

**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION**

June 24, 2014

PERMIT TO INSTALL
687-861

ISSUED TO
Hillman Power Company LLC

LOCATED AT
750 Progress Street
Hillman, Michigan

IN THE COUNTY OF
Montmorency

STATE REGISTRATION NUMBER
N1266

The Air Quality Division has approved this Permit to Install, pursuant to the delegation of authority from the Michigan Department of Environmental Quality. This permit is hereby issued in accordance with and subject to Section 5505(1) of Article II, Chapter I, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Pursuant to Air Pollution Control Rule 336.1201(1), this permit constitutes the permittee's authority to install the identified emission unit(s) in accordance with all administrative rules of the Department and the attached conditions. Operation of the emission unit(s) identified in this Permit to Install is allowed pursuant to Rule 336.1201(6).

DATE OF RECEIPT OF ALL INFORMATION REQUIRED BY RULE 203:

June 16, 2014

DATE PERMIT TO INSTALL APPROVED:

June 24, 2014

SIGNATURE:

DATE PERMIT VOIDED:

SIGNATURE:

DATE PERMIT REVOKED:

SIGNATURE:

PERMIT TO INSTALL

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Common Abbreviations / Acronyms

Common Acronyms		Pollutant / Measurement Abbreviations	
AQD	Air Quality Division	BTU	British Thermal Unit
BACT	Best Available Control Technology	°C	Degrees Celsius
CAA	Clean Air Act	CO	Carbon Monoxide
CEM	Continuous Emission Monitoring	dscf	Dry standard cubic foot
CFR	Code of Federal Regulations	dscm	Dry standard cubic meter
CO ₂ e	Carbon Dioxide Equivalent	°F	Degrees Fahrenheit
COM	Continuous Opacity Monitoring	gr	Grains
EPA	Environmental Protection Agency	Hg	Mercury
EU	Emission Unit	hr	Hour
FG	Flexible Group	H ₂ S	Hydrogen Sulfide
GACS	Gallon of Applied Coating Solids	hp	Horsepower
GC	General Condition	lb	Pound
GHGs	Greenhouse Gases	kW	Kilowatt
HAP	Hazardous Air Pollutant	m	Meter
HVLP	High Volume Low Pressure *	mg	Milligram
ID	Identification	mm	Millimeter
LAER	Lowest Achievable Emission Rate	MM	Million
MACT	Maximum Achievable Control Technology	MW	Megawatts
MAERS	Michigan Air Emissions Reporting System	ng	Nanogram
MAP	Malfuction Abatement Plan	NO _x	Oxides of Nitrogen
MDEQ	Michigan Department of Environmental Quality (Department)	PM	Particulate Matter
MSDS	Material Safety Data Sheet	PM10	PM with aerodynamic diameter ≤10 microns
NESHAP	National Emission Standard for Hazardous Air Pollutants	PM2.5	PM with aerodynamic diameter ≤ 2.5 microns
NSPS	New Source Performance Standards	pph	Pounds per hour
NSR	New Source Review	ppm	Parts per million
PS	Performance Specification	ppmv	Parts per million by volume
PSD	Prevention of Significant Deterioration	ppmw	Parts per million by weight
PTE	Permanent Total Enclosure	psia	Pounds per square inch absolute
PTI	Permit to Install	psig	Pounds per square inch gauge
RACT	Reasonably Available Control Technology	scf	Standard cubic feet
ROP	Renewable Operating Permit	sec	Seconds
SC	Special Condition	SO ₂	Sulfur Dioxide
SCR	Selective Catalytic Reduction	THC	Total Hydrocarbons
SRN	State Registration Number	tpy	Tons per year
TAC	Toxic Air Contaminant	µg	Microgram
TEQ	Toxicity Equivalence Quotient	VOC	Volatile Organic Compound
VE	Visible Emissions	yr	Year

* For High Volume Low Pressure (HVLP) applicators, the pressure measured at the HVLP gun air cap shall not exceed ten (10) pounds per square inch gauge (psig).

