

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

May 11, 2011

PERMIT TO INSTALL
102-10

ISSUED TO
Menominee Biomass Energy, LLC

LOCATED AT
701 Fourth Avenue
Menominee, Michigan

IN THE COUNTY OF
Menominee

STATE REGISTRATION NUMBER
P0106

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:

November 19, 2011

DATE PERMIT TO INSTALL APPROVED:

May 11, 2011

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
ANSI	American National Standards Institute	°C	Degrees Celsius
BACT	Best Available Control Technology	CO	Carbon Monoxide
CAA	Clean Air Act	dscf	Dry standard cubic foot
CEM	Continuous Emission Monitoring	dscm	Dry standard cubic meter
CFR	Code of Federal Regulations	°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
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	Malfunction Abatement Plan	NO _x	Oxides of Nitrogen
MDEQ	Michigan Department of Environmental Quality	PM	Particulate Matter
MIOSHA	Michigan Occupational Safety & Health Administration	PM10	PM less than 10 microns diameter
MSDS	Material Safety Data Sheet	FG-FACILITY	PM less than 2.5 microns diameter
NESHAP	National Emission Standard for Hazardous Air Pollutants	pph	Pound per hour
NSPS	New Source Performance Standards	ppm	Parts per million
NSR	New Source Review	ppmv	Parts per million by volume
PS	Performance Specification	ppmw	Parts per million by weight
PSD	Prevention of Significant Deterioration	psia	Pounds per square inch absolute
PTE	Permanent Total Enclosure	psig	Pounds per square inch gauge
PTI	Permit to Install	scf	Standard cubic feet
RACT	Reasonably Available Control Technology	sec	Seconds
ROP	Renewable Operating Permit	SO ₂	Sulfur Dioxide
SC	Special Condition	THC	Total Hydrocarbons
SCR	Selective Catalytic Reduction	tpy	Tons per year
SRN	State Registration Number	µg	Microgram
TAC	Toxic Air Contaminant	VOC	Volatile Organic Compounds
TEQ	Toxicity Equivalence Quotient	yr	Year
VE	Visible Emissions		

* 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, 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)	Flexible Group ID
EU-BOILER	One bubbling fluidized bed boiler with a maximum heat input rating of 493 million British Thermal Units per hour (MMBtu/hour) firing biomass with natural gas or biodiesel as a startup fuel. Associated air pollution control equipment includes a fabric filter (baghouse) for particulate control, a dry injection system for acid gas control, and either a selective non-catalytic reduction (SNCR) or a selective catalytic reduction (SCR) system for control of nitrogen oxides.	FG-FACILITY
EU-FUELHANDLING	Fuel handling operations include; two truck dumper/reclaimers; a fuel processing enclosure which includes a primary disc screen, a hogger, and a fabric filter bin vent; a fuel storage pile; a secondary disc screen; a secondary fuel silo with fabric filter control; and a stacker/reclaimer.	FG-FACILITY
EU-ASHHANDLING	Ash handling equipment and storage	FG-FACILITY
EU-COOLINGTOWER	A two cell cooling tower with high-efficiency drift eliminators	FG-FACILITY
EU-GENERATOR	Diesel fired emergency generator. The generator has an electrical rating of approximately 350 kilowatts and utilizes low sulfur diesel fuel.	FG-ENGINES FG-FACILITY
EU-FIREPUMP	Diesel-fired fire pump. The fire pump engine has a maximum horsepower rating of 288 brake horsepower and utilizes ultra low sulfur diesel fuel.	FG-ENGINES FG-FACILITY
EU-SANDSILO	Silo to store sand for replenishing the fluidized bed.	FG-FACILITY
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: EU-BOILER

DESCRIPTION: One bubbling fluidized bed boiler with a maximum heat input firing rating of 493 million British Thermal Units per hour (MMBtu/hour) firing biomass with natural gas or biodiesel as a startup fuel.

