subp. 5(A).	Minn. R. 7007.0800, subp. 5(C)	
				1390	Recordkeeping: Maintain records describing any insignificant modifications (as required by Minn. R. 7007.1250, subp. 3) or changes contravening permit terms (as required by Minn. R. 7007.1350, subp. 2), including records of the emissions resulting from those changes.	Minn. R. 7007.0800, subp. 5(B)	
				1400	If the Permittee determines that no permit amendment or notification is required prior to making a change, the Permittee must retain records of all calculations required under Minn. R. 7007.1200. For expiring permits, these records shall be kept for a period of five years from the date the change was made or until permit reissuance, whichever is longer. The records shall be kept at the stationary source for the current calendar year of operation and may be kept at the stationary source or office of the stationary source for all other years. The records may be maintained in either electronic or paper format.	Minn. R. 7007.1200, subp. 4	
				1410	Shutdown Notifications: Notify the Commissioner at least 24 hours in advance of a planned shutdown of any control equipment or process equipment if the shutdown would cause any increase in the emissions of any regulated air pollutant. If the owner or operator does not have advance knowledge of the shutdown, notification shall be made to the Commissioner as soon as possible after the shutdown. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 3. At the time of notification, the owner or operator shall inform the Commissioner of the cause of the shutdown and the estimated duration. The owner or operator shall notify the Commissioner when the shutdown is over.	Minn. R. 7019.1000, subp. 3	
				1420	Breakdown Notifications: Notify the Commissioner within 24 hours of a breakdown of more than one hour duration of any control equipment or process equipment if the breakdown causes any increase in the emissions of any regulated air pollutant. The 24-hour time period starts when the breakdown was discovered or reasonably should have been discovered by the owner or operator. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 2. At the time of notification or as soon as possible thereafter, the owner or operator shall inform the Commissioner of the cause of the breakdown and the estimated duration. The owner or operator shall notify the Commissioner when the breakdown is over.	Minn. R. 7019.1000, subp. 2	
				1430	Notification of Deviations Endangering Human Health or the Environment: As soon as possible after discovery, notify the Commissioner or the state duty officer, either orally or by facsimile, of any deviation from permit conditions which could endanger human health or the environment.	Minn. R. 7019.1000, subp. 1	

Requirements

Agency Interest: Duluth Steam Plant 1
Agency Interest ID: 4233
Activity: (Major Amendment)

Agency Interest Name	SI ID (unpadded)	Subject Item Designation	Subject Item Description	Sequence N..	Requirement (Preview without Citation)	Citation (Preview without Re..	
Duluth Steam Plant 1	TFAC1	13700022	Duluth Steam Plant 1	1440	Notification of Deviations Endangering Human Health or the Environment Report: Within 2 working days of discovery, notify the Commissioner in writing of any deviation from permit conditions which could endanger human health or the environment. Include the following information in this written description: 1. the cause of the deviation; 2. the exact dates of the period of the deviation, if the deviation has been corrected; 3. whether or not the deviation has been corrected; 4. the anticipated time by which the deviation is expected to be corrected, if not yet corrected; and 5. steps taken or planned to reduce, eliminate, and prevent reoccurrence of the deviation.	Minn. R. 7019.1000, subp. 1	
				1450	The Permittee shall submit a semiannual deviations report : Due semiannually, by the 30th of January and July. The first semiannual report submitted by the Permittee shall cover the calendar half-year in which the permit is issued. The first report of each calendar year covers January 1 - June 30. The second report of each calendar year covers July 1 - December 31. Submit this on form DRF-2 (Deviation Reporting Form). If no deviations have occurred, submit the signed report certifying that there were no deviations.	Minn. R. 7007.0800, subp. 6(A)(2)	
				1460	Application for Permit Amendment: If a permit amendment is needed, submit an application in accordance with the requirements of Minn. R. 7007.1150 through Minn. R. 7007.1500. Submittal dates vary, depending on the type of amendment needed. Upon adoption of a new or amended federal applicable requirement, and if there are 3 or more years remaining in the permit term, the Permittee shall file an application for an amendment within nine months of promulgation of the applicable requirement, pursuant to Minn. R. 7007.0400, subp. 3.	Minn. R. 7007.0400, subp. 3, Minn. R. 7007.1150 - 7007.1500	
				1470	Extension Requests: The Permittee may apply for an Administrative Amendment to extend a deadline in a permit by no more than 120 days, provided the proposed deadline extension meets the requirements of Minn. R. 7007.1400, subp. 1(H). Performance testing deadlines from the General Provisions of 40 CFR pt. 60 and pt. 63 are examples of deadlines for which the MPCA does not have authority to grant extensions and therefore do not meet the requirements of Minn. R. 7007.1400, subp. 1(H).	Minn. R. 7007.1400, subp. 1(H)	
				1480	The Permittee shall submit a compliance certification : Due annually, by the 31st of January (for the previous calendar year). Submit this on form CR-04 (Annual Compliance Certification Report). This report covers all deviations experienced during the calendar year. If no deviations have occurred, submit the signed report certifying that there were no deviations.	Minn. R. 7007.0800, subp. 6(C)	
				1490	Emission Inventory Report: due on or before April 1 of each calendar year following permit issuance. Submit in a format specified by the Commissioner.	Minn. R. 7019.3000-7019.3100	
				1500	Emission Fees: due 30 days after receipt of an MPCA bill.	Minn. R. 7002.0005-7002.0095	
				1510	Modeled Parameters for NO2, SO2, and PM10: The parameters used in NO2, SO2, and PM10 modeling for permit number 13700022-003 are listed in Appendix B of this permit. The parameters used in NO2, SO2 and PM10 Equivalent or Better Dispersion modeling for Air Emission Permit No. 13700022-004 are listed in Appendix C of this permit. The parameters describe the operation of the facility at maximum permitted capacity. The purpose of listing the parameters in the appendix is to provide a benchmark for future changes.	Minn. R. 7007.0100, subp. 7(A), Minn. R. 7007.0100, subp. 7(L), Minn. R. 7007.0100, subp. 7(M), Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0010-0090, Minn. Stat. 116.07, subd. 4a, Minn. Stat. 116.07, subd. 9	
				1550	Sulfur Dioxide: Equivalent or Better Dispersion (EBD) Modeling Triggers (Modeling Not Required) for SO2: Changes that do not require a permit amendment or that require a minor or administrative permit amendment do not trigger the EBD Modeling Submittal requirement. The Permittee shall keep updated records on site of all modeled SO2 parameters and emission rates listed in Appendix B. The Permittee shall submit any changes to modeled SO2 parameters and emission rates with the next required modeling submittal.	Minn. R. 7007.0100, subp. 7(A), Minn. R. 7007.0100, subp. 7(L), Minn. R. 7007.0100, subp. 7(M), Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0010-0090, Minn. Stat. 116.07, subd. 4a, Minn. Stat. 116.07, subd. 9	

Requirements

Agency Interest: Duluth Steam Plant 1
Agency Interest ID: 4233
Activity: (Major Amendment)