GENERAL CONDITIONS

1. The process or process equipment covered by this permit shall not be reconstructed, relocated, or modified, unless a Permit to Install authorizing such action is issued by the Department, except to the extent such action is exempt from the Permit to Install requirements by any applicable rule. **(R 336.1201(1))**
2. If the installation, construction, reconstruction, relocation, or modification of the equipment for which this permit has been approved has not commenced within 18 months, or has been interrupted for 18 months, this permit shall become void unless otherwise authorized by the Department. Furthermore, the permittee or the designated authorized agent shall notify the Department via the Supervisor, Permit Section, Air Quality Division, Michigan Department of Environmental Quality, P.O. Box 30260, Lansing, Michigan 48909-7760, if it is decided not to pursue the installation, construction, reconstruction, relocation, or modification of the equipment allowed by this Permit to Install. **(R 336.1201(4))**
3. If this Permit to Install is issued for a process or process equipment located at a stationary source that is not subject to the Renewable Operating Permit program requirements pursuant to R 336.1210, operation of the process or process equipment is allowed by this permit if the equipment performs in accordance with the terms and conditions of this Permit to Install. **(R 336.1201(6)(b))**
4. The Department may, after notice and opportunity for a hearing, revoke this Permit to Install if evidence indicates the process or process equipment is not performing in accordance with the terms and conditions of this permit or is violating the Department's rules or the Clean Air Act. **(R 336.1201(8), Section 5510 of Act 451, PA 1994)**
5. The terms and conditions of this Permit to Install shall apply to any person or legal entity that now or hereafter owns or operates the process or process equipment at the location authorized by this Permit to Install. If the new owner or operator submits a written request to the Department pursuant to R 336.1219 and the Department approves the request, this permit will be amended to reflect the change of ownership or operational control. The request must include all of the information required by subrules (1)(a), (b), and (c) of R 336.1219 and shall be sent to the District Supervisor, Air Quality Division, Michigan Department of Environmental Quality. **(R 336.1219)**
6. Operation of this equipment shall not result in the emission of an air contaminant which causes injurious effects to human health or safety, animal life, plant life of significant economic value, or property, or which causes unreasonable interference with the comfortable enjoyment of life and property. **(R 336.1901)**
7. The permittee shall provide notice of an abnormal condition, start-up, shutdown, or malfunction that results in emissions of a hazardous or toxic air pollutant which continue for more than one hour in excess of any applicable standard or limitation, or emissions of any air contaminant continuing for more than two hours in excess of an applicable standard or limitation, as required in Rule 912, to the Department. The notice shall be provided not later than two business days after start-up, shutdown, or discovery of the abnormal condition or malfunction. Written reports, if required, must be filed with the Department within 10 days after the start-up or shutdown occurred, within 10 days after the abnormal conditions or malfunction has been corrected, or within 30 days of discovery of the abnormal condition or malfunction, whichever is first. The written reports shall include all of the information required in Rule 912(5). **(R 336.1912)**
8. Approval of this permit does not exempt the permittee from complying with any future applicable requirements which may be promulgated under Part 55 of 1994 PA 451, as amended or the Federal Clean Air Act.
9. Approval of this permit does not obviate the necessity of obtaining such permits or approvals from other units of government as required by law.
10. Operation of this equipment may be subject to other requirements of Part 55 of 1994 PA 451, as amended and the rules promulgated thereunder.

11. Except as provided in subrules (2) and (3) or unless the special conditions of the Permit to Install include an alternate opacity limit established pursuant to subrule (4) of R 336.1301, the permittee shall not cause or permit to be discharged into the outer air from a process or process equipment a visible emission of density greater than the most stringent of the following. The grading of visible emissions shall be determined in accordance with R 336.1303. **(R 336.1301)**
 - a) A six-minute average of 20 percent opacity, except for one six-minute average per hour of not more than 27 percent opacity.
 - b) A visible emission limit specified by an applicable federal new source performance standard.
 - c) A visible emission limit specified as a condition of this Permit to Install.

12. Collected air contaminants shall be removed as necessary to maintain the equipment at the required operating efficiency. The collection and disposal of air contaminants shall be performed in a manner so as to minimize the introduction of contaminants to the outer air. Transport of collected air contaminants in Priority I and II areas requires the use of material handling methods specified in R 336.1370(2). **(R 336.1370)**

13. The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with R 336.2001 and R 336.2003, under any of the conditions listed in R 336.2001. **(R 336.2001)**

SPECIAL CONDITIONS

EMISSION UNIT SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Emission Unit ID	Emission Unit Description (Process Equipment & Control Devices)	Installation Date / Modification Date	Flexible Group ID
EUBOILER	300 MMBTU/hr stoker boiler capable of firing wood waste, natural gas, and tire-derived fuel. Pollution control equipment consists of multiclones, electrostatic precipitator, and selective non-catalytic reduction.	4/1/1987 7/31/2002	NA
Changes to the equipment described in this table are subject to the requirements of R 336.1201, except as allowed by R 336.1278 to R 336.1290.			

