

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

December 21, 2011

**PERMIT TO INSTALL  
24-11B**

**ISSUED TO**  
Midland Power Station, LLC

**LOCATED AT**  
Waldo Avenue  
Midland, Michigan

**IN THE COUNTY OF**  
Midland

**STATE REGISTRATION NUMBER**  
A4043

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:

**October 31, 2011**

DATE PERMIT TO INSTALL APPROVED:

**December 21, 2011**

SIGNATURE:

DATE PERMIT VOIDED:

SIGNATURE:

DATE PERMIT REVOKED:

SIGNATURE:

## PERMIT TO INSTALL

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**Common Abbreviations / Acronyms**

<b>Common Acronyms</b>		<b>Pollutant/Measurement Abbreviations</b>	
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 <sub>2</sub> 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 <sub>x</sub>	Oxides of nitrogen
MDEQ	Michigan Department of Environmental Quality (Department)	PM	Particulate matter
MIOSHA	Michigan Occupational Safety & Health Administration	PM10	PM less than or equal to 10 microns aerodynamic diameter
MSDS	Material Safety Data Sheet	PM2.5	PM less than or equal to 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 <sub>2</sub>	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	CO <sub>2</sub> e	

\* 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
EU-BIOSYS1	<p>Continuous rotary gasifier system for combined heat and power generation. Capable of accepting a wide range of clean, woody or agricultural based biomass feedstocks, with chipped/ground wood as its primary feedstock. Natural gas firing as needed.</p> <p>System components include:</p> <ul style="list-style-type: none"> <li>• biomass feedstock supply surge bin</li> <li>• rotary gasifier, rated at 225 MMBtu/hr total heat input to produce synthesis gas for oxidation in the associated thermal oxidizer. Start-up with 5 MMBtu/hr natural gas</li> <li>• low NOx thermal oxidizer with flue gas recirculation, for the generation of 1800-2000°F exhaust gases. Start-up with 20 MMBtu/hr natural gas</li> <li>• Heat recovery steam generator (HRSG) and economizer downstream of the thermal oxidizer. The heat recovery steam generator is equipped with a 175 MMBtu/hr natural gas duct burner which will be used to generate steam when the biomass gasifier and thermal oxidizer are not operating.</li> <li>• Ash will be removed from the gasifier at two bottom discharge ash hoods to a totally enclosed conveyance system and from the gas stream using a cyclone which will also discharge to the enclosed conveyance system.</li> <li>• Add-on emission control—wet electrostatic precipitator (WESP); selective catalytic reduction (SCR).</li> </ul>	2011	FGFACILITY

Emission Unit ID	Emission Unit Description (Process Equipment & Control Devices)	Installation Date / Modification Date	Flexible Group ID
EU-BIOSYS2	<p>Continuous rotary gasifier system for combined heat and power generation. Capable of accepting a wide range of clean, woody or agricultural based biomass feedstocks, with chipped/ground wood as its primary feedstock. Natural gas firing as needed.</p> <p>System components include:</p> <ul style="list-style-type: none"> <li>• biomass feedstock supply surge bin</li> <li>• rotary gasifier, rated at 225 MMBtu/hr total heat input to produce synthesis gas for oxidation in the associated thermal oxidizer. Start-up with 5 MMBtu/hr natural gas</li> <li>• low NOx thermal oxidizer with flue gas recirculation, for the generation of 1800-2000°F exhaust gases. Start-up with 20 MMBtu/hr natural gas</li> <li>• Heat recovery steam generator (HRSG) and economizer downstream of the thermal oxidizer. The heat recovery steam generator is equipped with a 175 MMBtu/hr natural gas duct burner which will be used to generate steam when the biomass gasifier and thermal oxidizer are not operating.</li> <li>• Ash will be removed from the gasifier at two bottom discharge ash hoods to a totally enclosed conveyance system and from the gas stream using a cyclone which will also discharge to the enclosed conveyance system.</li> <li>• Add-on emission control—wet electrostatic precipitator (WESP); selective catalytic reduction (SCR).</li> </ul>	2011	FGFACILITY

Emission Unit ID	Emission Unit Description (Process Equipment & Control Devices)	Installation Date / Modification Date	Flexible Group ID
EU-BIOSYS3	<p>Continuous rotary gasifier system for combined heat and power generation. Capable of accepting a wide range of clean, woody or agricultural based biomass feedstocks, with chipped/ground wood as its primary feedstock. Natural gas firing as needed.</p> <p>System components include:</p> <ul style="list-style-type: none"> <li>• biomass feedstock supply surge bin</li> <li>• rotary gasifier, rated at 225 MMBtu/hr total heat input to produce synthesis gas for oxidation in the associated thermal oxidizer. Start-up with 5 MMBtu/hr natural gas</li> <li>• low NOx thermal oxidizer with flue gas recirculation, for the generation of 1800-2000°F exhaust gases. Start-up with 20 MMBtu/hr natural gas</li> <li>• Heat recovery steam generator (HRSG) and economizer downstream of the thermal oxidizer. The heat recovery steam generator is equipped with a 175 MMBtu/hr natural gas duct burner which will be used to generate steam when the biomass gasifier and thermal oxidizer are not operating.</li> <li>• Ash will be removed from the gasifier at two bottom discharge ash hoods to a totally enclosed conveyance system and from the gas stream using a cyclone which will also discharge to the enclosed conveyance system.</li> <li>• Add-on emission control—wet electrostatic precipitator (WESP); selective catalytic reduction (SCR).</li> </ul>	2011	FGFACILITY
EU-BioFeed 1	<p>Truck Biomass Receiving Bin – Dumper #1                      Conventional hydraulic tipping equipment for non-self-unloading trucks, discharging biomass feedstock into a receiving hopper. 150 tons per hour design capacity. Enclosed truck unloading area.</p>	2011	FG-BIOFEEDRECEIVE FGFACILITY
EU-BioFeed 2	<p>Truck Biomass Receiving Bin - Dumper #2                      Conventional hydraulic tipping equipment for non-self-unloading trucks, discharging biomass feedstock into a receiving hopper. 150 tons per hour design capacity. Enclosed truck unloading area.</p>	2011	FG-BIOFEEDRECEIVE FGFACILITY
EU-BioFeed 3	<p>Self - Unloading Truck Dump - Self-unloading trucks, with live bottom and shuffle floor construction and end-dumping will discharge biomass feedstock into a pile adjacent to the EU-BioFeed 1 and EU-BioFeed 2 receiving hoppers. 150 tons per hour design capacity. Enclosed truck unloading area.</p>	2011	FG-BIOFEEDRECEIVE FGFACILITY