Flexible Group ID: FG-FACILITY

POLLUTION CONTROL EQUIPMENT:

1. SNCR or SCR
2. Baghouse collector
3. Dry injection system for acid gas control.

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. Opacity	10%	Six-minute average except for one six-minute average per hour of not more than 20% opacity	EU-BOILER	SC VI.1	R 336.1301(1)(c), 40 CFR 60.43b(f)
2. PM	0.02 lb/MMBTU heat input	Test protocol*	EU-BOILER	SC V.1, V.3	R 336.1331, 40 CFR 60.43b(h)(1)
3. PM10	0.025 lb/MMBTU heat input	Test protocol**	EU-BOILER	SC V.2, V.3	R 336.1205(1)(a) and (1)(b)
4. PM10	12.33 lb/hr	Test protocol*	EU-BOILER	SC V.2, V.3	R 336.2803, R 336.2804, 40 CFR 52.21(c),(d)
5. PM-2.5	0.025 lb/MMBTU heat input	Test protocol*	EU-BOILER	SC V.2, V.3	R 336.2804, 40 CFR 52.21(d)
6. PM-2.5	12.33 lb/hr	Test protocol*	EU-BOILER	SC V.2, V.3	R 336.1205(1)(a) and (1)(b)
7. NO _x	0.12 lb/MMBTU heat input	30-day rolling average, determined each day EU-BOILER operates	EU-BOILER	SC VI.2	R336.1205(3)
8. NO _x	59.16 lb/hr	30-day rolling average, as determined each day EU-BOILER operates	EU-BOILER	SC VI.2	R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d), 40 CFR 60.44(b)
9. NO _x	245 tons/year	12 month rolling time period as determined at the end of each calendar month	EU-BOILER	SC VI.2 SC VI.8	R336.1205(3)
10. CO	0.12 lb/MMBTU heat input	30-day rolling average, as determined each day EU-BOILER operates	EU-BOILER	SC VI.2	R336.1205(1)(a)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
11. CO	59.16 lb/hr	30-day rolling average, as determined each day EU-BOILER operates	EU-BOILER	SC VI.2	R 336.2804, 40 CFR 52.21(d)
12. CO	245 tons/year	12 month rolling time period as determined at the end of each calendar month	EU-BOILER	SC VI.2 SC VI.8	R336.1205(3)
13. SO ₂	0.081 lb/MMBTU heat input	Test protocol*	EU-BOILER	SC V.2, V.3	R336.1205(3)
14. SO ₂	39.93 lb/hr	Test protocol*	EU-BOILER	SC V.2, V.3	R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d)
15. VOC	0.017 lb/MMBTU heat input	Test protocol*	EU-BOILER	SC V.2, V.3	R 336.1702(a),
16. VOC	8.38 lb/hr	Test protocol*	EU-BOILER	SC V.2, V.3	R 336.1702(a), R 336.2810,
17. HCl	2.2 lb/hr	Test protocol*	EU-BOILER	SC V.2	R 336.1224 R 336.1225

* Test protocol will specify the averaging time.

II. MATERIAL LIMITS

Material	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. Natural gas and biodiesel fuel combined	10% of annual capacity*	12 month rolling average as determined at the end of each calendar month	EU-BOILER	SC VI.4	40 CFR 60.44b(d)
2. Maximum sulfur content of biodiesel fuel burned	15 ppmw	Each shipment	EU-BOILER	SC VI.3	R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d)

III. PROCESS/OPERATIONAL RESTRICTIONS

- The permittee shall burn only virgin or high quality wood fuel in the Wood Fuel Procurement and Monitoring Plan (WFPMP), natural gas and biodiesel fuel, and mill residuals in EU-BOILER. The WFPMP shall be submitted to the Air Quality Division at least 90 days prior to trial operation of EU-BOILER and shall have the written approval of the Air Quality Division before it is implemented. The WFPMP shall:
 - include provisions to prevent the burning of chemically treated wood, demolition wood waste, and other inappropriate materials.
 - provide a description of wood fuel to be burned.
 - minimize potential odors from the storage of wood fuel

The permittee shall amend the WFPMP within 45 days if any changes are deemed necessary or upon request from the District Supervisor. The permittee shall submit the WFPMP and any amendments to the AQD District Supervisor for review and approval. (R 336.1224, R 336.1702, R 336.2810, 40 CFR 52.21(j))