The following conditions apply to: EUBOILER

DESCRIPTION: 300 MMBTU/hr stoker boiler capable of firing wood waste, natural gas, and tire-derived fuel.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT: Multiclones, Electrostatic Precipitator (ESP), Selective Non-catalytic Reduction (SNCR)

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. Visible emissions	10% opacity ^a	Six minute average, except for one six minute average per hour of not more than 20%	EUBOILER	Condition VI.1	R 336.1301(1)(c)
2. Particulate matter (PM)	0.014 grains per dry standard cubic foot	NA	EUBOILER	Condition V.1	40 CFR 52.21(c), (d), and (j), R 336.1331(1)(c)
3. PM	0.1 pounds per MMBTU heat input	NA	EUBOILER	Condition V.1	40 CFR 60.43b(c)(1), R 336.1331(1)(b)
4. PM	7.8 pounds	Hour	EUBOILER	Condition V.1	40 CFR 52.21(c), (d), and (j), R 336.1331(1)(c)
5. SO ₂	100 ppmv, dry corrected to 7% O ₂	24 hour block average	EUBOILER	Condition VI.2	40 CFR 52.21(c), (d), and (j)
6. SO ₂	50 pounds	Hour, based upon a 24 hour daily average	EUBOILER	Condition VI.2	40 CFR 52.21(c), (d), and (j)
7. SO ₂	100 pounds	Hour, based upon a 3 hour block average	EUBOILER	Condition VI.2	40 CFR 52.21(c)
8. SO ₂	200 tons	12 month rolling time period	EUBOILER	Condition VI.11	40 CFR 52.21(c), (d), and (j)
9. SO ₂	9.0 ppmv, dry corrected to 7% O ₂	24 hour block average, wood firing only	EUBOILER	Condition VI.2	40 CFR 52.21(c) and (d)
10. SO ₂	5.5 pounds	Hour, wood firing only	EUBOILER	Condition VI.2	40 CFR 52.21(c) and (d)
11. NO _x	130 ppmv, dry corrected to 7% O ₂	30 day rolling average	EUBOILER	Condition VI.2	40 CFR 52.21(c), (d), and (j)
12. NO _x	60 pounds	Hour, based upon a 30 day rolling average	EUBOILER	Condition VI.2	40 CFR 52.21(c), (d), and (j)
13. NO _x	260 tons	12 month rolling time period	EUBOILER	Condition VI.11	40 CFR 52.21(c), (d), and (j)
14. CO	140 pounds	Hour, average (during periods of startup, shutdown, and malfunctions)	EUBOILER	Condition VI.2	40 CFR 52.21(c), (d), and (j)

15. CO	Variable limit in ppmv, dry corrected to 7% O ₂ (See Appendix 9)	24 hour daily average	EUBOILER	Condition VI.2	40 CFR 52.21(c), (d), and (j)
16. CO	120 pounds	Hour, based upon a 24 hour daily average	EUBOILER	Condition VI.2	40 CFR 52.21(c), (d), and (j)
17. CO	440 tons	12 month rolling time period	EUBOILER	Condition VI.11	40 CFR 52.21(c), (d), and (j)
18. VOC	57.3 ppmv, dry corrected to 7% O ₂	NA	EUBOILER	Condition V.2	R 336.1702(a), 40 CFR 52.21(c) and (d)
19. VOC	7.0 pounds	Hour	EUBOILER	Condition V.2	R 336.1702(a), 40 CFR 52.21(c) and (d)
20. Sulfuric acid mist	5.0 ppmv, dry corrected to 7% O ₂	NA	EUBOILER	Condition V.3	R 336.1225(1), 40 CFR 52.21(c), (d), and (j)
21. Sulfuric acid mist	4.6 pounds	Hour	EUBOILER	Condition V.3	R 336.1225(1), 40 CFR 52.21(c), (d), and (j)
22. Benzo(a) pyrene	0.0006 pound ¹	Hour	EUBOILER	Condition V.4	R 336.1225(1)