Agency Interest Name	SI ID (unpadded)	Subject Item Designation	Subject Item Description	Sequence N..	Requirement (Preview without Citation)	Citation (Preview without Re..	
Duluth Steam Plant 1	TFAC1	13700022	Duluth Steam Plant 1				
				1620	Sulfur Dioxide: EBD Modeling Triggers (Modeling Required) for SO2: Changes that require, or would require, a moderate or major permit amendment due to an increase in SO2 emissions and affect any modeled SO2 parameter or emission rate listed in Appendix B, or an addition to the information documented in Appendix B, trigger the EBD Remodeling Submittal requirement. The Permittee shall include previously made changes to modeled SO2 parameters and emission rates listed in Appendix B that did not previously trigger the EBD Modeling Submittal requirement with this modeling submittal.	Minn. R. 7007.0100, subp. 7(A), Minn. R. 7007.0100, subp. 7(L), Minn. R. 7007.0100, subp. 7(M), Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0010-0090, Minn. Stat. 116.07, subd. 4a, Minn. Stat. 116.07, subd. 9	
				1630	Sulfur Dioxide: EBD Modeling Submittal for SO2: For changes meeting the criteria in the EBD Modeling Triggers (Modeling Required) requirement, the Permittee shall submit an EBD modeling submittal in accordance with the current version of the MPCA Air Dispersion Modeling Guidance and shall wait for written approval (for major amendments, in the form of an issued permit amendment; for moderate amendments, in the form of a construction authorization letter) before making such changes.	Minn. R. 7007.0100, subp. 7(A), Minn. R. 7007.0100, subp. 7(L), Minn. R. 7007.0100, subp. 7(M), Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0010-0090, Minn. Stat. 116.07, subd. 4a, Minn. Stat. 116.07, subd. 9	
				1640	PM < 10 micron: Equivalent or Better Dispersion (EBD) Modeling Triggers (Modeling Required) for PM10: Any changes that affect any modeled PM10 parameter or emission rate listed in Appendix B, or an addition to the information documented in Appendix B, trigger the EBD Remodeling Submittal requirement. This includes changes that do not require a permit amendment as well as changes that require any type of permit amendment. Changes made under the Administrative amendment process are excluded from this requirement.	Minn. R. 7007.0100, subp. 7(A), Minn. R. 7007.0100, subp. 7(L), Minn. R. 7007.0100, subp. 7(M), Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0010-0090, Minn. Stat. 116.07, subd. 4a, Minn. Stat. 116.07, subd. 9	
				1650	PM < 10 micron: EBD Modeling Submittal for PM10: For changes meeting the criteria in the EBD Modeling Triggers (Modeling Required) requirement, the Permittee shall submit an EBD modeling submittal in accordance with the current version of the MPCA Air Dispersion Modeling Guidance and shall wait for written approval (for major amendments, in the form of an issued permit amendment; for moderate amendments, in the form of a construction authorization letter) before making such changes. For changes that do not require a moderate or major amendment, written approval of the EBD modeling may be given before permit issuance; however, this approval applies only to the EBD modeling and not to any other changes.	Minn. R. 7007.0100, subp. 7(A), Minn. R. 7007.0100, subp. 7(L), Minn. R. 7007.0100, subp. 7(M), Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0010-0090, Minn. Stat. 116.07, subd. 4a, Minn. Stat. 116.07, subd. 9	
				1660	EBD Modeling Submittal Content for SO2 and PM10: The information submitted must include, for stack and vent sources, source emission rate, location, height, diameters, exit velocity, exit temperature, discharge direction, use of rain caps or rain hats, and, if applicable, locations and dimensions of nearby buildings. For non-stack/vent sources, this includes the source emission rate, location, size and shape, release height, and, if applicable, any emission rate scalars, and the initial lateral dimensions and initial vertical dimensions and adjacent building heights.	Minn. R. 7007.0100, subp. 7(A), Minn. R. 7007.0100, subp. 7(L), Minn. R. 7007.0100, subp. 7(M), Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0010-0090, Minn. Stat. 116.07, subd. 4a, Minn. Stat. 116.07, subd. 9	
				1670	Outdated EBD Baseline Modeling for SO2 and PM10: Prior to conducting the EBD analysis, the Permittee shall use the current version of the MPCA Air Dispersion Modeling Guidance to determine if the Baseline Modeling (the most recent refined modeling demonstration) is outdated. If the Baseline Modeling is outdated, the Permittee shall update the Baseline Modeling to be consistent with the current version of the MPCA Air Dispersion Modeling Guidance. The updated modeling will become the new Baseline Modeling. This requirement does not require the Permittee to complete a new refined modeling demonstration using the revisions made for the EBD demonstration.	Minn. R. 7007.0100, subp. 7(A), Minn. R. 7007.0100, subp. 7(L), Minn. R. 7007.0100, subp. 7(M), Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0010-0090, Minn. Stat. 116.07, subd. 4a, Minn. Stat. 116.07, subd. 9	
				1680	EBD Modeling Results for SO2 and PM10: The dispersion characteristics due to the revisions of the information in Appendix B must be equivalent to or better than the dispersion characteristics modeled December 31, 2008. The Permittee shall demonstrate this equivalency in the proposal.	Minn. R. 7007. 0100, subp. 7(M), Minn. R. 7007.0100, subp. 7(A), Minn. R. 7007.0100, subp. 7(L), Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0010-0090, Minn. Stat. 116.07, subd. 4a, Minn. Stat. 116.07, subd. 9	
				1690	Computer Dispersion Modeling Triggers for SO2 and PM10: The Permittee shall conduct a refined remodeling analysis in accordance with the Computer Dispersion Modeling requirements of this permit and the current version of the MPCA Air Dispersion Modeling Guidance if: (1) the results of the EBD modeling analysis do not demonstrate equivalent or better dispersion characteristics; (2) a conclusion cannot readily be made about the dispersion, or (3) the criteria in the EBD Modeling Triggers requirement are met and the Permittee has previously conducted three successive EBD analyses using the same Baseline Modeling.	Minn. R. 7007. 0100, subp. 7(A), Minn. R. 7007. 0100, subp. 7(L), Minn. R. 7007. 0800, subps. 1-2, Minn. R. 7007.0100, subp. 7(M), Minn. R. 7009.0010-0090, Minn. Stat. 116.07, subd. 4a, Minn. Stat. 116.07, subd. 9	
				1710	Computer Dispersion Modeling Protocol: due 180 days after receipt of written MPCA request for SO2 and PM10 refined modeling. The Permittee shall submit a Computer Dispersion Modeling Protocol that is complete and approvable by MPCA by the deadline in this requirement. This protocol will describe the proposed modeling methodology and input data, in accordance with the current version of the MPCA Air Dispersion Modeling Guidance.	Minn. R. 7007.0100, subp. 7(A), Minn. R. 7007.0100, subp. 7(L), Minn. R. 7007.0100, subp. 7(M), Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0010-0090, Minn. Stat. 116.07, subd. 4a, Minn. Stat. 116.subd. 9	

Requirements

Agency Interest: Duluth Steam Plant 1
Agency Interest ID: 4233
Activity: (Major Amendment)