Emission Unit ID	Emission Unit Description (Process Equipment & Control Devices)	Installation Date / Modification Date	Flexible Group ID
EU-BioFeed 4	Truck Traffic on Roads and Mobile Equipment Operations - vehicle traffic on paved facility roads. Expected material handling capacity is 400 tons per hour.	2011	FG-FUGDUST FGFACILITY
EU-BioFeed 5	Emergency Outdoor Storage Pile - Outdoor emergency biomass pile. Size is up to an estimated 16,000 cubic feet. Reclaim of any material on the emergency outdoor pile will be via mobile equipment such as front end loaders, loading to enclosed conveyance equipment and transfer to the Processing Building (EU-BioFeed 6).	2011	FG-FUGDUST FGFACILITY
EU-BioFeed 6	Truck delivery inside the Processing Building of pre-sized biomass feedstock such as sawdust and baled material. Transfer of biomass feedstock in enclosed conveyors from receiving and reclaim points (EU-BioFeed 1, EU-BioFeed 2, EU-BioFeed 3, and EU-BioFeed 5) into the Processing Building. Biomass feedstock processing includes metal removal, screening and sizing operations. Total design throughput is approximately 80 tons of feedstock per hour. Dust within the building will be controlled with a 27,500 cfm baghouse.	2011	FGFACILITY
EU-BioFeed 7	Transfer of biomass feedstock from the Processing Building (EU-BioFeed 6) in an enclosed conveyor to the Biomass Barn for storage before transfer to the Gasification Building (EU-BioFeed 8). Various conveyors and reclaimers systems will be used to move the biomass feedstock within the Biomass Barn. Dust within the building will be controlled with a 9,400 cfm baghouse.	2011	FGFACILITY
EU-BioFeed 8	Transfer of biomass feedstock from the Biomass Barn (EU-BioFeed 7) in enclosed conveyors to the Gasification Building. Within the building, fixed tripper conveyors with chutes will move the biomass feedstock to the three live bottom surge bins, one above each of the three gasifiers. Biomass feedstock transfer from each bin through an airlock feed system to each gasifier. The demand signal from the gasifier will control the feed rate from the corresponding surge bin. Dust within the building will be controlled with a 25,500 cfm baghouse.	2011	FGFACILITY

Emission Unit ID	Emission Unit Description (Process Equipment & Control Devices)	Installation Date / Modification Date	Flexible Group ID
EU-ASHSYSTEM	<p>Ash will be removed from the gasifier at two bottom discharge ash hoods to a totally enclosed conveyance system and from the gas stream using a cyclone particulate collector which will also discharge to the totally enclosed conveyance system.</p> <p>Ash removed from the gasifier and cyclone will be transported via a totally enclosed conveyance system to a drag chain conveyor. Water sprays will be installed over the drag chain conveyor to wet the ash prior to its being deposited in an enclosed truck. Due to the total enclosure of the conveyance from the gasifier to the drag chain conveyor, the emissions from this system will be insignificant. The water sprays will suppress any potential dust generated by moving the ash from the drag chain conveyor to the enclosed truck.</p> <p>Carryover of fly ash from the gasifier and cyclone will be minimal. Trace amounts of ash will deposit in the oxidizer and the heat recovery steam generator (HRSG). The ash will be removed periodically via cleaning (either by vacuuming or manual cleaning). The materials will be deposited into a sealed drum or bin for disposal. This removal process will be infrequent and all ash will be sealed to prevent emissions of particulate matter.</p> <p>The maximum amount of ash handled from each biomass gasifier/oxidation system is estimated to be 1,000 pounds per hour.</p>	2011	FGFACILITY
EU-AMMONIASYSTEM	<p>Aqueous ammonia handling and storage. Liquid aqueous ammonia for use in the SCR NOx emission control system will be delivered to the Site by truck. The aqueous ammonia will be stored in one outdoor 30,000-gallon tank with emissions controlled by a vapor balance system.</p>	2011	FGFACILITY
EU-CoolTower	<p>Cooling tower. A three cell, counter-flow mechanical draft type tower with high efficiency drift eliminators.</p>	2011	FGFACILITY
EU-GenEngine	<p>A 1,200 kilowatts (kW) natural gas-fueled emergency engine manufactured after 2009.</p>	2011	FGFACILITY
<p>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.</p>			

**The following conditions apply to: EU-BIOSYS1**

**DESCRIPTION:** Continuous rotary gasifier system to convert biomass feedstock to synthetic gas (syngas) which is then combusted for combined heat and power generation. Chipped/ground wood is expected to be the primary feedstock. The system is capable of accepting a wide range of clean, woody or agricultural based biomass materials. Natural gas firing as needed.

System components include:

- feedstock supply surge bin
- rotary gasifier, rated at 225 MMBtu/hr total heat input to produce synthesis gas for oxidation in the associated thermal oxidizer. Start-up with 5 MMBtu/hr natural gas
- low NOx thermal oxidizer with flue gas recirculation (FGR), for the generation of 1800-2000°F exhaust gases. Start-up with 20 MMBtu/hr natural gas
- Heat recovery steam generator (HRSG) and economizer downstream of the thermal oxidizer. The heat recovery steam generator is equipped with a 175 MMBtu/hr natural gas duct burner which can be used to generate steam when the biomass gasifier and thermal oxidizer are not operating.

**Flexible Group ID:** FGFACILITY

**POLLUTION CONTROL EQUIPMENT:** Low NOx thermal oxidizer with flue gas recirculation (FGR). Add-on emission control—wet electrostatic precipitator (WESP); selective catalytic reduction (SCR). Ash will be removed from the gasifier at two bottom discharge ash hoods to a totally enclosed conveyance system and from the gas stream using a cyclone which will also discharge to the totally enclosed conveyance system.