2. The permittee shall comply with all provisions of the federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60 Subparts A and Db, as they apply to EU-BOILER. **(40 CFR Part 60 Subparts A & Db)**
3. The permittee shall not operate EU-BOILER unless an acceptable plan that describes how emissions will be minimized during all startups, shutdowns and malfunctions has been submitted to and approved by the AQD District Supervisor. The plan shall incorporate procedures recommended by the equipment manufacturer as well as incorporating standard industry practices, and shall describe at what operating conditions wood fuel is introduced to the boiler during startup and at what operating conditions wood fuel feed is stopped during shutdown. **(R 336.1911, R 336.1912)**
4. The permittee shall submit a malfunction abatement plan (MAP) for EU-BOILER to the AQD District Supervisor. The interim MAP and any future amended MAP shall be subject to review and approval, as provided in Rule 911. The permittee shall not operate EU-BOILER unless the MAP, amended as necessary according to the procedures of Rule 911, is implemented and maintained. The MAP shall include procedures for maintaining and operating equipment in a satisfactory manner, including during malfunction events, and a program for corrective action for such events. If at any time the MAP fails to address or inadequately addresses an event that meets the characteristics of a malfunction, the permittee shall amend the MAP within 45 days after such an event occurs. The permittee shall also amend the MAP within 45 days if new equipment is installed or upon request from the District Supervisor. The permittee shall submit the MAP and any amendments to the MAP to the AQD District Supervisor for review and approval.
 - a. The permittee shall submit an interim MAP to the AQD District Supervisor before beginning operation of EU-BOILER.
 - b. No later than 270 days after commencing operation of EU-BOILER, the permittee shall amend the MAP, based on equipment operating history and the results of the emission testing, and submit the amended MAP to the AQD District Supervisor.**(R 336.1911)**

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall not operate EU-BOILER unless the fabric filter collector, SNCR or SCR for NO_x control, and the dry injection for acid gas control are installed, maintained, and operated in a satisfactory manner. Satisfactory operation of the fabric filter collector, SNCR or SCR, and dry injection acid gas control includes maintaining all operational parameters within the ranges identified in the approved MAP as required in SC III.V. **(R 336.1224, R 336.1301(1), R 336.1331(1), R 336.1910)**
2. The maximum design heat input capacity of all natural gas and distillate oil/biodiesel fuel burners in EU-BOILER shall not exceed a maximum of 220 MMBTU per hour. **(40 CFR 60.40Da(a)(1))**
3. The permittee shall equip and maintain EU-BOILER with devices to monitor the operational parameters identified in the approved MAP as being used to determine whether the SCR or SNCR system, sorbent injection system, and the fabric filter collector are operating in a satisfactory manner. **(R 336.1910)**

V. TESTING/SAMPLING

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

1. Within 60 days after achieving the maximum production rate, but not later than 180 days after initial startup, the permittee shall verify PM emission rates from EU-BOILER, as required by federal Standards of Performance for New Stationary Sources, by testing at owner's expense, in accordance with 40 CFR Part 60 Subparts A and Db. The permittee shall notify the AQD District Supervisor in writing within 15 days of the date of commencement of trial operation in accordance with 40 CFR 60.7(a)(3). Stack testing procedures and the location of stack testing ports shall be in accordance with the applicable federal Reference Methods, 40 CFR Part 60 Appendix A. No less than 30 days prior to testing, the permittee shall

submit a complete test plan to the AQD. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD within 60 days following the last date of the test. **(R 336.1331(1), R 336.2001, R 336.2003, R 336.2004, 40 CFR 60.46b(b))**

2. Within 180 days after commencement of trial operation, the permittee shall verify PM₁₀, PM_{2.5}, SO₂, HCl and VOC emission rates from EU-BOILER by testing at owner's expense, in accordance with Department requirements. No less than 30 days prior to testing, the permittee shall submit a complete test plan to the AQD. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD within 60 days following the last date of the test. **(R 336.1702(a); R 336.2001; R 336.2003; R 336.2004)**
3. No later than five years after completing the last of the stack tests required by SC V.1 and V.2, and every five years thereafter, the permittee shall verify PM, PM₁₀, PM_{2.5}, SO₂, HCl and VOC emission rates from EU-BOILER by testing at owner's expense, in accordance with Department requirements. No less than 30 days prior to testing, the permittee shall submit a complete test plan to the AQD. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD within 60 days following the last date of the test. **(R 336.1331(1); R 336.1702(a); R 336.2001; R 336.2003; R 336.2004)**