Agency Interest Name	SI ID (unpadded)	Subject Item Designation	Subject Item Description	Sequence N..	Requirement (Preview without Citation)	Citation (Preview without Re..	
Duluth Steam Plant 1	TFAC1	13700022	Duluth Steam Plant 1				
				1720	Computer Dispersion Modeling Protocol: due 60 days after receipt of written MPCA request for revisions to the submitted protocol for SO2 and PM10 modeling.	Minn. R. 7007.0100, subp. 7(A), Minn. R. 7007.0100, subp. 7(L), Minn. R. 7007.0100, subp. 7(M), Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0010-0090, Minn. Stat. 116.07, subd. 4a, Minn. Stat. 116.07, subd. 9	
				1740	Computer Dispersion Modeling Results: due 180 days after receipt of written MPCA approval of Computer Dispersion Modeling Protocol for SO2 and PM10. The Permittee shall submit a final Computer Dispersion Modeling Report that is complete and approvable by MPCA by the deadline in this requirement. The submittal shall adhere to the current version of the MPCA Air Dispersion Modeling Guidance and the approved Computer Dispersion Modeling Protocol.	Minn. R. 7007.0100, subp. 7(A), Minn. R. 7007.0100, subp. 7(L), Minn. R. 7007.0100, subp. 7(M), Minn. R. 7007.0800, subps. 1-2, Minn. R. 7009.0010-0090, Minn. Stat. 116.07, subd. 4a, Minn. Stat. 116.07, subd. 9	
					Mercury Emission Inventory Report: due on or before April 1 of each calendar year following permit issuance, to be submitted on a form approved by the Commissioner. The initial report for mercury emissions must cover the calendar year 2015. If any annual emission inventory report demonstrates that mercury emissions are below 3 lbs for the reporting year, then the Permittee shall report mercury emissions every three years, along with the Air Toxics Inventory. If the Permittee is subject to triennial mercury emissions reporting, and any Air Toxics Inventory demonstrates that mercury emissions are greater than or equal to 3 lbs for the reporting year, then the Permittee shall re-commence annual mercury emissions reporting.	Minn. R. 7019.3000-3100, Minn. R. 7005.0100, subp. 23b	
				1750	The Permittee shall submit a quarterly report : Due quarterly within 30 days after end of each calendar quarter starting 08/04/2009. The report shall include the 12-month rolling sum of actual HCl emissions, in tons.	Minn. R. 7007.0800, subps. 4-5	
				1760	The Permittee shall submit a notification of the actual date of initial startup: Due 15 calendar days after Initial Startup Date. Submit the name and number of the Subject Item and the date of startup. Startup is as defined in Minn. R. 7005.0100, subp. 42a. The notification shall be submitted electronically on Form CS-02.	Minn. R. 7007.0800, subp. 16(L)	
					The Permittee shall submit a notification of the date construction began: Due 30 calendar days after Date of Construction Start (or reconstruction). Submit the name and number of the Subject Item and the date construction began. The notification shall be submitted electronically on Form CS-02.	Minn. R. 7007.0800, subp. 16(L)	
	TREA1	CE005	Fabric Filter - High Temperature, i.e., T>250 Degrees F	19	AOS #1 - Controlled by Baghouse: The Permittee shall vent emissions from EQUI 5, 6, 7, or 8 to TREA 1 whenever EQUI 5, 6, 7, or 8 combusts coal, No. 2 fuel oil, or wood, and operate and maintain TREA 1 at all times that any emissions resulting from the combustion of coal, No. 2 fuel oil, or wood are vented to TREA 1. The Permittee shall document periods of non-operation of TREA 1 whenever EQUI 5, 6, 7, or 8 is combusting coal, No. 2 fuel oil, or wood.	Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000	
				16440	AOS #1 - Controlled by Baghouse: If the Permittee replaces TREA 1, the replacement control must meet or exceed the control efficiency requirements of TREA 1 as well as comply with all other requirements of TREA 1. Prior to making such a change, the Permittee shall apply for and obtain the appropriate permit amendment, as applicable. If no amendment is needed for the replacement, the Permittee shall submit an electronic notice to the Agency using Form CR-05. The notice must be received by the Agency seven working days prior to the commencement/start of replacement.	Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000	
				16445	AOS #1 - Controlled by Baghouse: The Permittee shall operate and maintain control equipment such that it achieves a control efficiency for Particulate Matter >= 99.0 percent control efficiency.	Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000	

Requirements

Agency Interest: Duluth Steam Plant 1
Agency Interest ID: 4233
Activity: (Major Amendment)

Agency Interest Name	SI ID (unpadded)	Subject Item Designation	Subject Item Description	Sequence N..	Requirement (Preview without Citation)	Citation (Preview without Re..	
Duluth Steam Plant 1	TREA1	CE005	Fabric Filter - High Temperature, i.e., T>250 Degrees F	16450	AOS #1 - Controlled by Baghouse: The Permittee shall operate and maintain control equipment such that it achieves a control efficiency for PM < 10 micron >= 98.0 percent control efficiency.	Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000	
				16460	AOS #1 - Controlled by Baghouse: The Permittee shall operate and maintain control equipment such that it achieves a control efficiency for PM < 2.5 micron >= 98.0 percent control efficiency.	Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000	
				16470	AOS #1 - Controlled by Baghouse: The Permittee shall operate and maintain the control equipment such that it achieves an overall control efficiency for HAPs - Metal >= 79.0 percent control efficiency.	Title I Condition: Avoid major source under 40 CFR 63.2	
				17110	AOS #1 - Controlled by Baghouse: Pressure Drop >= 0.25 and <= 15.0 inches of water (Pressure Drop Range Limit), unless a new range is set pursuant to Minn. R. 7017.2025, subp. 3, as detailed below. If the recorded pressure drop is outside the required range, the emissions during that time shall be considered uncontrolled until the pressure drop is once again within the required range. The period of time for which the pressure drop is considered out of range shall be reported as a deviation.	Minn. R. 7017.2025, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000	
				17120	AOS #1 - Controlled by Baghouse: The Permittee shall operate and maintain the fabric filter in accordance with the Operation and Maintenance (O & M) Plan. The Permittee shall keep copies of the O & M Plan available onsite for use by staff and MPCA staff.	Minn. R. 7007.0800, subp. 14	
				17130	AOS #1 - Controlled by Baghouse: Daily Inspections: The Permittee shall do the following, once every 24 hours: 1). Read and record the pressure drop across the fabric filter.	40 CFR 64.3, Minn. R. 7017.0200, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000	
				17140	AOS #1 - Controlled by Baghouse: Recordkeeping of Pressure Drop: The Permittee shall record the time and date of each pressure drop reading, and whether or not the observed pressure drop was within the range specified in this permit. Recorded values outside the range specified in this permit are considered Deviations as defined by Minn. R. 7007.0100, subp. 8a.	40 CFR 64.9(b), Minn. R. 7017.0200, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000	
				17150	AOS #1 - Controlled by Baghouse: Pressure Drop Monitoring Equipment: The Permittee shall install and maintain the necessary monitoring equipment for measuring and recording pressure drop as required by this permit. The monitoring equipment must be installed, in use, and properly maintained when the monitored fabric filter is in operation.	40 CFR 64.7(b), Minn. R. 7017.0200	
				17160	AOS #1 - Controlled by Baghouse: The Permittee shall calibrate the pressure gauge at least once every 12 months and shall maintain a written record of any action resulting from the calibration.	40 CFR 64.3, Minn. R. 7017.0200	

Requirements

Agency Interest: Duluth Steam Plant 1
Agency Interest ID: 4233
Activity: (Major Amendment)