**I. EMISSION LIMITS**

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. Visible Emissions	10 percent opacity	Six minute average except one six minute average per hour of not more than 20 percent	EU-BIOSYS1	SC VI.2	R 336.1301, R 336.2810 40 CFR 52.21(j)
2. NO <sub>x</sub>	0.06 lb/MMBtu	continuous	EU-BIOSYS1	SC VI.1	40 CFR 60.44b R 336.2810 40 CFR 52.21(j)
3. NO <sub>x</sub>	13.5 pph	30-day rolling average	EU-BIOSYS1	SC VI.1	R 336.2810 40 CFR 52.21(j)
4. NO <sub>x</sub>	59.1 tpy	12-month rolling total	EU-BIOSYS1	SC VI.8	R 336.2810 40 CFR 52.21(j)
5. CO	0.033 lb/MMBtu	continuous	EU-BIOSYS1	SC VI.1	R 336.1205
6. CO	7.4 pph	30-day rolling average	EU-BIOSYS1	SC VI.1	R 336.1205
7. CO	32.5 tpy	12-month rolling total	EU-BIOSYS1	SC VI.8	R 336.1205
8. VOC	0.009 lb/MMBtu	Test Protocol*	EU-BIOSYS1	SC V.1	R 336.1205 R 336.1702(a)
9. VOC	1.9 pph	Test Protocol*	EU-BIOSYS1	SC V.1	R 336.1205 R 336.1702(a)
10. VOC	8.4 tpy	12-month rolling total	EU-BIOSYS1	SC V.8	R 336.1205 R 336.1702(a)
11. SO <sub>2</sub>	0.013 lb/MMBtu	Test Protocol*	EU-BIOSYS1	SC V.1	R 336.1205
12. SO <sub>2</sub>	2.9 pph	Test Protocol*	EU-BIOSYS1	SC V.1	R 336.1205

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
13. SO <sub>2</sub>	12.8 tpy	12-month rolling total	EU-BIOSYS1	SC VI.8	R 336.1205
14. PM	0.010 lb/MMBtu	Test Protocol*	EU-BIOSYS1	SC V.1	R 336.2810 40 CFR 52.21(j)
15. PM	2.3 pph	Test Protocol*	EU-BIOSYS1	SC V.1	R 336.2810 40 CFR 52.21(j)
16. PM	9.9 tpy	12-month rolling total	EU-BIOSYS1	SC VI.8	R 336.2810 40 CFR 52.21(j)
17. PM10	0.014 lb/MMBtu	Test Protocol*	EU-BIOSYS1	SC V.1	R 336.2810 40 CFR 52.21(j)
18. PM10	3.2 pph	Test Protocol*	EU-BIOSYS1	SC V.1	R 336.2810 40 CFR 52.21(j)
19. PM10	13.8 tpy	12-month rolling total	EU-BIOSYS1	SC VI.8	R 336.2810 40 CFR 52.21(j)
20. PM2.5	0.014 lb/MMBtu	Test Protocol*	EU-BIOSYS1	SC V.1	R 336.2810 40 CFR 52.21(j)
21. PM2.5	3.2 pph	Test Protocol*	EU-BIOSYS1	SC V.1	R 336.2810 40 CFR 52.21(j)
22. PM2.5	13.8 tpy	12-month rolling total	EU-BIOSYS1	SC VI.8	R 336.2810 40 CFR 52.21(j)
23. Ammonia	10 ppmv, dry	Test Protocol*	EU-BIOSYS1	SC V.1	R 336.1205 R 336.1224 R 336.1225
24. CO <sub>2</sub> e	208,100 tpy	12-month rolling total	EU-BIOSYS1	SC VI.8	R 336.1205

\*Test Protocol will specify averaging time

## II. MATERIAL LIMITS

Material	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. natural gas	25 MMBtu per hour heat input	startup and shutdown only	gasifier and the thermal oxidizer included in EU-BIOSYS1	recordkeeping	40 CFR 60.40Da(a)(1)
2. natural gas	175 MMBtu per hour heat input	at times when syngas is not available	duct burner included in EU-BIOSYS1	recordkeeping	40 CFR 60.40Da(a)(1)
3. synthesis gas produced by the gasifier	225 MMBtu per hour heat input	30-day rolling average	thermal oxidizer in EU-BIOSYS1	recordkeeping	R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d)

4. The permittee shall burn or process only natural gas fuel, biomass or bio-based solid fuel in the gasifier included in EU-BIOSYS1. Biomass or bio-based solid fuel means any biomass-based solid fuel that is not a solid waste. This includes, but is not limited to, wood residue; wood products (e.g., trees, tree stumps, tree limbs, bark, lumber, sawdust, sander dust, chips, scraps, slabs, millings, and shavings); animal manure, including litter and other bedding materials; vegetative agricultural and silvicultural materials, such as logging residues (slash), nut and grain hulls and chaff (e.g., almond, walnut, peanut, rice, and wheat), bagasse, orchard prunings, corn stalks, coffee bean hulls and grounds. This definition of biomass is not intended to suggest that these materials are or are not solid waste. **(R 336.1201(3), R 336.1205, R 336.1224, R 336.1225, R 336.1702, R 336.1901, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d), 40 CFR Part 63 Sec. 63.7575)**

5. The permittee shall not use feedstock which contains municipal solid waste, shingles, tire-derived fuel, construction/demolition wood, paints, stains, preservatives, adhesives, coatings, creosote, pentachlorophenol, or copper chromium arsenate in EU-BIOSYS1. **(R 336.1201(3), R 336.1205, R 336.1224, R 336.1225, R 336.1702, R 336.1901)**
6. The permittee shall not operate EU-BIOSYS1 unless a *Fuel Procurement and Monitoring Plan* (FPMP) has been submitted and approved prior to receipt of any biomass feedstock. The permittee shall operate EU-BIOSYS1 in compliance with the provisions of the FPMP approved by the AQD District Supervisor. The permittee shall utilize the FPMP at all times to ensure that only feedstock, as defined in SC II. 4 and II.5 is being processed in EU-BIOSYS1 and to prevent unacceptable waste from being processed in EU-BIOSYS1. The plan shall, at a minimum, specify the following:
  - a. A description of feedstock to be processed in EU-BIOSYS1.
  - b. Inspection and sorting procedures and protocol used to eliminate prohibited feedstock.
  - c. Procedures for rejecting and/or removing unacceptable feedstock.
  - d. Supplier qualification, processing and inspection procedures for each supplier of source separated feedstock.
  - e. Auditing procedures including records of feedstock specification, load identification, quality control of load and feedstock pile(s).
  - f. Odor minimization.