^a Compliance with this limit shall be considered compliance with the following applicable requirement which has been subsumed under this streamlined requirement: **40 CFR 60.43b(f)**

II. MATERIAL LIMITS

Material	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. Tire derived fuel (TDF)	5,000 pounds ¹	Per hour, based upon a 24 hour daily average	EUBOILER	Condition VI.9	R 336.1225
2. TDF	20,000 tons ¹	Calendar year	EUBOILER	Condition VI.9	R 336.1225

III. PROCESS/OPERATIONAL RESTRICTIONS

- The fuel combusted in EUBOILER shall not contain creosote, pentachlorophenol, or copper chromium arsenate.¹ (**R 336.1225**)
- The permittee shall not operate EUBOILER unless the multiclones, ESP, and SNCR are installed, maintained, and operated in a satisfactory manner. (**R 336.1910, 40 CFR 52.21(j), 40 CFR 64.6(c)(1)(i, ii, and iii)**)
- The permittee shall begin firing EUBOILER from a cold start on natural gas only. When the steam pressure in the boiler reaches approximately 500 pounds per square inch, then the flame is switched over to a wood fired flame, as described in the plan required by Condition IX.5. Non-conformance to the startup and shutdown procedure shall be considered a deviation only if a continuous emission monitor is not operating or there is a deviation from the applicable emission limitation at listed in this permit. (**R 336.1911, R 336.1912**)

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall equip and maintain the TDF feed system with process controls which automatically shut down the auger feeding TDF if wood fuel is not being conveyed from feed system reclaimer to the screen.¹
(R 336.1225)

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall conduct performance tests when firing a combination of wood and TDF, in a manner acceptable to the AQD, for verification of the particulate matter emission rates to demonstrate compliance with the limits contained in Conditions I.2, I.3, and I.4. The performance tests shall be completed every five years. **(R 336.2001, 40 CFR 52.21(j), 40 CFR 60.46b(d))**
2. The permittee shall conduct performance tests when firing a combination of wood and TDF, in a manner acceptable to the AQD, for verification of the VOC emission rates to demonstrate compliance with the limits contained in Conditions I.18 and I.19. The performance tests shall be completed every five years. **(R 336.2001)**
3. The permittee shall conduct performance tests when firing a combination of wood and TDF, in a manner acceptable to the AQD, for verification of the sulfuric acid mist emission rates to demonstrate compliance with the limits contained in Conditions I.20 and I.21. The performance tests shall be completed every five years. **(R 336.2001, 40 CFR 52.21(j), R 336.1225(1))**
4. The permittee shall conduct performance tests when firing a combination of wood and TDF, in a manner acceptable to the AQD, for verification of the benzo(a)pyrene emission rate to demonstrate compliance with the limit contained in Condition I.22. The performance tests shall be completed every five years. **(R 336.2001, R 336.1225(1))**
5. The permittee shall implement a Sampling and Analysis Plan for the wood and TDF combusted in EUBOILER. The wood and TDF Sampling and Analysis Plan shall meet the following requirements: **(R 336.1201(3))**
 - a. On a weekly basis, separate representative samples of the wood and TDF fuel shall be collected.
 - b. On a quarterly basis, both a proximate analysis (percent moisture, volatile matter, fixed carbon, and ash) and ultimate analysis (quantities of elemental components) of the wood and TDF, separately, shall be completed on a composite of the weekly samples.

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall install, calibrate, maintain and operate a COM to monitor and record the visible emissions from EUBOILER on a continuous basis. **(40 CFR 60.13, 40 CFR 60.48b(a), 40 CFR 64.6(c)(1)(iii))**
2. The permittee shall install, calibrate, maintain and operate CEMS to monitor and record the SO₂, NO_x, and CO emissions from EUBOILER on a continuous basis. **(R 336.2101, 40 CFR 52.21(j))**
3. The permittee shall install, calibrate, maintain and operate in a satisfactory manner a device to monitor and record the O₂ percentage from EUBOILER on a continuous basis. **(R 336.2101(1)(d))**
4. The COM shall be installed, calibrated, maintained, and operated in accordance with the procedures set forth in 40 CFR 60.13 and Performance Specification 1 of Appendix B to 40 CFR Part 60. **(40 CFR 60.13, 40 CFR 60.48b(e))**