Agency Interest Name	SI ID (unpadded)	Subject Item Designation	Subject Item Description	Sequence N..	Requirement (Preview without Citation)	Citation (Preview without Re..	
Duluth Steam Plant 1	TREA1	CE005	Fabric Filter - High Temperature, i.e., T>250 Degrees F	17170	AOS #1 - Controlled by Baghouse: Periodic Inspections: At least once per calendar quarter, or more frequently as required by the manufacturing specifications, the Permittee shall inspect the control equipment components. The Permittee shall maintain a written record of these inspections.	40 CFR 64.3, Minn. R. 7017.0200	
				17180	AOS #1 - Controlled by Baghouse: Documentation of Need for Improved Monitoring: If the Permittee fails to achieve compliance with an emission limitation or standard for which the monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing pressure drop range, the Permittee shall promptly notify the MPCA and, if necessary, submit a permit amendment application to address the necessary monitoring change.	40 CFR 64.7(e), Minn. R. 7017.0200	
				17190	AOS #1 - Controlled by Baghouse: As required by 40 CFR Section 64.9(a)(2), for the Semi-Annual Deviations Report required by this permit and/or the Notification of Deviations Endangering Human Health and the Environment required by this permit, as applicable, the Permittee shall include the following related to the monitoring identified as required by 40 CFR pt. 64: 1) Summary information on the number, duration, and cause of excursions or exceedances, as applicable, and the corrective action taken; and 2) Summary information on the number, duration, and cause for monitor downtime incidents.	40 CFR 64.9(a)(2), Minn. R. 7017.0200	
				17200	AOS #1 - Controlled by Baghouse: The Permittee shall maintain records of monitoring data, monitor performance data, corrective actions taken, and other supporting information required to be maintained. The Permittee may maintain records on alternative media, such as microfilm, computer files, magnetic tape disks, or microfiche, provided that the use of such alternative media allows for expeditious inspection and review, and does not conflict with other applicable recordkeeping requirements.	40 CFR 64.9(b), Minn. R. 7017.0200	
				17230	AOS #1 - Controlled by Baghouse: Corrective Actions: The Permittee shall take corrective action as soon as possible if any of the following occur: - the recorded pressure drop is outside the required operating range; or - the fabric filter or any of its components are found during the inspections to need repair. Corrective actions shall return the pressure drop to within the permitted range, and/or include completion of necessary repairs identified during the inspection, as applicable. Corrective actions include, but are not limited to, those outlined in the O & M Plan for the fabric filter. The Permittee shall keep a record of the type and date of any corrective action taken for each filter.	40 CFR 64.7(d), Minn. R. 7017.0200	
				17231	AOS #2 - Baghouse Bypass: The operation of TREA 1 is not necessary when EQUI 5, 6, 7, and 8 are only combusting natural gas or RFO in order for the process to meet applicable emissions limits. However, the Permittee wishes to take credit for its operation for the purposes of reporting actual emissions for emission inventory. Therefore, in order for the PM, PM10, and PM2.5 to be considered controlled for the purposes of emissions inventory, the baghouse (TREA 1) must comply with the requirements of AOS #1 during the time credit for control is taken. The PM, PM10, and PM2.5 emitted during that time shall be considered controlled at the efficiencies stated in AOS #1.	Minn. R. 7019.3020(H), Minn. Stat. 116.07, subd. 4a	
				17232	Daily Recordkeeping: On each day of operation, the Permittee shall record and maintain for each boiler the fuel combusted, operating time, date, and whether AOS #1 or AOS #2 is used.	Minn. R. 7007.0800, subp. 11, Minn. R. 7007.0800, subps. 4-5	
	TREA2	CE006	Fabric Filter - High Temperature, i.e., T>250 Degrees F	17610	The Permittee shall vent emissions from EQUI 2 to TREA 2 whenever EQUI 2 operates, and operate and maintain TREA 2 at all times that any emissions are vented to TREA 2. The Permittee shall document periods of non-operation of the control equipment TREA 2 whenever EQUI 2 is operating.	Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000	
				17615	If the Permittee replaces TREA 2, the replacement control must meet or exceed the control efficiency requirements of TREA 2 as well as comply with all other requirements of TREA 2. Prior to making such a change, the Permittee shall apply for and obtain the appropriate permit amendment, as applicable. If no amendment is needed for the replacement, the Permittee shall submit an electronic notice to the Agency using Form CR-05. The notice must be received by the Agency seven working days prior to the commencement/start of replacement.	Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000	

Requirements

Agency Interest: Duluth Steam Plant 1
Agency Interest ID: 4233
Activity: (Major Amendment)

Agency Interest Name	SI ID (unpadded)	Subject Item Designation	Subject Item Description	Sequence N..	Requirement (Preview without Citation)	Citation (Preview without Re..	
Duluth Steam Plant 1	TREA2	CE006	Fabric Filter - High Temperature, i.e., T>250 Degrees F	18480	The Permittee shall operate and maintain control equipment such that it achieves a control efficiency for Particulate Matter >= 99.9 percent control efficiency.	Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000	
				18490	The Permittee shall operate and maintain control equipment such that it achieves a control efficiency for PM < 10 micron >= 99.9 percent control efficiency.	Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000	
				18500	The Permittee shall operate and maintain control equipment such that it achieves a control efficiency for PM < 2.5 micron >= 99.9 percent control efficiency.	Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000	
				18510	Pressure Drop >= 0.5 and <= 10.0 inches of mercury, unless a new range is set pursuant to Minn. R. 7017.2025, subp. 3 based on the values recorded during the most recent MPCA-approved performance test where compliance was demonstrated. The new range shall be implemented upon receipt of the Notice of Compliance letter granting preliminary approval. The range is final upon issuance of a permit amendment incorporating the change. If the recorded pressure drop is outside the required range, the emissions during that time shall be considered uncontrolled until the pressure drop is once again within the required range. The period of time for which the pressure drop is considered out of range shall be reported as a deviation. The Permittee shall record the pressure drop at least once every 24 hours when in operation.	Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000	
				18520	Visible Emissions: The Permittee shall check the fabric filter stack STRU 12 for any visible emissions once each day of operation during daylight hours. During inclement weather, the Permittee shall read and record the pressure drop across the fabric filter, once each day of operation.	Minn. R. 7007.0800, subps. 4-5, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000	
				18530	The Permittee shall operate and maintain the fabric filter in accordance with the Operation and Maintenance (O & M) Plan. The Permittee shall keep copies of the O & M Plan available onsite for use by staff and MPCA staff.	Minn. R. 7007.0800, subp. 14	
				18550	Recordkeeping of Visible Emissions and Pressure Drop. The Permittee shall record the time and date of each visible emission inspection and pressure drop reading, and whether or not any visible emissions were observed, and whether or not the observed pressure drop was within the range specified in this permit.	Minn. R. 7007.0800, subps. 4-5, Title I Condition: Avoid major modification under 40 CFR 52.21(b)(2) and Minn. R. 7007.3000	
				18560	Corrective Actions: The Permittee shall take corrective action as soon as possible if any of the following occur: - visible emissions are observed; - the recorded pressure drop is outside the required operating range; or - the fabric filter or any of its components are found during the inspections to need repair. Corrective actions shall return the pressure drop to within the permitted range, eliminate visible emissions, and/or include completion of necessary repairs identified during the inspection, as applicable. Corrective actions include, but are not limited to, those outlined in the O & M Plan for the fabric filter. The Permittee shall keep a record of the type and date of any corrective action taken for each filter.	Minn. R. 7007.0800, subp. 14, Minn. R. 7007.0800, subp. 2(A), Minn. R. 7007.0800, subp. 5	
				18570	Monitoring Equipment: The Permittee shall install and maintain the necessary monitoring equipment for measuring and recording pressure drop as required by this permit. The monitoring equipment must be installed, in use, and properly maintained when the monitored fabric filter is in operation.	Minn. R. 7007.0800, subp. 4	

Requirements

Agency Interest: Duluth Steam Plant 1
Agency Interest ID: 4233
Activity: (Major Amendment)