The permittee shall submit any amendments to the FPMP to the AQD District Supervisor for review and approval. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits. **(R 336.1205, R 336.1225)**

### **III. PROCESS/OPERATIONAL RESTRICTIONS**

1. The heat input capacity of the thermal oxidizer in EU-BIOSYS1 shall not exceed a maximum of 225 MMBtu per hour. **(R 336.1205, R 336.2802, 40 CFR 52.21)**
2. During startup of the gasifier and thermal oxidizer of EU-BIOSYS1, the permittee shall only combust natural gas. **(R 336.1205(1)(a), R 336.2810, 40 CFR 52.21(j))**
3. Startup operations for EU-BIOSYS1 shall not exceed 24 hours per startup event. Shutdown operations for EU-BIOSYS1 shall not exceed 8 hours per shutdown event. Startup is defined as the period of time from initiation of combustion firing until EU-BIOSYS1 reaches steady state operation, including all of the following operating parameters:
  - Gasifier is at operating temperature
  - Thermal oxidizer temperature is at a minimum temperature of 1600 degrees Fahrenheit
  - HRSG is operating per the manufacturer's specifications
  - Steam turbine is operating per the manufacturer's specifications

Cold startup is defined as a startup after 48 or more hours following the last fuel input to the thermal oxidizer. Shutdown is defined as that period of time from the initial lowering of the EU-BIOSYS1 output below a thermal oxidizer temperature of 1600 degrees Fahrenheit, until the point at which the combustion process has stopped. **(R 336.1912, R 336.2810, 40 CFR 52.21(j))**

4. The permittee shall not operate natural gas-fired duct burner EU-BIOSYS1 simultaneously with operation of the natural gas-fired duct burner in EU-BIOSYS2 or EU-BIOSYS3. **(R 336.1205, R 336.1901, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d), 40 CFR 60.40Da(a)(1))**
5. The permittee shall not operate EU-BIOSYS1 unless an acceptable plan that describes how emissions will be minimized during all startups, shutdowns and malfunctions, including the operation of any bypass/emergency relief stack, has been submitted to the AQD District Supervisor. The plan shall

incorporate procedures recommended by the equipment manufacturer as well as incorporating standard industry practices. **(R 336.1911, R 336.1912, R 336.2810, 40 CFR 52.21(j))**

6. The permittee shall not operate EU-BIOSYS1 unless a malfunction abatement plan (MAP) as described in Rule 911(2) has been submitted within 180 days of commencement of on-site construction, and is implemented and maintained. 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. If the AQD does not notify the permittee within 90 days of submittal, the MAP or amended MAP shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits. **(R 336.1225, R 336.1331, R 336.1702(a), R 336.1910, R 336.1911, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**
7. The permittee shall not operate FG-BIOSYS1 unless the program for continuous fugitive emissions control for all material handling operations, approved by the AQD District Supervisor, has been implemented and is maintained. **(R 336.1371, R 336.1372, R 336.1901)**

#### **IV. DESIGN/EQUIPMENT PARAMETERS**

1. The permittee shall not operate EU-BIOSYS1 unless the low NO<sub>x</sub> burners with flue gas recirculation, selective catalytic reduction system, and wet electrostatic precipitator are installed, maintained, and operated in a satisfactory manner. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1901, R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d), 40 CFR Part 60 Subparts A and Db, 40 CFR Part 63 Subparts A and JJJJJ)**
2. The permittee shall not operate, except for startup, the gasifier of EU-BIOSYS1 unless the thermal oxidizer is installed, maintained and operated in a satisfactory manner. Satisfactory operation of the thermal oxidizer includes maintaining a minimum temperature of 1600 °F and a minimum retention time of 1 second. **(R 336.1205, R 336.1224, R 336.1225, R 336.1702, R 336.2802, 40 CFR 52.21, R 336.1301, R 336.1331, R 336.1901, R 336.1910, R 336.1702(a))**
3. The permittee shall install, calibrate, maintain and operate in a satisfactory manner, a temperature monitoring device at the outlet of the thermal oxidizer to monitor and record the temperature, on a continuous basis, during operation of EU-BIOSYS1. **(R 336.1205, R 336.1224, R 336.1225, R 336.1702, R 336.1901, R 336.1910, R 336.2810, 40 CFR 52.21(j))**
4. The permittee shall install, calibrate, maintain and operate in a satisfactory manner, a device to monitor and record the NO<sub>x</sub>, and CO emissions and oxygen or carbon dioxide (O<sub>2</sub> or CO<sub>2</sub>) content of the exhaust gas from EU-BIOSYS1 on a continuous basis. The permittee shall operate the CEM system to meet the timelines, requirements and reporting detailed in Appendix A. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1602, R 336.1702, R 336.1901, R 336.2810, 40 CFR 52.21(j))**
5. The permittee shall install, calibrate, maintain and operate in a satisfactory manner, a device to monitor and record, the visible emissions from EU-BIOSYS1 on a continuous basis. The permittee shall operate the COM system to meet the timelines, requirements and reporting detailed in Appendix B and shall use the COM data for determining compliance with SC I.1 **(R 336.1205, R 336.1301, R 336.1331, R 336.1702, R 336.1901, R 336.2810, 40 CFR 52.21(j))**
6. The permittee shall install, calibrate, maintain and operate in a satisfactory manner, a device to monitor and record the inlet water flow rate, secondary voltage, and secondary current from the wet electrostatic precipitator for EU-BIOSYS1 on a continuous basis. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1901, R 336.1910, R 336.2810, 40 CFR 52.21(j))**