5. The permittee shall perform an annual audit of the COM using the procedures set forth in US EPA Publication 450/4-92-010, "Performance Audits Procedures for Opacity Monitors", or a procedure acceptable to the AQD. **(40 CFR 64.3(b)(3))**
6. The span value of the COM and CEMS shall be 2.0 times the lowest emission standard or as specified in the federal regulations. **(40 CFR 60.13, R 336.2154)**
7. The CEM for NO_x, CO, SO₂, and O₂ shall be installed, calibrated, maintained, and operated in accordance with the procedures set forth in 40 CFR 60.13 and Performance Specifications 2, 3, and 4 of Appendix B to 40 CFR Part 60. **(R 336.2150)**
8. The permittee shall perform the Quality Assurance Procedures of the CEMS as set forth in Appendix F of 40 CFR Part 60 each calendar quarter. **(40 CFR 60.13(a))**
9. The permittee shall keep monthly TDF usage records, in a format acceptable to the AQD, indicating the amount of TDF used, by weight, on a pound per hour based upon a 24 hour daily average, a calendar month basis, and a calendar year basis. The records shall indicate the total amount of TDF used in EUBOILER.¹ **(R 336.1225)**
10. The permittee shall record and maintain records of the amounts of natural gas and wood combusted during each day. **(40 CFR 60.49b(d))**
11. The permittee shall calculate and record the tons of SO₂, CO, and NO_x, emissions for EUBOILER by the end of each calendar month for the previous month and 12 month rolling time period in a manner acceptable to the AQD. **(40 CFR 52.21(j))**
12. The permittee shall implement the Fuel Operations Description, Procedure, and Work Practices in Appendix 3.¹ **(R 336.1225)**
13. The permittee shall maintain records of inspections and operating information for EUBOILER in accordance with the federal Standards of Performance for New Stationary Sources as specified in 40 CFR 60 Subparts A and Db. **(40 CFR 60 Subparts A and Db)**
14. The permittee shall utilize COMS-recorded opacity as an indicator of the proper functioning of the ESP. The appropriate range of opacity defining proper function of the ESP is 0-5% opacity. **(40 CFR 64.6(c)(1)(i and ii))**
15. The permittee shall use the COMS to assure compliance with the particulate matter limits. An excursion for particulate matter shall be two consecutive one hour block average opacity values greater than 5%. This condition does not affect compliance with R 336.1331. **(40 CFR 64.6(c)(2))**
16. The permittee shall operate the COMS during all required periods when EUBOILER is operating. Data recorded during monitoring malfunctions, repair activities and QA/QC operations shall not be used for 40 CFR Part 64 compliance. **(40 CFR 64.6(c)(3))**
17. In response to an excursion of more than 5% opacity based on two consecutive one hour block averages, the permittee shall restore operation of EUBOILER to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include minimizing the period of any startup, shutdown or malfunction and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion or exceedance. Such actions may include initial inspection and evaluation, recording that operations returned to normal without operator action (such as through response by a computerized distribution control system), or any necessary follow-up actions to return operation to within the indicator range, designated condition, or below the applicable emission limitation or standard, as applicable. The permittee shall keep records of these actions. **(40 CFR 64.7(d))**
18. The permittee shall properly maintain the monitoring systems including keeping necessary parts for routine repair of the monitoring equipment. **(40 CFR 64.7(b))**

19. The permittee shall calculate the annual capacity factor individually for natural gas and wood. The annual capacity factor is determined on a 12-month rolling average basis with a new annual capacity factor calculated at the end of each calendar month. **(40 CFR 60.49b(d))**
20. The permittee shall calculate the annual capacity factor for TDF. The annual capacity factor is determined on a 12-month rolling average basis with a new annual capacity factor calculated at the end of each calendar month. **(R 336.1225)**