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 in a satisfactory manner, a device to monitor and record the visible emissions from EU-BOILER on a continuous basis. The permittee shall operate the continuous opacity monitoring system (COMS) to meet the timelines, requirements and reporting detailed in Appendix A and shall use the COMS data for determining compliance with SC I.1. **(R 336.1301(1), 40 CFR 60.48b(a))**
2. The permittee shall continuously monitor and record, in a satisfactory manner, the emissions of NO_x, CO, and either oxygen or carbon dioxide, and also the exhaust flow, from EU-BOILER. The permittee shall operate each Continuous Emission Rate Monitoring System (CERMS) to meet the timelines, requirements and reporting detailed in Appendix B and shall use the CERMS data for determining compliance with SC I.5, I.6, I.7, and I.8. **(R 336.1205, R 336.2803, R 336.2804, 52.21(c) and (d))**
3. The permittee shall keep records of the sulfur content, in parts per million by weight, of the distillate oil and biodiesel fuel used in EU-BOILER. The permittee shall keep a separate record of the sulfur content for each shipment of such fuel received. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1205, R 336.1401, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**
4. The permittee shall keep, in a satisfactory manner, records of the amount of each fuel (biomass, natural gas, biodiesel, mill waste) combusted during each day and calculate the annual capacity factor individually for each fuel type and for natural gas and oil fuel combined, as required by SC II.1 and 40 CFR 60.49b(d). The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(40 CFR 60.49b(d))**
5. The permittee shall keep, in a satisfactory manner, records of the occurrence and duration of each start-up, shutdown, or malfunction of EU-BOILER, any malfunction of the air pollution control equipment, and any periods during which a continuous monitoring system or monitoring device is inoperative. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.2810, 40 CFR 60.7)**
6. The permittee shall maintain all monitoring and recordkeeping requirements outlined in the approved WFPMP. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1224, R 336.1702)**

7. The permittee shall monitor, in a satisfactory manner, the process variables described in EU-BOILER SC IV.6. The permittee shall monitor the process variables at the respective frequencies described in the approved MAP. **(R 336.1910)**
8. The permittee shall keep, in a manner acceptable to the AQD District Supervisor, monthly and 12-month rolling time period emission calculation records for CO and NO_x, from EU-BOILER. The permittee shall keep all records on file and make them available to the Department upon request. **(R 336.1205(3))**

VII. REPORTING

1. The permittee shall submit all quarterly "Excess Emissions and Monitoring Systems Performance Report" and "Summary Report" records for EU-BOILER, as required by Appendix B and Appendix C, to the AQD District Supervisor in an acceptable format within 30 days following the end of the calendar quarter in which the records were collected. **(40 CFR Part 60 Subparts A & Db)**
2. Within 30 days after completion of the installation, construction, reconstruction, relocation, or modification authorized by this Permit to Install, the permittee or the authorized agent pursuant to Rule 204, shall notify the AQD District Supervisor, in writing, of the completion of the activity. Completion of the installation, construction, reconstruction, relocation, or modification is considered to occur not later than commencement of trial operation of EU-BOILER. **(R 336.1201(7)(a))**
3. The permittee shall provide written notification of construction and operation to comply with the federal Standards of Performance for New Stationary Sources, 40 CFR 60.7. The permittee shall submit this notification to the AQD District Supervisor within the time frames specified in 40 CFR 60.7. **(40 CFR 60.7)**

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. SV-BOILER	102	182	R 336.1225, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d)

IX. OTHER REQUIREMENTS

1. The permittee shall comply with all of the applicable requirements contained in the Clean Air Interstate Rule, as it applies to EU-BOILER. **(40 CFR Part 97)**
2. The permittee shall comply with all of the applicable requirements contained in the federal Acid Rain Program, as it applies to EU-BOILER. **(40 CFR Parts 72-76)**

Footnotes:

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

The following conditions apply to: EU-COOLTOWER

DESCRIPTION: Mechanical draft cooling tower.

Flexible Group ID: FG-FACILITY

POLLUTION CONTROL EQUIPMENT: High efficiency drift eliminators with a vendor-certified maximum drift rate of 0.001 percent or less.