#### **V. TESTING/SAMPLING**

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

1. Within 60 days of achieving the maximum production rate, but not later than 180 days after commencement of initial startup, the permittee shall verify and quantify PM, PM<sub>10</sub>, PM<sub>2.5</sub>, VOC, SO<sub>2</sub>, and ammonia emission rates and oxygen (O<sub>2</sub>) content of the exhaust gas from EU-BIOSYS1 by testing at owner's expense, in accordance with Department requirements. No less than 60 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 336.1205, R 336.1224, R 336.1225, R 336.1702, R 336.2001, R 336.2003, R 336.2004, R 336.2810, 40 CFR 52.21(j))**

#### **VI. MONITORING/RECORDKEEPING**

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

1. The permittee shall continuously monitor and record, in a satisfactory manner, the NO<sub>x</sub>, CO emissions and oxygen or carbon dioxide (O<sub>2</sub> or CO<sub>2</sub>) content of the exhaust gas from EU-BIOSYS1. The permittee shall operate each Continuous Emission Monitoring System (CEMS) to meet the timelines, requirements and reporting detailed in Appendix A and shall use the CEMS data for determining compliance with SC I.2, I.3, I.5, and I.6. **(R 336.1205, R 336.1224, R 336.1225, R 336.1702, R 336.1901, R 336.2810, 40 CFR 52.21(j), 40 CFR 60.48b)**
2. The permittee shall continuously monitor and record, in a satisfactory manner, the visible emissions from EU-BIOSYS1. The permittee shall operate the COM system to meet the timelines, requirements and reporting detailed in Appendix B and shall use the COM data for determining compliance with SC I.1. **(R 336.1205, R 336.1301, R 336.1331, R 336.1901, R 336.2810, 40 CFR 52.21(j))**
3. The permittee shall monitor and record, in a satisfactory manner, the temperature at the outlet of the thermal oxidizer, on a continuous basis, during operation of EU-BIOSYS1. Temperature data recording shall consist of measurements made at equally spaced intervals, not to exceed 15 minutes per interval. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1702(a), R 336.1901, R 336.2810, 40 CFR 52.21(j))**
4. The permittee shall keep, in a satisfactory manner, operating temperature records for the outlet of the thermal oxidizer of EU-BIOSYS1 as required by SC IV.3. The permittee shall keep all records and calculations on file at the facility and make them available to the Department upon request. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1702(a), R 336.1901, R 336.2810, 40 CFR 52.21(j))**
5. The permittee shall monitor and record, in a satisfactory manner, the inlet water flow rate, secondary voltage, and secondary current from the wet electrostatic precipitator for EU-BIOSYS1 on a continuous basis. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1901, R 336.1910, R 336.2810, 40 CFR 52.21(j))**
6. The permittee shall record the time and duration of each startup and shutdown of EU-BIOSYS1 as defined in SC III.3. 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, R 336.1910, R 336.1911, R 336.2810, 40 CFR 52.21(j))**
7. The permittee shall calculate in a satisfactory manner, the annual fugitive dust emissions, using the current U. S. EPA Compilation of Air Pollutant Emission Factors (AP-42) or other emission factors approved by the Department such as those used in the MAERS. **(R 336.1371, R 336.1372, R 336.1901)**
8. The permittee shall calculate and keep records of the annual emissions of NO<sub>x</sub>, CO, VOC, SO<sub>2</sub>, PM, PM<sub>10</sub>, PM<sub>2.5</sub>, and CO<sub>2e</sub> from EU-BIOSYS1, in tons per 12-month rolling time period, as required by SC I.4, I.7, I.10, I.13, I.16, I.19, I.22, and I.25. Calculations and record keeping shall begin the month in which regular operations of EU-BIOSYS1 commence. **(R 336.1205(1))**

## **VII. REPORTING**

1. 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-BIOSYS1. **(R 336.1201(7)(a))**
2. Within 12 months 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 status of compliance of EU-BIOSYS1 with the terms and conditions of the Permit to Install. The notification shall include all of the following:
  - a) The results of all testing, monitoring, and recordkeeping performed to determine the actual emissions from EU-BIOSYS1 and to demonstrate compliance with the terms and conditions of the Permit to Install;
  - b) A schedule of compliance for EU-BIOSYS1 as described in Rule 119(a); and
  - c) A statement, signed by the person owning or operating EU-BIOSYS1 that, based on information and belief formed after reasonable inquiry, the statements and information in the notification are true, accurate, and complete. **(R 336.1216(1), R 336.1201(7)(b))**

## **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:

<b>Stack &amp; Vent ID</b>	<b>Maximum Exhaust Diameter (inches)</b>	<b>Minimum Height Above Ground (feet)</b>	<b>Underlying Applicable Requirements</b>
1.SV-STACK1	96	150	40 CFR 52.21(c) and (d), R 336.2803, R 336.2804

## **IX. OTHER REQUIREMENTS**

1. The permittee shall comply with all provisions of the federal National Emission Standards for Hazardous Air Pollutants as specified in 40 CFR Part 63 Subparts A and JJJJJJ as they apply to EU-BIOSYS1. **(40 CFR Part 63, Subparts A and JJJJJJ)**
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-BIOSYS1. **(40 CFR Part 60 Subparts A & Db)**

### **Footnotes:**

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

**The following conditions apply to: EU-BIOSYS2**

**DESCRIPTION:** Continuous rotary gasifier system to convert biomass feedstock to synthetic gas (syngas) which is then combusted for combined heat and power generation. Chipped/ground wood is expected to be the primary feedstock. The system is capable of accepting a wide range of clean, woody or agricultural based biomass materials. Natural gas firing as needed.

System components include:

- feedstock supply surge bin
- rotary gasifier, rated at 225 MMBtu/hr total heat input to produce synthesis gas for oxidation in the associated thermal oxidizer. Start-up with 5 MMBtu/hr natural gas
- low NOx thermal oxidizer with flue gas recirculation (FGR), for the generation of 1800-2000°F exhaust gases. Start-up with 20 MMBtu/hr natural gas
- Heat recovery steam generator (HRSG) and economizer downstream of the thermal oxidizer. The heat recovery steam generator is equipped with a 175 MMBtu/hr natural gas duct burner which can be used to generate steam when the biomass gasifier and thermal oxidizer are not operating.