Agency Interest Name	SI ID (unpadded)	Subject Item Designation	Subject Item Description	Sequence N..	Requirement (Preview without Citation)	Citation (Preview without Re..	
Duluth Steam Plant 1	TREA2	CE006	Fabric Filter - High Temperature, i.e., T>250 Degrees F				
				18580	Periodic Inspections: At least once per calendar quarter, or more frequently as required by the manufacturing specifications, the Permittee shall inspect the control equipment components. The Permittee shall maintain a written record of these inspections.	Minn. R. 7007.0800, subp. 14, Minn. R. 7007.0800, subp. 4, Minn. R. 7007.0800, subp. 5	

Duluth Steam Plant 1
13700022-101

Attachment 4
Points Calculator

Points Calculator

1) AI ID No.:	4233
2) Facility Name:	Duluth Steam Plant 1
3) Small business? y/n?	n
4) Air Project Tracking **Numbers (including all**	6162, 5814, 5689, 5573
5) Date of each Application Received:	6/22/18, 5/25/17, 12/5/16, 6/2/16
6) Final Permit No.	13700022-101
7) Permit Staff	Robert Little

Total Points 55

Application Type	Air Project Tracking No.	Tempo Activity ID	Qty.	*Points*	Total Points	Total Additionl Cost	Details
Administrative Amendment	5689	IND20160004	1	*1*	1	$ 285.00	
Minor Amendment	5573	IND20160003	1	*4*	4	$ 1,140.00	
Applicability Request				*10*	0	$ -	
Moderate Amendment				*15*	0	$ -	
Major Amendment	6162, 5814	IND20180001, IND20170001	2	*25*	50	$ 14,250.00	
Individual State Permit (not reissuance)				*50*	0	$ -	
Individual Part 70 Permit (not reissuance)				*75*	0	$ -	
Additional Points							
Modeling Review				*15*	0	$ -	
BACT Review				*15*	0	$ -	
LAER Review				*15*	0	$ -	
CAA section 110(a)(2)(D)(i)(I) Review (i.e., Transport Rule/CAIR/CSAPR)				*10*	0	$ -	
Part 75 CEM analysis				*10*	0	$ -	
NSPS Review				*10*	0	$ -	
NESHAP Review				*10*	0	$ -	
Case-by-case MACT Review				*20*	0	$ -	
Netting				*10*	0	$ -	
Limits to remain below threshold				*10*	0	$ -	
Plantwide Applicability Limit (PAL)				*20*	0	$ -	
AERA review				*15*	0	$ -	
Variance request under 7000.7000				*35*	0	$ -	
Confidentiality request under 7000.1300				*2*	0	$ -	
EAW review					0		
Part 4410.4300, subparts 18, item A; and 29				*15*	0	$ -	
Part 4410.4300, subparts 8, items A & B; 10, items A to C; 16, items A & D; 17, items A to C & E to G; and 18, items B & C				*35*	0	$ -	
Part 4410.4300, subparts 4; 5 items A & B; 13; 15; 16, items B & C; and 17 item D				*70*	0	$ -	
				Add'l Points	**0**		

NOTES:

Duluth Steam Plant 1
13700022-101

Attachment 5
CAM Plan



Compliance Assurance Monitoring (CAM) Plan

Fabric Filter for PM Control

(TREA1)

(Revised: November 20, 2018)

I. Background – Main Boiler Fabric Filter (Baghouse) TREA1

A. Emission Units:

i. Boilers #1, #2, #3 and #4

ii. Subject Item IDs: EQUI5, EQUI8, EQUI6 and EQUI7

iii. Stack ID: Main Stack for Boilers 1-4 (STRU8)

iv. Emission Control: Fabric Filter – High Temperature Reverse Gas Cleaning Baghouse (TREA1) – TREA1 is only operated when combusting coal and wood.

v. Facility: Duluth Steam Plant 1 (d.b.a. Duluth Energy Systems)

B. Applicable Regulation, Emission Limits and Monitoring Requirements:

i. Particulate Matter (PM), PM < 10 micron (PM_{10})
- MPCA Air Emission Permit 13700022-005
- Minn. R. 7011.0510, Minn. R. 7007.0800

ii. Emission Limits:
- PM $\leq$ 0.4 lbs / MMBtu Heat Input [Air Permit Sections 5.4.2, 5.5.2, 5.6.2, and 5.7.2; Minn. R. 7011.0510, subp. 1]
- $PM_{10} \leq$ 7.7 lb/hr (24 hr rolling average) [Air Permit Section 5.2.2]
- $PM_{10} \leq$ 19.9 tons per year (12-month rolling sum) [Air Permit Section 5.2.3]
- Opacity $\leq$ 20 percent except for one six-minute period per hour of not more than 60% (an exceedance occurs whenever any one-hour period contains two or more six minute periods during which the average opacity exceeds 20 percent or whenever any one-hour period contains one or more six-minute periods during which the average opacity exceeds 60 percent) as observed during Boiler Performance Tests using the Method 9 procedure. [Air Permit Sections 5.4.4, 5.5.4, 5.6.4, 5.7.4; Minn. R. 7011.0510, subp. 2]

ii. Monitoring Requirements:
- Pressure Drop (0.25 to 15.0 inches water column)
- Visible Emission Observations (once per day during daylight hours)

C. Control Technology:

- Fabric Filter Baghouse (Reverse Gas Cleaning)

II. Monitoring Approach - Main Boiler Fabric Filter (Baghouse) TREA1

The key elements of the monitoring approach are presented in Table 1.

I. Indicator	II. Acceptable Range & Corrective Action	III. Performance Criteria
Pressure drop (dP) across Baghouse is measured with a differential pressure sensor and the measured dP is displayed on a digital display and saved to the facility's historian data base.	0.25≤dP≤15.0 inches water column (in w.c.) An excursion is defined as a measured dP of less than 0.25 in w.c. or more than 15 in w.c. Each excursion triggers an assessment of the cause, corrective action, and a reporting requirement.	A. Data Representativeness: The pressure drop from the inlet to the outlet of the baghouse is measured to an accuracy of ± 0.25 in w.c. B. Verification of Operational Status: dP gauges are installed on each of the seven individual baghouse filter modules. These dP values are recorded on an operating log and compared, twice daily, to each other and to the total dP across the baghouse. C. QA/QC Practices: dP transmitter is calibrated semi-annually. Individual module dP gauges are calibrated annually. Pressure taps are inspected semi-annually, or whenever a malfunction is suspected. D. Monitoring Frequency: Total dP across the baghouse is continuously displayed on a digital display at the baghouse control panel and on the plant control system computer monitor. The total dP trend is also displayed in real time on the control system monitor. Total dP is monitored continuously. Individual filter module dP is observed and recorded twice daily. Data Collection Procedure: dP across baghouse is continuously measured and the data is stored in the facility's historian data base. Individual module dP is manually observed and recoded on log sheets at least three times per day when baghouse is in operation. Averaging Procedure: NA E. Record Keeping: dP data is retained in digital format for a minimum of five years. F. Reporting: Description of any excursion, the cause and the corrective action(s) taken. Semi-annual summaries of all excursions are submitted to the Commissioner.