I. EMISSION LIMITS

NA

II. MATERIAL LIMITS

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

NA

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall equip and maintain the cooling tower with drift eliminators with a vendor-certified maximum drift rate of 0.001 percent or less. **(R336.1205(3))**

V. TESTING/SAMPLING

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

NA

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall keep a record, for the life of EU-COOLTOWER, of the vendor's certification required in SC IV.1. **(R 336.2810)**

VII. REPORTING

NA

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. SV-COOLTOWERA	384	45	R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d)
2. SV-COOLTOWERB	384	45	R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d)

IX. OTHER REQUIREMENTS

NA

Footnotes:

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

FLEXIBLE GROUP SUMMARY TABLE

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

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FG-ENGINES	All compression ignition internal combustion engines subject to 40 CFR Part 60, Subpart IIII.	EU-GENENGINE, EU-FIREPUMPENG
FG-MTRLHANDLING	All material handling operations at the facility	EU-FUELHANDLING, EU-ASHHALDNLING, EU-SANDSILO
FG-FACILITY	All process equipment source-wide including equipment covered by other permits, grandfathered equipment and exempt equipment.	EU-BOILER, EU-FUELHANDLING, EU-FUELSTORAGE, EU-FUELTRANSFER EU-FUELFEED EU-ASHHANDLING, EU-COOLTOWER, EU-GENENGINE, EU-FIREPUMPENG, EU-SANDSILO

The following conditions apply to: FG-ENGINES

DESCRIPTION: All compression ignition internal combustion engines subject to 40 CFR Part 60, Subpart IIII.

Emission Units: EU-GENENGINE, EU-FIREPUMPENG

POLLUTION CONTROL EQUIPMENT: NA

I. EMISSION LIMITS

1. The emergency generator and fire pump shall meet the emission limits specified under 40 CFR 60, Subpart IIII (Standards of Performance for Stationary Compression ignition Internal Combustion Engines) as certified by the manufacturer applicable at the time of purchase. (40 CFR 60.4205. 40 CFR 63.6590(c)).

II. MATERIAL LIMITS

1. When burning diesel fuel in any engine in FG-ENGINES, unless exempted under 40 CFR 60.4207(c) or (e) the permittee shall burn only fuel that meets the requirements of 40 CFR 80.510(b) for non-road diesel fuel. **(40 CFR 60.4207(b))**
2. The permittee shall burn only fuel with a maximum sulfur content of 15 ppmw in FG-ENGINES. **(40 CFR 60.4207)**

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall comply with all provisions of the federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60 Subparts A and IIII, as they apply to each engine in FG-Engines. **(40 CFR Part 60 Subparts A & IIII)**
2. The permittee shall operate each engine in FG-Engines in accordance with its manufacturer's written instructions or by operating procedures developed by the permittee that are approved by the manufacturer. **(40 CFR 60.4211)**
3. The permittee shall not change or revise the operating instructions, procedures or settings for any engine in FG-Engines unless permitted by the manufacturer in writing. **(40 CFR 60.4211)**
4. For each engine in FG-Engines, the permittee shall not operate the engine for maintenance checks and readiness testing for more than 100 hours per 12-month rolling time period as determined at the end of each calendar month, except as allowed by 40 CFR 60.4211(e). **(40 CFR 60.4211(e))**
5. For each engine in FG-Engines, the permittee shall not operate the engine for any purpose for more than 500 hours per 12-month rolling time period as determined at the end of each calendar month. **(R 336.1205(1)(a) & (3), R 336.1225, R 336.1702(b), R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**

IV. DESIGN/EQUIPMENT PARAMETERS

1. Each engine in FG-Engines shall be certified to meet the applicable emission standard of 40 CFR 60.4205. The permittee shall install and configure each engine according to the manufacturer's specifications. **(40 CFR 60.4211(c))**
2. The permittee shall equip and maintain each engine in FG-Engines with a non-resettable hour meter before startup of the engine. **(40 CFR 60.4209(a))**