**Flexible Group ID:** FGFACILITY

**POLLUTION CONTROL EQUIPMENT:** Low NOx thermal oxidizer with flue gas recirculation (FGR). Add-on emission control—wet electrostatic precipitator (WESP); selective catalytic reduction (SCR). Ash will be removed from the gasifier at two bottom discharge ash hoods to a totally enclosed conveyance system and from the gas stream using a cyclone which will also discharge to the totally enclosed conveyance system.

**I. EMISSION LIMITS**

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. Visible Emissions	10 percent opacity	Six minute average except one six minute average per hour of not more than 20 percent	EU-BIOSYS2	SC VI.2	R 336.1301, R 336.2810 40 CFR 52.21(j)
2. NO <sub>x</sub>	0.06 lb/MMBtu	continuous	EU-BIOSYS2	SC VI.1	40 CFR 60.44b R 336.2810 40 CFR 52.21(j)
3. NO <sub>x</sub>	13.5 pph	30-day rolling average	EU-BIOSYS2	SC VI.1	R 336.2810 40 CFR 52.21(j)
4. NO <sub>x</sub>	59.1 tpy	12-month rolling total	EU-BIOSYS2	SC VI.8	R 336.2810 40 CFR 52.21(j)
5. CO	0.033 lb/MMBtu	continuous	EU-BIOSYS2	SC VI.1	R 336.1205
6. CO	7.4 pph	30-day rolling average	EU-BIOSYS2	SC VI.1	R 336.1205
7. CO	32.5 tpy	12-month rolling total	EU-BIOSYS2	SC VI.8	R 336.1205
8. VOC	0.009 lb/MMBtu	Test Protocol*	EU-BIOSYS2	SC V.1	R 336.1205 R 336.1702(a)
9. VOC	1.9 pph	Test Protocol*	EU-BIOSYS2	SC V.1	R 336.1205 R 336.1702(a)
10. VOC	8.4 tpy	12-month rolling total	EU-BIOSYS2	SC V.8	R 336.1205 R 336.1702(a)
11. SO <sub>2</sub>	0.013 lb/MMBtu	Test Protocol*	EU-BIOSYS2	SC V.1	R 336.1205
12. SO <sub>2</sub>	2.9 pph	Test Protocol*	EU-BIOSYS2	SC V.1	R 336.1205

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
13. SO <sub>2</sub>	12.8 tpy	12-month rolling total	EU-BIOSYS2	SC VI.8	R 336.1205
14. PM	0.010 lb/MMBtu	Test Protocol*	EU-BIOSYS2	SC V.1	R 336.2810 40 CFR 52.21(j)
15. PM	2.3 pph	Test Protocol*	EU-BIOSYS2	SC V.1	R 336.2810 40 CFR 52.21(j)
16. PM	9.9 tpy	12-month rolling total	EU-BIOSYS2	SC VI.8	R 336.2810 40 CFR 52.21(j)
17. PM10	0.014 lb/MMBtu	Test Protocol*	EU-BIOSYS2	SC V.1	R 336.2810 40 CFR 52.21(j)
18. PM10	3.2 pph	Test Protocol*	EU-BIOSYS2	SC V.1	R 336.2810 40 CFR 52.21(j)
19. PM10	13.8 tpy	12-month rolling total	EU-BIOSYS2	SC VI.8	R 336.2810 40 CFR 52.21(j)
20. PM2.5	0.014 lb/MMBtu	Test Protocol*	EU-BIOSYS2	SC V.1	R 336.2810 40 CFR 52.21(j)
21. PM2.5	3.2 pph	Test Protocol*	EU-BIOSYS2	SC V.1	R 336.2810 40 CFR 52.21(j)
22. PM2.5	13.8 tpy	12-month rolling total	EU-BIOSYS2	SC VI.8	R 336.2810 40 CFR 52.21(j)
23. Ammonia	10 ppmv, dry	Test Protocol*	EU-BIOSYS2	SC V.1	R 336.1205 R 336.1224 R 336.1225
24. CO <sub>2</sub> e	208,100 tpy	12-month rolling total	EU-BIOSYS2	SC VI.8	R 336.1205

\*Test Protocol will specify averaging time

## II. MATERIAL LIMITS

Material	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. natural gas	25 MMBtu per hour heat input	startup and shutdown only	gasifier and the thermal oxidizer included in EU-BIOSYS2	recordkeeping	40 CFR 60.40Da(a)(1)
2. natural gas	175 MMBtu per hour heat input	at times when syngas is not available	duct burner included in EU-BIOSYS2	recordkeeping	40 CFR 60.40Da(a)(1)
3. synthesis gas produced by the gasifier	225 MMBtu per hour heat input	30-day rolling average	thermal oxidizer in EU-BIOSYS2	recordkeeping	R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d)

4. The permittee shall burn or process only natural gas fuel, biomass or bio-based solid fuel in the gasifier included in EU-BIOSYS2. Biomass or bio-based solid fuel means any biomass-based solid fuel that is not a solid waste. This includes, but is not limited to, wood residue; wood products (e.g., trees, tree stumps, tree limbs, bark, lumber, sawdust, sander dust, chips, scraps, slabs, millings, and shavings); animal manure, including litter and other bedding materials; vegetative agricultural and silvicultural materials, such as logging residues (slash), nut and grain hulls and chaff (e.g., almond, walnut, peanut, rice, and wheat), bagasse, orchard prunings, corn stalks, coffee bean hulls and grounds. This definition of biomass is not intended to suggest that these materials are or are not solid waste. **(R 336.1201(3), R 336.1205, R 336.1224, R 336.1225, R 336.1702, R 336.1901, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d), 40 CFR Part 63 Sec. 63.7575)**