VII. REPORTING

1. Quarterly wood and TDF analysis results shall be submitted to the District Supervisor within 30 days following the calendar quarter in which the samples were collected. **(R 336.1201(3))**
2. The permittee shall submit test plans to the AQD no less than 30 days prior to testing. The test plans must be approved by the AQD prior to testing. **(40 CFR 60.7)**
3. The permittee shall submit test results, in acceptable formats, to the AQD no less than 60 days following the last date of testing. **(R 336.2001(4))**
4. Each semiannual report of monitoring and deviations shall include summary information on the number, duration, and cause of excursions and/or exceedances and the corrective actions taken. If there were no excursions and/or exceedances in the reporting period, then this report shall include a statement that there were no excursions and/or exceedances. **(40 CFR 64.9(a)(2)(i))**
5. Each semiannual report of monitoring and deviations shall include a description of the actions taken to implement a QIP during the reporting period. If a QIP has been completed the report shall include documentation that the plan has been implemented and if it has reduced the likelihood of excursions or exceedances. **(40 CFR 64.9(a)(2)(iii))**
6. The permittee shall submit quarterly excess emissions of opacity and monitoring systems performance reports and summary reports. The reports shall contain the information referenced 40 CFR 60.7(c) and (d) and in the format prescribed by Figure 1 of 40 CFR 60.7(d). The reports shall be postmarked no later than 30 days following the end of each calendar quarter. **(40 CFR 60.7(c) and (d), 40 CFR 60.49b(h))**
7. The permittee shall submit quarterly excess emissions of NO_x, CO, SO₂, and O₂ and monitoring system performance reports and summary reports. The reports shall contain the information referenced in 40 CFR 60.7(c) and (d) and in the format prescribed by Figure 1 of 40 CFR 60.7(d). The reports shall be postmarked no later than 30 days following the end of each calendar quarter. **(40 CFR 60.7(c) and (d))**
8. The permittee shall report the results of each annual opacity monitor audit required pursuant to Condition VI.5 within 30 days after the completion of each audit. **(40 CFR 60.7)**
9. The permittee shall submit the results of each CEMS Quality Assurance Procedure required pursuant to Condition VI.8 to the AQD within 30 days following the end of each calendar quarter. **(40 CFR 60.13)**
10. The permittee shall submit all calculations required by Condition VI.11 to the AQD within 30 days following the quarter in which the data was collected. **(40 CFR 52.21(j))**

VIII. STACK/VENT RESTRICTIONS

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Diameter/Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVBOILERSTACK	72	142	40 CFR 52.21(c) and (d)

IX. OTHER REQUIREMENTS

1. Startup is defined as operation during the period from when wood fuel is introduced to the boiler at 20.9% oxygen until the one hour average for oxygen in the boiler reaches 5% oxygen (wet basis) or 6% oxygen (dry basis). **(40 CFR 52.21(j))**
2. Shutdown is defined as operation during the period from when the one hour average for oxygen in the boiler exceeds 5% oxygen (wet basis) or 6% oxygen (dry basis) until all fuel stops entering the boiler and combustion ceases at 20.9% oxygen. **(40 CFR 52.21(j))**
3. Malfunction is defined as any sudden, infrequent and not reasonably preventable failure of a source, process, process equipment, or air pollution control equipment to operate in a normal or usual manner. Failures that are caused in part by poor maintenance or careless operation are not malfunctions. **(R 336.1113(d))**
4. The permittee shall implement a plan, approved by the AQD, that describes how emissions will be minimized during all startups, shutdowns, and malfunctions. The plan shall incorporate procedures recommended by the equipment manufacturer as well as incorporating standard industry practices and the requirements of R 336.1911. **(R 336.1911)**

Footnotes:

¹This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

APPENDICES

Appendix 3. Monitoring Requirements

The following monitoring procedures, methods, or specifications are the details to the monitoring requirements identified and referenced in **EUBOILER**.

FUEL OPERATIONS DESCRIPTION, PROCEDURE, AND WORK PRACTICES

1. Fuel Delivery and Storage

Wood and TDF are delivered to the facility by truck. Each truck is delivered separately. Each truck is weighed at the plant before unloading to obtain the fuel weight. The fuel that is delivered is in "boiler ready" condition: already chipped or in small enough pieces to feed the boiler.

The wood fuel is dumped on a truck dumper. The wood fuel is stored in two piles, one is being built up and the other is being used to fire the boiler. This practice maintains a complete turnover of the wood fuel supply on a continuous basis.