Table 1 – Monitoring Approach TREA1 (Main Boiler Baghouse)

I. Indicator	II. Acceptable Range & Corrective Action	III. Performance Criteria
Visible Emissions from main boiler stack (STRU8)	A visible observation of the main boiler stack (STRU8) is made once per day during daylight hours using a Method 22-like procedure. An excursion is defined as the presence of visible emissions. Each excursion triggers an assessment of the cause, corrective action, and a reporting requirement.	A. Data Representativeness: The visual observations are made on the "clean" side of the baghouse at the top of the main stack. The top of the stack is clearly visible during daylight hours. Visible observation of a "Clear Stack" provides reasonable assurance that the permitted opacity limit is not being exceeded. B. Verification of Operational Status: The time and date of each visible observation as well as the Total dP across the baghouse is recorded. The presence of visible emissions and/or total dP outside the permitted range (see above) indicates the baghouse is not operating as designed. C. QA/QC Practices: NA D. Monitoring Frequency: Daily <u>Data Collection Procedure</u>: A six minute Method 22 – like observation is performed daily. The results are logged, and the log sheets are stored in digital (pdf) format. <u>Averaging Procedure</u>: NA E. Record Keeping: Visual Observation logs are stored in digital format for a minimum of five years. F. Reporting: Description of any excursion, the cause and the corrective action(s) taken. Semi-annual summaries of all excursions are submitted to the Commissioner.

Table 1 (continued) – Monitoring Approach TREA1 (Main Boiler Baghouse)

III. Monitoring Approach Justification - Main Boiler Fabric Filter (Baghouse) TREA1

A. Pressure Drop:

Fabric filters are designed to operate at a relatively constant pressure drop. A decrease in pressure drop could be an indication of damaged or improperly seated filter bags. An increase in pressure drop could indicate the baghouse reverse gas cleaning system is not operating properly. The individual module differential pressure gauges may be useful in determining which of the seven baghouse filter modules is the source of a problem.

The rational for monitoring the Baghouse pressure drop is that the baghouse is designed (and proven during performance tests) to operate effectively at the high end of the allowable dP range and at the design ratio of airflow rate – to filter fabric area. Establishing a lower differential pressure limit is intended call attention to instrument malfunctions, complete failure of the baghouse system or misalignment of boiler flue gas around the baghouse (flue gas bypassing the baghouse and being discharged directly to the stack) when the dP may be below the lower limit.

B. Visible Observation of Emissions:

Observation of visible emissions is the simplest, most direct method of verifying the proper operation of the baghouse. When the baghouse is operating properly, no visible emissions will be observed from the stack.

The rational for selecting any visible emission as an excursion is, again, based on its simplicity. The Method 22 – like procedure for visual observations does not require the individuals performing the observations to have extensive experience, training or certification.

Duluth Steam Plant 1
13700022-101

Attachment 6
RFO Emission Factors

Emission Factors for Combustion of Renewable Fuel Oil (RFO)

Emission Factor lb/MMBtu (HHV)	NG[1]	ULSD[2]	Distillate[3]	No.4[4]	No.5[5]	No.6[6] (low S)	No.6[7] (high S)	RFO[8]
CO	0.082	0.036	0.036	0.033	0.033	0.033	0.033	0.013
NOx (Expressed as NO2)	0.098	0.14	0.14	0.13	0.37	0.37	0.37	0.25
SO2	0.0006	0.0015	0.22	1.35	1.97	0.88	4.16	<0.000401
Total PM	0.0075	0.024	0.024	0.055	0.077	0.083	0.27	0.081
Primary PM10[9]	0.0075	0.0077	0.0077	0.029	0.041	0.045	0.17	0.050
Primary PM2.5[9]	0.0075	0.0059	0.0059	0.011	0.015	0.017	0.062	0.043
VOC (NMTOC)	0.0054	0.0014	0.0014	0.0013	0.0019	0.0019	0.0019	0.0012

1. Emission Factors from AP42 Table 1.4-1 and 1.4-2 (uncontrolled). HHV = 1,020 Btu/scf from AP42 Section 1.4.4.

2. Emission Factors from AP42 Table 1.3-1, 1.3-3 (distillate), 1.3-12. HHV = 140,000 Btu/gal from AP42 Section 1.3.4.3. Sulphur = 15 ppm (EPA max limit)

3. Emission Factors from AP42 Table 1.3-1 and 1.3-3. HHV = 140,000 Btu/gal from AP42 Section 1.3.4.3. Sulphur = 0.22% from Perry's 7th ed. Table 27-6.

4. Emission Factors from AP42 Table 1.3-1 and 1.3-3. HHV = 150,000 Btu/gal from AP42 Section 1.3.4.3. Sulphur = 1.35% from Perry's 7th ed. Table 27-6.

5. Emission Factors from AP42 Table 1.3-1 and 1.3-3. HHV = 150,000 Btu/gal from AP42 Section 1.3.4.3. Sulphur = 1.88% (assumed).

6. Emission Factors from AP42 Table 1.3-1 and 1.3-3. HHV = 150,000 Btu/gal from AP42 Section 1.3.4.3. Sulphur = 0.84% from Perry's 7th ed. Table 27-6.

7. Emission Factors from AP42 Table 1.3-1 and 1.3-3. HHV = 150,000 Btu/gal from AP42 Section 1.3.4.3. Sulphur = 3.97% from Perry's 7th ed. Table 27-6.

8. Emission Factors from Memorial Hospital Boiler 1 (September 2014: VOC, PM10, PM2.5, HAP; July 2015: CO,NOx, SO2; September 2015: Total PM). VOC expressed as CH4. HHV = 75,000 - 80,000 Btu/gal. SO2, o-Xylene, m-Xylene, p-Xylene, Toluene, and Beryllium were below detection limits.

9. Primary PM10 includes PM2.5 and condensable PM. Primary PM2.5 includes condensable PM.

HAP Emissions from RFO[8]	lb/MMBtu (HHV)
Benzene	4.25E-04
o-Xylene	<3.46E-04
m-Xylene	<3.46E-04
p-Xylene	<3.46E-04
Toluene	<3.00E-04
Hydrogen Fluoride	1.31E-04
Hydrogen Chloride	1.19E-04
Antimony (Sb)	3.36E-05
Arsenic (As)	3.29E-06
Beryllium (Be)	<3.40E-07
Cadmium (Cd)	1.09E-05
Chromium (Cr)	3.56E-05
Lead (Pb)	1.88E-03
Manganese (Mn)	1.89E-03
Total Mercury (Hg)	6.01E-06
Nickel (Ni)	4.89E-05
Phosphorus (P)	1.38E-03
Selenium (Se)	<3.74E-06