V. TESTING/SAMPLING

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

NA

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall monitor in a satisfactory manner the hours of operation for each engine in FG-Engines on a monthly basis. **(R 336.1225)**
2. The permittee shall keep, in a satisfactory manner, a written log of the monthly hours of operation of each engine in FG-Engines. Each log entry shall state the reason for operation. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(40 CFR 60.4214(b))**
3. The permittee shall keep records of the sulfur content, in parts per million by weight, of the diesel fuel used in each engine in FG-Engines. The permittee shall keep a separate record of the sulfur content for each shipment of diesel fuel received. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(40 CFR 60.4214)**
4. The permittee shall keep, in a satisfactory manner, a record of the engine specifications for each engine in FG-Engines on file at the facility and make the records available to the Department upon request. Each record shall show the maximum fuel consumption rate for the engine, in gallons per hour. The permittee shall keep the record for each engine on file for the life of the engine. **(40 CFR 60.4214)**
5. The permittee shall keep, in a satisfactory manner, a record of the manufacturer's written operating instructions and of any approvals of permittee-developed operating procedures. The permittee shall keep these records on file at the facility and make them available to the Department upon request. The permittee shall keep the record of the manufacturer's operating instructions on file for the life of the engine and shall keep the record of manufacturer approval of permittee-developed operating procedures on file for at least five years after such procedures change. **(40 CFR 40.4214)**

VII. REPORTING

1. Prior to initial operation of EU-GENENGINE and EU-FIREPUMPENG, the permittee shall provide written notification to the Air Quality Division of the specific manufacturer, model, horsepower rating, manufacture date, and volumetric displacement of engines purchased. The notification shall also include the specific New Source Performance Standard which applies to each engine, as well as the manufacturers guaranteed emission performance for each engine. **(40 CFR 60.4214)**

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:

NA

IX. OTHER REQUIREMENTS

NA

Footnotes:

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

The following conditions apply to: FG-MTRLHANDLING

DESCRIPTION: All material handling operations at the facility

Emission Units: EU-FUELHANDLING, EU-ASHHANDLING, and EU-SANDSILO

POLLUTION CONTROL EQUIPMENT:

1. Enclosed conveyor systems
2. Fabric filter/bin vent filter for each vent
3. Wetting system to wet collected ash before transfer to trucks
4. Partial enclosure for the truck loading area for ash

I. EMISSION LIMITS

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. PM	0.005 gr/dscf	Test Protocol	Each vent* in FG-MTRLHANDLING	SC VI.1	R 336.1331(1), R 336.2810,
2. Opacity	5% opacity	Six-minute average	Each vent* in FG-MTRLHANDLING	SC VI.1	R 336.1301(1), R 336.2810,
3. Opacity	5% opacity	Six-minute average	Fuel storage piles in FG-MTRLHANDLING	SC VI.2	R 336.1301(1), R 336.2810,
* The vents in FG-MATRLHANDLING are SV-FUELPROCESS, SV-SECFUEL, SV-ASHSILO, and SV-SANDSILO.					

II. MATERIAL LIMITS

Material	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

III. PROCESS/OPERATIONAL RESTRICTIONS

NA

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall not operate EU-MTRLHANDLING unless all conveyors are equipped with enclosures which are installed, operated, and maintained properly. **(R 336.1910)**
2. The permittee shall not operate EU-MTRLHANDLING unless the conveyor enclosures and the fuel processing building fabric filter are installed, maintained, and operated in a satisfactory manner. **(R 336.1910)**
3. The permittee shall not operate EU-SANDSILO unless the conveyor enclosures and the fabric filter collector are installed, maintained, and operated in a satisfactory manner. **(R 336.1910)**

V. TESTING/SAMPLING

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

NA

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall monitor the fabric filters and bin vent filters in FG-MTRLHANDLING to verify they are operating properly by performing non-certified visible emissions observations a minimum of once per calendar day while the equipment is operating. If any visible emissions are observed, the permittee shall immediately inspect the collector involved and perform any required maintenance. **(R 336.1910)**
2. The permittee shall monitor the fuel storage piles to ensure the effectiveness of fugitive dust control activities by performing non-certified visible emissions observations for the fuel storage piles a minimum of once per calendar day. If visible emissions are observed, the permittee shall immediately take measures to reduce visible emissions from the fuel storage piles. **(R336.1901)**
3. The permittee shall keep, in a satisfactory manner, records of all visible emissions observations for FG-MTRLHANDLING. At a minimum, records shall include the date, time, name of observer, and whether visible emissions were observed. For any day that all visible emissions observations listed in SC VI.1 and VI.2 were not performed, the permittee shall record the reason. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1910)**
4. The permittee shall keep, in a satisfactory manner, records of all actions taken in response to visible emission observations for FG-MTRLHANDLING: collector inspections, collector maintenance, fugitive emissions control activities, and any other actions. At a minimum the records shall include the date and time of the visible emissions observation triggering such action; the results of the collector inspection, if applicable; the collector maintenance performed, if applicable; and the measures taken to reduce visible emissions from the fuel storage piles, if applicable. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1910)**