The wood fuel is moved from the truck dump to the wood fuel storage pile that is being built up with a bulldozer that blends and mixes the wood fuel as it is stock piled. The wood fuel is moved from the storage pile that is being fired in the boiler with the bulldozer to the reclaimer.

The TDF is unloaded with self-unloading trailers into a concrete containment bunker and kept separate from the wood fuel. TDF inventory is kept at or below 1,200 tons. TDF is delivered in "chipped" form ready for firing.

2. Fuel Feed System

The reclaimer is a series of drag chains that pulls the wood fuel under a weir gate and dumps it onto a belt conveyor ("reclaimer to screen conveyor"). As the wood fuel is being stock on the reclaimer the wood fuel is also being mixed and blended. This is accomplished because the pile being burned is fed from the opposite direction that it was built.

The TDF feed system starts with a V-shaped bin that holds approximately seven to eight tons of TDF. The bin is loaded by a front-end loader that takes TDF from the concrete containment bunker. The loader operator records the weight of TDF dumped into the bin that is measured by a scale on the loader bucket. The TDF is loaded into the V-shaped bin and the time of day that it was unloaded is recorded.

The V-shaped bin has a variable speed auger that feeds the TDF onto a belt conveyor that dumps onto wood fuel that is already on the reclaimer to screen conveyor. At maximum auger speed, the amount of TDF that can be fed onto the reclaimer to screen conveyor is approximately eight tons per hour. The auger speed is kept at less than maximum to maintain compliance with the permit limits.

If a malfunction occurs with the reclaimer where wood fuel is not being conveyed to the feed system, the process controls automatically shut down the auger feeding TDF. The TDF feed auger will not restart until after the reclaimer is operational and delivering wood fuel to the reclaimer to screen conveyor.

The reclaimer to screen conveyor dumps onto a disc screen that screens out the oversize material and blends the wood fuel and TDF together. The mixed fuel from the disc screen drops onto a belt conveyor (the "screen to distribution" conveyor) that carries the fuel to a distribution conveyor. The distribution conveyor feeds and fills the three boiler fuel feeders. The fuel feeders together contain enough fuel to run the boiler seven to ten minutes.

The fuel feeders are controlled by variable speed augers which dump the mixed fuel into the boiler as needed. The boiler requires approximately 30 tons per hour of fuel for normal load operation.

The main wood fuel feed systems (reclaimer and conveyors) operate at only one speed, to deliver approximately 30 tons per hour to the boiler. If the fuel feeders to the boiler are full, then the fuel is diverted and recycled back into the system at the reclaimer. Therefore, the maximum theoretical fuel mix is eight tons of TDF in 30 tons of total fuel to the boiler. In actuality, this ratio is less since the variable speed TDF auger is not run at maximum.

3. **Monitoring and Control**

A plant operator is on duty at all times 24 hours per day and monitors and controls the auger speed on the TDF hopper via the main computer. If the fuel feeders run low on fuel, there is an alarm to warn the operator.

The weight of the TDF loaded to the V-shaped bin is logged and tracked from shift to shift to make certain it does not exceed permitted limits. The shifts for both the loader operators and the boiler operators run for 12 hours, from seven o'clock to seven o'clock. Daily permit limits on TDF are measure from seven o'clock to seven o'clock the next day. The operators coming on shift received the information on fuel usage from the previous shift.

The SO₂ continuous emissions monitoring system (CEMS) will also be monitored by the boiler operator. There will be CEMS "warning" levels for each averaging time in the permit to indicate when the SO₂ emissions are approaching the permit limit. The operator can then reduce the auger speed on the TDF feed to reduce the amount of TDF fired to ensure compliance with the permit limit. The use of the CEMS serves as method to ensure a correct TDF to wood ratio by ensuring compliance with the SO₂ limits.

Appendix 9. Carbon Monoxide Variable Emission Limit

The following table and graph shall be used to determine the CO limit based upon the steam flow in 1,000 pounds per hour.

Steam flow (1,000 #/hr)	ppm Dry @ 7% O ₂
180	406
175	418
169	435
162	452
156	470
149	491
143	514
136	538
130	565
123	595
117	628
110	665
104	706
97	754
91	805
84	870
78	942
71	1,025
65	1,130
58	1,255
52	1,410
45	1,615
39	1,885
32	2,260