5. The permittee shall not use feedstock which contains municipal solid waste, shingles, tire-derived fuel, construction/demolition wood, paints, stains, preservatives, adhesives, coatings, creosote, pentachlorophenol, or copper chromium arsenate in EU-BIOSYS2. **(R 336.1201(3), R 336.1205, R 336.1224, R 336.1225, R 336.1702, R 336.1901)**
6. The permittee shall not operate EU-BIOSYS2 unless a *Fuel Procurement and Monitoring Plan* (FPMP) has been submitted and approved prior to receipt of any biomass feedstock. The permittee shall operate EU-BIOSYS2 in compliance with the provisions of the FPMP approved by the AQD District Supervisor. The permittee shall utilize the FPMP at all times to ensure that only feedstock, as defined in SC II. 4 and II.5 is being processed in EU-BIOSYS2 and to prevent unacceptable waste from being processed in EU-BIOSYS2. The plan shall, at a minimum, specify the following:
  - a. A description of feedstock to be processed in EU-BIOSYS2.
  - b. Inspection and sorting procedures and protocol used to eliminate prohibited feedstock.
  - c. Procedures for rejecting and/or removing unacceptable feedstock.
  - d. Supplier qualification, processing and inspection procedures for each supplier of source separated feedstock.
  - e. Auditing procedures including records of feedstock specification, load identification, quality control of load and feedstock pile(s).
  - f. Odor minimization.

The permittee shall submit any amendments to the FPMP to the AQD District Supervisor for review and approval. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits. **(R 336.1205, R 336.1225)**

### **III. PROCESS/OPERATIONAL RESTRICTIONS**

1. The heat input capacity of the thermal oxidizer in EU-BIOSYS2 shall not exceed a maximum of 225 MMBtu per hour. **(R 336.1205, R 336.2802, 40 CFR 52.21)**
2. During startup of the gasifier and thermal oxidizer of EU-BIOSYS2, the permittee shall only combust natural gas. **(R 336.1205(1)(a), R 336.2810, 40 CFR 52.21(j))**
3. Startup operations for EU-BIOSYS2 shall not exceed 24 hours per startup event. Shutdown operations for EU-BIOSYS2 shall not exceed 8 hours per shutdown event. Startup is defined as the period of time from initiation of combustion firing until EU-BIOSYS2 reaches steady state operation, including all of the following operating parameters:
  - Gasifier is at operating temperature
  - Thermal oxidizer temperature is at a minimum temperature of 1600 degrees Fahrenheit
  - HRSG is operating per the manufacturer's specifications
  - Steam turbine is operating per the manufacturer's specifications

Cold startup is defined as a startup after 48 or more hours following the last fuel input to the thermal oxidizer. Shutdown is defined as that period of time from the initial lowering of the EU-BIOSYS2 output below a thermal oxidizer temperature of 1600 degrees Fahrenheit, until the point at which the combustion process has stopped. **(R 336.1912, R 336.2810, 40 CFR 52.21(j))**

4. The permittee shall not operate natural gas-fired duct burner EU-BIOSYS2 simultaneously with operation of the natural gas-fired duct burner in EU-BIOSYS1 or EU-BIOSYS3. **(R 336.1205, R 336.1901, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d), 40 CFR 60.40Da(a)(1))**
5. The permittee shall not operate EU-BIOSYS2 unless an acceptable plan that describes how emissions will be minimized during all startups, shutdowns and malfunctions, including the operation of any bypass/emergency relief stack, has been submitted to the AQD District Supervisor. The plan shall

incorporate procedures recommended by the equipment manufacturer as well as incorporating standard industry practices. **(R 336.1911, R 336.1912, R 336.2810, 40 CFR 52.21(j))**

6. The permittee shall not operate EU-BIOSYS2 unless a malfunction abatement plan (MAP) as described in Rule 911(2) has been submitted within 180 days of commencement of on-site construction, and is implemented and maintained. 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. If the AQD does not notify the permittee within 90 days of submittal, the MAP or amended MAP shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits. **(R 336.1225, R 336.1331, R 336.1702(a), R 336.1910, R 336.1911, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**
7. The permittee shall not operate FG-BIOSYS2 unless the program for continuous fugitive emissions control for all material handling operations, approved by the AQD District Supervisor, has been implemented and is maintained. **(R 336.1371, R 336.1372, R 336.1901)**

#### **IV. DESIGN/EQUIPMENT PARAMETERS**

1. The permittee shall not operate EU-BIOSYS2 unless the low NO<sub>x</sub> burners with flue gas recirculation, selective catalytic reduction system, and wet electrostatic precipitator are installed, maintained, and operated in a satisfactory manner. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1901, R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d), 40 CFR Part 60 Subparts A and Db, 40 CFR Part 63 Subparts A and JJJJJ)**
2. The permittee shall not operate, except for startup, the gasifier of EU-BIOSYS2 unless the thermal oxidizer is installed, maintained and operated in a satisfactory manner. Satisfactory operation of the thermal oxidizer includes maintaining a minimum temperature of 1600 °F and a minimum retention time of 1 second. **(R 336.1205, R 336.1224, R 336.1225, R 336.1702, R 336.2802, 40 CFR 52.21, R 336.1301, R 336.1331, R 336.1901, R 336.1910, R 336.1702(a))**
3. The permittee shall install, calibrate, maintain and operate in a satisfactory manner, a temperature monitoring device at the outlet of the thermal oxidizer to monitor and record the temperature, on a continuous basis, during operation of EU-BIOSYS2. **(R 336.1205, R 336.1224, R 336.1225, R 336.1702, R 336.1901, R 336.1910, R 336.2810, 40 CFR 52.21(j))**
4. The permittee shall install, calibrate, maintain and operate in a satisfactory manner, a device to monitor and record the NO<sub>x</sub>, and CO emissions and oxygen or carbon dioxide (O<sub>2</sub> or CO<sub>2</sub>) content of the exhaust gas from EU-BIOSYS2 on a continuous basis. The permittee shall operate the CEM system to meet the timelines, requirements and reporting detailed in Appendix A. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1602, R 336.1702, R 336.1901, R 336.2810, 40 CFR 52.21(j))**
5. The permittee shall install, calibrate, maintain and operate in a satisfactory manner, a device to monitor and record, the visible emissions from EU-BIOSYS2 on a continuous basis. The permittee shall operate the COM system to meet the timelines, requirements and reporting detailed in Appendix B and shall use the COM data for determining compliance with SC I.1 **(R 336.1205, R 336.1301, R 336.1331, R 336.1702, R 336.1901, R 336.2810, 40 CFR 52.21(j))**
6. The permittee shall install, calibrate, maintain and operate in a satisfactory manner, a device to monitor and record the inlet water flow rate, secondary voltage, and secondary current from the wet electrostatic precipitator for EU-BIOSYS2 on a continuous basis. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1901, R 336.1910, R 336.2810, 40 CFR 52.21(j))**