ENSYN

1 Innovation Drive
Renfrew, Ontario
Canada, K7V 0B5
1-613-433-9508

Customer: Memorial Hospital
3073 White Mountain Highway
North Conway, NH
3860

Delivery Instructions: None

Certificate of Analysis

Product Name: CT-135
Product Code: Filtered SW RFO
Reference Number: N/A

Shipping Date: 16-Jun-16
Customer PO #: 7100-203-100
BOL #: 2749

Parameter	Test Method	Result
Water Content, wt% as is	ASTM E203	21.4%
Viscosity @ 40°C, cSt	ASTM D445	39.3
Solids Content, wt% as is	ASTM D7579	0.09%
Ash Content, wt% as is	EN 055	0.12%
Density @ 20°C, kg/dm^3	EN 064	1.17
HHV (as is), cal/g	ASTM D240	4337
HHV (as is), MJ/kg	ASTM D240	18.2
HHV (as is), BTU/lb	ASTM D240	7806
Aluminum (Al), ppm*	ICP	8.12
Antimony (Sb), ppm	ICP	0.004
Arsenic (As), ppm	ICP	<0.02
Barium (Ba), ppm	ICP	0.20
Beryllium (Be), ppm	ICP	<0.003
Bismuth (Bi), ppm	ICP	<0.003
Boron (B), ppm	ICP	0.47
Cadmium (Cd), ppm	ICP	0.07
Calcium (Ca), ppm	ICP	142.02
Chromium (Cr), ppm	ICP	0.03
Cobalt (Co), ppm	ICP	0.02
Copper (Cu), ppm	ICP	0.07
Iron (Fe), ppm	ICP	10.82
Lead (Pb), ppm	ICP	0.01
Magnesium (Mg), ppm	ICP	41.25
Manganese (Mn), ppm	ICP	13.53
Molybdenum (Mo), ppm	ICP	0.005
Nickel (Ni), ppm	ICP	0.03
Phosphorus (P), ppm	ICP	6.15
Potassium (K), ppm	ICP	52.08
Selenium (Se), ppm	ICP	<0.02
Silicon (Si), ppm	ICP	19.27
Silver (Ag), ppm	ICP	<0.002
Sodium (Na), ppm	ICP	5.34
Strontium (Sr), ppm	ICP	0.74
Thallium (Tl), ppm	ICP	<0.002
Tin (Sn), ppm	ICP	<0.03
Titanium (Ti), ppm	ICP	0.14
Uranium (U), ppm	ICP	<0.002
Vanadium (V), ppm	ICP	<0.02
Zinc (Zn), ppm	ICP	1.62

Quantity Shipped: 6128 Gallons

*ppm on a weight basis

This product conforms to specifications: Yes

Technician Signature: PS

Name: Paula Sevigny
Date: 16-Jun-16

1 Innovation Drive
Renfrew, Ontario
Canada, K7V 0B5
1-613-433-9508

Customer: Geoff Hopkins
Ensyn Technologies Inc
2 Gurdwara Rd, Suite 210
Ottawa, On
K2E 1A2

Delivery Instructions: N/A

Certificate of Analysis

Product Name: RFO - Renewable Fuel Oil
Product Code: CT-153 Softwood Filtered
Reference Number: AR0449
Sample Date: 11-Dec-17
Customer PO #: 7100-205-100
BOL #: BOL3250

Parameter	Test Method	Result
Water Content, wt% as is	ASTM E203	22.88%
Viscosity @ 40°C, cSt	ASTM D7042	20.2
Solids Content, wt% as is	ASTM D7579	0.06%
Ash Content, wt% as is	EN 055	0.06%
Density @ 15°C, kg/dm^3	ASTM D4052	1.20
pH	ASTM E70-07	3.23
Carbon Content, wt% as is	ASTM D5291	44.40%
Hydrogen Content, wt% as is	ASTM D5291	7.65%
Nitrogen Content, wt% as is	ASTM D5762	0.073%
Sulfur Content, wt% as is	ASTM D5453	0.007%
Oxygen Content, wt% as is	By Difference	47.81%
Carbon Content, wt% MAF	ASTM D5291	57.62%
Hydrogen Content, wt% MAF	ASTM D5291	6.60%
Nitrogen Content, wt% MAF	ASTM D5762	0.095%
Sulfur Content, wt% MAF	ASTM D5453	0.009%
Oxygen Content, wt% MAF	By Difference	35.67%
HHV (as is), cal/g	ASTM D240	4329
HHV (as is), MJ/kg	ASTM D240	18.12
HHV (as is), BTU/lb	ASTM D240	7792
Aluminum (Al), ppm	ICP	4.9
Calcium (Ca), ppm	ICP	266
Chlorine (Cl), ppm	NAA	<20
Chromium (Cr), ppm	ICP	0.02
Copper (Cu), ppm	ICP	0.47
Iron (Fe), ppm	ICP	12
Lead (Pb), ppm	ICP	<0.05
Magnesium (Mg), ppm	ICP	68
Manganese (Mn), ppm	ICP	17
Nickel (Ni), ppm	ICP	<0.01
Phosphorous (P), ppm	ICP	10
Potassium (K), ppm	ICP	143
Silicon (Si), ppm	ICP	7.1
Sodium (Na), ppm	ICP	16
Tin (Sn), ppm	ICP	<0.02
Titanium (Ti), ppm	ICP	<0.01
Vanadium (V), ppm	ICP	0.10
Zinc (Zn), ppm	ICP	1.3

Quantity Shipped: N/A

This product conforms to specifications: N/A

Technician Signature: SJ
Name: Paula Sevigny/Satya Jujjuri
Date: 25-Jan-18

RFO Fuel Specifciations

Property	Analytical Method	ASTM D7544 Specification	RFO Analysis - Metric Units			
			Range		Typical Value	
			Min	Max		
Water Content	ASTM E203	<30	15	30	24	wt%
pH	ASTM E70	Report	>2.5	3.8	2.8	
Density @ 20 °C	ASTM D4052	1.1 - 1.3	1.11	1.28	1.2	kg/dm³
Kinematic Viscosity @ 40 °C	ASTM D445	<125	15	125	25	mm²/s
Higher (Gross) Heating Value, Moisture Free	ASTM D240	N/A	22.1	24.2	23.1	MJ/kg
Higher (Gross) Heating Value, As-Is	ASTM D240	>15	16.6	18.2	17.5	MJ/kg
Lower (Net) Heating Value, As-Is	Calculated	N/A	15.3	16.5	15.9	MJ/kg
Solids Content	ASTM D7579	<2.5	0.1	2.5	2.0	wt%
Ash Content	ASTM D482	<0.25	0.05	0.25	<0.15	wt%
Pour Point	ASTM D97	<-9	-30	-23	-24	°C
Flash Point	ASTM D93, procedure B	>45	>62	N/A	>62	°C
Elemental Analysis (moisture & ash free)						
Carbon	ASTM D5291	N/A	51.5	58.3	54.9	wt%
Hydrogen	ASTM D5291	N/A	5.5	6.8	6.7	wt%
Nitrogen	ASTM D5291	N/A	0.1	0.4	0.2	wt%
Sulphur	ASTM D4294	<0.05	0.0	0.1	<0.05	wt%
Oxygen	Calculated, by difference	N/A	42.9	34.4	38.3	wt%

Property	Analytical Method	ASTM D7544 Specification	RFO Analysis - Imperial Units			
			Range		Typical Value	
			Min	Max		
Water Content	ASTM E203	<30	15	30	24	wt%
pH	ASTM E70	Report	>2.5	3.8	2.8	
Density @ 20 °C	ASTM D4052	9.2 - 10.8	9.3	10.7	10.0	lb/US Gal
Kinematic Viscosity @ 40 °C	ASTM D445	<125	15	125	25	cSt
Higher (Gross) Heating Value, Moisture Free	ASTM D240	N/A	9500	10400	9905	BTU/lb
Higher (Gross) Heating Value, As-Is	ASTM D240	>15	7125	7800	7528	BTU/lb
Lower (Net) Heating Value, As-Is	Calculated	N/A	6560	7101	6842	BTU/lb
Solids Content	ASTM D7579	<2.5	0.1	2.5	2.0	wt%
Ash Content	ASTM D482	<0.25	0.05	0.25	<0.15	wt%
Pour Point	ASTM D97	<16	-22	-10	-13	°F
Flash Point	ASTM D93, procedure B	>45	>143	N/A	>143	°F
Elemental Analysis (moisture & ash free)						
Carbon	ASTM D5291	N/A	51.5	58.3	54.9	wt%
Hydrogen	ASTM D5291	N/A	5.5	6.8	6.7	wt%
Nitrogen	ASTM D5291	N/A	0.1	0.4	0.2	wt%
Sulphur	ASTM D4294	<0.05	0.0	0.1	<0.05	wt%
Oxygen	Calculated, by difference	N/A	42.9	34.4	38.3	wt%

Duluth Steam Plant 1
13700022-101

Attachment 7
EPA-MPCA HAP Discussion

EPA comment and MPCA discussion regarding HAPs from permit action #13700022-005

EPA Comment 1: Page A-9. The permit requires the Permittee to calculate and record emissions of HCl and HF as the sole indicators of total HAPs emissions. Since the source has chosen to limit their potential to emit of total HAPs to avoid major source status, it would seem likely that all HAPs should be calculated to ensure compliance with the total HAP limit. Please explain how calculating HCl and HF emissions only are protective of the synthetic minor limit for total HAP emissions.