VII. REPORTING

NA

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. SV-FUELPROCESS	6	52	R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d)
2. SV-ASHSILO (2 stacks)	6	142	R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d)

IX. OTHER REQUIREMENTS

NA

Footnotes:

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

The following conditions apply Source-Wide to: FG-FACILITY

POLLUTION CONTROL EQUIPMENT: As described for specific emission units

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. Total HAPs	24.9 tons per year*	12 month rolling time period	FG-FACILITY	GC 13, SC VI.1	R 336.1205(3)
2. Each Individual HAP	9.9 tons per year*	12 month rolling time period	FG-FACILITY	GC 13, SC VI.1	R 336.1205(3)
* Beginning on the date of commencement of trial operations of EUBoiler, and continuing for the first 12 calendar months, this limit applies to the cumulative total HAP emissions. Thereafter, the limit shall become a 12-month rolling limit.					

II. MATERIAL LIMITS

Material	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

III. PROCESS/OPERATIONAL RESTRICTIONS

- The permittee shall not operate FG-FACILITY unless the approved program for continuous fugitive emissions control for all plant roadways, the plant yard, all material storage piles, and all material handling operations has been submitted to the AQD for approval, has received the written approval of the AQD, is implemented and is maintained. The fugitive dust control program shall be submitted to the Air Quality Division at least 90 days prior to initial operation of the facility. **(R 336.2810)**

IV. DESIGN/EQUIPMENT PARAMETERS

NA

V. TESTING/SAMPLING

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

- Within 180 days after commencement of trial operation, the permittee shall confirm HAP emission rates from EU-BOILER by testing at owner's expense, in accordance with Department requirements. The compounds to be tested are acrolein, formaldehyde, benzene, acetaldehyde and chlorine (HCl testing is required separately under EUBoiler SC V.2). If the results of the HAP testing indicate total HAP emissions, including HCl, of greater than 5.0 lb/hr, then the permittee shall repeat the test annually for the next two years, for a total of three tests. If the results of the HAP testing indicate total HAP emissions, including HCl, are less than 5.0 lb/hr, no further stack testing will be required for non-HCl HAPs. No less than 30 days prior to testing, the permittee shall submit a complete test plan to the AQD. The AQD must approve the final test plan prior to testing. Determination of emission rates shall include a complete report of the test results to the AQD within 60 days following the date of the test. (R336.205(1), R336.1224, R336.1225, R336.2001, R336.2003, R336.2004).

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall keep the following information on a monthly basis for FG-FACILITY:
 - a) Individual and aggregate HAP emission calculations determining the annual emission rate of each in tons per 12-month rolling time period as determined at the end of each calendar month. The calculations shall be based on actual operations from EUBOILER, EUGENENGINE, and EUFIREPUMP. For the first month following permit issuance, the calculations shall include the summation of emissions from the 11-month period immediately preceding the issuance date. For each month thereafter, calculations shall include the summation of emissions for the appropriate number of months prior to permit issuance plus the months following permit issuance for a total of 12 consecutive months.

The permittee shall keep the records in a format acceptable to the AQD District Supervisor. The permittee shall keep all records on file and make them available to the Department upon request. **(R 336.1205(3))**

VII. REPORTING

NA

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
NA	NA	NA	NA

IX. OTHER REQUIREMENTS

NA

Footnotes:

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

APPENDIX A
Continuous Opacity Monitoring System (COMS) Requirements

1. Within 30 calendar days after initial startup of EU-BOILER, the permittee shall submit two copies of a Monitoring Plan to the AQD for review and approval. The Monitoring Plan shall include drawings or specifications showing proposed locations and descriptions of the required COMS.
2. Within 150 calendar days after initial startup of EU-BOILER, the permittee shall submit two copies of a complete test plan for the COMS to the AQD for approval.
3. Within 180 calendar days after initial startup of EU-BOILER, the permittee shall complete the installation and testing of the COMS.
4. Within 60 days of completion of testing, the permittee shall submit to the AQD two copies of the final report demonstrating the COMS complies with the requirements of Performance Specification (PS) 1.
5. The span value shall be 2.0 times the lowest emission standard or as specified in the federal regulations.
6. The COMS shall be installed, calibrated, maintained, and operated in accordance with the procedures set forth in 40 CFR 60.13 and PS 1 of Appendix B, 40 CFR Part 60.
7. Until such time as the US EPA promulgates quality assurance requirements for COMS under Appendix F to 40 CFR Part 60, the permittee shall perform an annual audit of the COMS using the procedures set forth in USEPA Publication 450/4-92-010, "Performance Audits Procedures for Opacity Monitors", or a procedure acceptable to AQD. The results of the annual audit shall be submitted to the AQD within the quarterly EER for the quarter in which the annual audit is conducted. Upon promulgation of COMS quality assurance requirements under Appendix F of Part 60, the permittee shall follow such procedures.
8. In accordance with 40 CFR 60.7(c) and (d), the permittee shall submit two copies of an excess emission report (EER) and summary report in an acceptable format to the Air Quality Division within 30 days following the end of each calendar quarter. The Summary Report shall follow the format of Figure 1 in 40 CFR 60.7(d). The EER shall include the following information:
 - a) A report of each exceedance above the limits specified in the conditions of this permit. This includes the date, time, magnitude, cause and corrective actions of all occurrences during the reporting period.
 - b) A report of all periods of COMS downtime and corrective action.
 - c) A report of the total operating time of EU-BOILER during the reporting period.
 - d) If no exceedances or COMS downtime occurred during the reporting period, the permittee shall report that fact.

The permittee shall keep all monitoring data on file for a period of at least five years and make them available to the AQD upon request.

APPENDIX B
NO_x, CO, and Either Oxygen or Carbon Dioxide Monitoring
Continuous Emission Rate Monitoring System (CERMS) Requirements

1. Within 30 calendar days after initial startup of EU-BOILER, the permittee shall submit two copies of a Monitoring Plan to the AQD for review and approval. The Monitoring Plan shall include drawings or specifications showing proposed locations and descriptions of the required CERMS.
2. Within 150 calendar days after initial startup of EU-BOILER, the permittee shall submit two copies of a complete test plan for the CERMS to the AQD for approval.
3. Within 180 calendar days after initial startup of EU-BOILER, the permittee shall complete the installation and testing of the CERMS.
4. Within 60 days of completion of testing, the permittee shall submit to the AQD two copies of the final report demonstrating the CERMS complies with the requirements of the corresponding Performance Specifications (PS) in the following table.

Pollutant	Applicable PS
NO _x	2
CO	4
Oxygen or Carbon Dioxide	3
CERMS	6

5. The span value shall be 2.0 times the lowest emission standard or as specified in the federal regulations.
6. The CERMS shall be installed, calibrated, maintained, and operated in accordance with the procedures set forth in 40 CFR 60.13 and PS 2, 3, 4, and 6 of Appendix B to 40 CFR Part 60.
7. Each calendar quarter, the permittee shall perform the Quality Assurance Procedures of the CERMS set forth in Appendix F of 40 CFR Part 60. Within 30 days following the end of each calendar quarter, the permittee shall submit the results to the AQD in the format of the data assessment report (Figure 1, Appendix F).
8. In accordance with 40 CFR 60.7(c) and (d), the permittee shall submit two copies of an excess emission report (EER) and summary report in an acceptable format to the AQD within 30 days following the end of each calendar quarter. The Summary Report shall follow the format of Figure 1 in 40 CFR 60.7(d). The EER shall include the following information:
 - a) A report of each exceedance above the limits specified in the conditions of this permit. This includes the date, time, magnitude, cause and corrective actions of all occurrences during the reporting period.
 - b) A report of all periods of CERMS downtime and corrective action.
 - c) A report of the total operating time of EU-BOILER during the reporting period.
 - d) A report of any periods that the CERMS exceeds the instrument range.
 - e) If no exceedances or CERMS downtime occurred during the reporting period, the permittee shall report that fact.

The permittee shall keep all monitoring data on file for a period of at least five years and make them available to the AQD upon request.