MPCA Response to Comment 1: Table A summarizes the unrestricted, heat-input-limited, and material-limited emissions of HAPs from all four boilers combined. As you can see from the table, coal is the only fuel that can cause an exceedance of the single or total HAP thresholds through unrestricted combustion. Additionally, HCl and HF are by far the largest contributors to HAP emissions from any fuel, accounting for 93% of the total HAPs from coal. Because of this, limits on Total and Single HAPs were added in permit action #13700022-001 that only required tracking of HCl and HF emissions. Perhaps, based on the emission factors used at the time, tracking of the two HAPs with the highest potential emissions was demonstrated to be sufficient. However, as you can see from Table D, the max total HAPs emissions from all boilers is 28.8 tpy when HCl + HF emissions from coal are restricted to 24.0 tpy. Limits on usage of subbituminous and bituminous coal were established in permit action #13700022-003 that were also intended to prevent exceedance of the single and total HAP thresholds. However, as you can see from Table C the restriction on coal usage also does not prevent exceedance of either the single or total HAP thresholds.

We also found that only considering HCl and HF emissions from coal is not protective of the single HAP threshold, as follows. When considering unrestricted emissions from all the allowable fuels (natural gas, oil, coal, and wood) the single HAP threshold of 10.0 tpy can only be exceeded by burning coal, and only by HCl or HF (Table A). Taking into account the permit limits on coal use, emissions of HF are 7.67 tpy and emissions of HCl are 61.4 tpy (Table C). So HF cannot exceed the single HAP threshold, but it can still be exceeded by HCl. If coal combustion is further limited such that HCl emissions from coal are reduced to 9.5 tpy, then coal can only be used for 792 hours per year, which leaves 7,970 hours left over for combustion of other fuels. The remaining hours can be used for wood combustion, which also is a source of HCl (HCl is not emitted by oil or natural gas). The restricted emissions of HCl from wood (Table C) are 1.45 tpy, which would bring the total HCl emissions to 9.5 + 1.45 = 11.0 tpy.

Table A. Unrestricted Emissions (tpy)

	Natural Gas	Oil	Coal	Wood
HAPs-Total	3.61	2.27	170	5.01
HAP-Single	1.76	1.23	140	2.49
HCl	-	-	**140**	2.49
HF	-	-	**17.5**	-
HCl + HF	-	-	158	2.49

Table B. Emissions restricted by 345 MMBtu/hr heat input limit

	Natural Gas	Oil	Coal	Wood
HAPs-Total	2.71	1.70	128	3.75
HAP-Single	1.32	0.925	105	1.87
HCl	-	-	105	1.87
HF	-	-	13.1	-
HCl + HF	-	-	118	1.87

Table C. Emissions restricted by coal and wood usage

	Coal	Wood
HAPs-Total	75.4	2.92
HAP-Single	61.4	1.45
HCl	61.4	1.45
HF	7.67	-
HCl + HF	69.1	1.45

Table D. Max Emissions when HCl+HF restricted to 24.0 tpy

	Natural Gas	Coal	Wood	All Fuels
HAPs-Total	0.0528	25.9	2.92	**28.8**
HCl + HF	-	24.0	1.45	-

Note: Oil is not included because oil has the lowest potential HAP emissions and the annual capacity of the boilers can be reached by combustion of the three other fuels.

Both of these issues can be solved by requiring the Permittee to include HCl from wood burning in their compliance calculations. If HCl from coal and wood is restricted to 9.5 tpy, then neither the single HAP or the total HAP thresholds can be exceeded. For the single HAP threshold, if HCl emissions from coal and wood are considered, then the single HAP threshold cannot be exceeded because there are no other sources of HCl emissions, and no other individual HAPs that can possibly exceed the threshold. For total HAPs, if the fuel with the highest total HAPs emissions, coal, is combusted such that HCl emissions reach the limit of 9.5 tpy, then the total HAPs emissions from coal would be 11.5 tpy. If coal use is restricted to this amount, then the maximum total HAPs emissions from all fuels would be 14.0 tpy. In addition, the facility has only one other emission unit, a small diesel generator, that has potential total-HAPs emissions of 0.018 tpy, and few insignificant activities. Therefore, the limit on the boilers is sufficient to prevent total facility emissions from exceeding the single or total HAPs thresholds. Note that with this compliance method it is no longer necessary to monitor or record HF emissions. The following table summarizes the requirements that have been added or revised at COMG 1: Boilers.

The Permittee shall limit HAPs - Single <= 9.5 tons per year 12-month rolling sum. Applies continuously under all conditions. To be calculated by the 30th day of each month for the previous 12-month period as described later in this permit. [Title I Condition: Avoid major source under 40 CFR 63.2]
The Permittee shall limit HAPs - Total <= 24.0 tons per year 12-month rolling sum. Applies continuously under all conditions. [Title I Condition: Avoid major source under 40 CFR 63.2]
Fuel Sampling, Wood Heat Content: Once combustion of wood commences, once every month during operation and whenever the source of wood changes, the Permittee shall analyze wood fuel for heat content and record the result in a written log. The result of the most recent fuel analysis shall be used to calculate wood CO emissions, as described in this permit. This is a state-only requirement and is not enforceable by the U.S. Environmental

Protection Agency Administrator and citizens under the Clean Air Act. [Minn. R. 7007.0800, subps. 4-5, Minn. R. 4410.4300, subp. 15(A)]
Hydrochloric acid: Monthly Recordkeeping - HCl Emissions: Within 30 days after the end of each calendar month, the Permittee shall calculate and record the HCl emission rate (in tons per month) for the previous calendar month. The Permittee shall use the chloride content of each coal and/or wood type received and the quantities of each coal and/or wood type combusted in the preceding calendar month to perform the calculation, and shall assume that all Chloride is converted to HCl upon combustion. The Permittee shall maintain a record of the chloride analyses for coal and wood, the calculations used to determine HCl emissions, and the total monthly HCl emissions. [Minn. R. 7007.0800, subps. 4-5]
HAPs - Single: Monthly Recordkeeping - HAPs: Within 30 days after the end of each calendar month, the Permittee shall calculate and record the 12-month rolling sum of HCl emissions from coal and wood by summing the monthly HCl emissions for the previous 12 months. The Permittee shall use this number to demonstrate compliance with the HAPs-Single and the HAPs-Total limits. [Minn. R. 7007.0800, subps. 4-5, Title I Condition: Avoid major source under 40 CFR 63.2]