#### **V. TESTING/SAMPLING**

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

1. Within 60 days of achieving the maximum production rate, but not later than 180 days after commencement of initial startup, the permittee shall verify and quantify PM, PM<sub>10</sub>, PM<sub>2.5</sub>, VOC, SO<sub>2</sub>, and ammonia emission rates and oxygen (O<sub>2</sub>) content of the exhaust gas from EU-BIOSYS2 by testing at owner's expense, in accordance with Department requirements. No less than 60 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 336.1205, R 336.1224, R 336.1225, R 336.1702, R 336.2001, R 336.2003, R 336.2004, R 336.2810, 40 CFR 52.21(j))**

#### **VI. MONITORING/RECORDKEEPING**

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

1. The permittee shall continuously monitor and record, in a satisfactory manner, the NO<sub>x</sub>, CO emissions and oxygen or carbon dioxide (O<sub>2</sub> or CO<sub>2</sub>) content of the exhaust gas from EU-BIOSYS2. The permittee shall operate each Continuous Emission Monitoring System (CEMS) to meet the timelines, requirements and reporting detailed in Appendix A and shall use the CEMS data for determining compliance with SC I.2, I.3, I.5, and I.6. **(R 336.1205, R 336.1224, R 336.1225, R 336.1702, R 336.1901, R 336.2810, 40 CFR 52.21(j), 40 CFR 60.48b)**
2. The permittee shall continuously monitor and record, in a satisfactory manner, the visible emissions from EU-BIOSYS2. The permittee shall operate the COM system to meet the timelines, requirements and reporting detailed in Appendix B and shall use the COM data for determining compliance with SC I.1. **(R 336.1205, R 336.1301, R 336.1331, R 336.1901, R 336.2810, 40 CFR 52.21(j))**
3. The permittee shall monitor and record, in a satisfactory manner, the temperature at the outlet of the thermal oxidizer, on a continuous basis, during operation of EU-BIOSYS2. Temperature data recording shall consist of measurements made at equally spaced intervals, not to exceed 15 minutes per interval. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1702(a), R 336.1901, R 336.2810, 40 CFR 52.21(j))**
4. The permittee shall keep, in a satisfactory manner, operating temperature records for the outlet of the thermal oxidizer of EU-BIOSYS2 as required by SC IV.3. The permittee shall keep all records and calculations on file at the facility and make them available to the Department upon request. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1702(a), R 336.1901, R 336.2810, 40 CFR 52.21(j))**
5. The permittee shall monitor and record, in a satisfactory manner, the inlet water flow rate, secondary voltage, and secondary current from the wet electrostatic precipitator for EU-BIOSYS2 on a continuous basis. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1901, R 336.1910, R 336.2810, 40 CFR 52.21(j))**
6. The permittee shall record the time and duration of each startup and shutdown of EU-BIOSYS2 as defined in SC III.3. 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, R 336.1910, R 336.1911, R 336.2810, 40 CFR 52.21(j))**
7. The permittee shall calculate in a satisfactory manner, the annual fugitive dust emissions, using the current U. S. EPA Compilation of Air Pollutant Emission Factors (AP-42) or other emission factors approved by the Department such as those used in the MAERS. **(R 336.1371, R 336.1372, R 336.1901)**
8. The permittee shall calculate and keep records of the annual emissions of NO<sub>x</sub>, CO, VOC, SO<sub>2</sub>, PM, PM<sub>10</sub>, PM<sub>2.5</sub>, and CO<sub>2e</sub> from EU-BIOSYS2, in tons per 12-month rolling time period, as required by SC I.4, I.7, I.10, I.13, I.16, I.19, I.22, and I.25. Calculations and record keeping shall begin the month in which regular operations of EU-BIOSYS2 commence. **(R 336.1205(1))**

## **VII. REPORTING**

1. 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-BIOSYS2. **(R 336.1201(7)(a))**
2. Within 12 months 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 status of compliance of EU-BIOSYS2 with the terms and conditions of the Permit to Install. The notification shall include all of the following:
  - a) The results of all testing, monitoring, and recordkeeping performed to determine the actual emissions from EU-BIOSYS2 and to demonstrate compliance with the terms and conditions of the Permit to Install;
  - b) A schedule of compliance for EU-BIOSYS2 as described in Rule 119(a); and
  - c) A statement, signed by the person owning or operating EU-BIOSYS2 that, based on information and belief formed after reasonable inquiry, the statements and information in the notification are true, accurate, and complete. **(R 336.1216(1), R 336.1201(7)(b))**

## **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:

<b>Stack &amp; Vent ID</b>	<b>Maximum Exhaust Diameter (inches)</b>	<b>Minimum Height Above Ground (feet)</b>	<b>Underlying Applicable Requirements</b>
1.SV-STACK2	96	150	40 CFR 52.21(c) and (d), R 336.2803, R 336.2804

## **IX. OTHER REQUIREMENTS**

1. The permittee shall comply with all provisions of the federal National Emission Standards for Hazardous Air Pollutants as specified in 40 CFR Part 63 Subparts A and JJJJJJ as they apply to EU-BIOSYS2. **(40 CFR Part 63, Subparts A and JJJJJJ)**
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-BIOSYS2. **(40 CFR Part 60 Subparts A & Db)**

### **Footnotes:**

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

**The following conditions apply to: EU-BIOSYS3**

**DESCRIPTION:** Continuous rotary gasifier system to convert biomass feedstock to synthetic gas (syngas) which is then combusted for combined heat and power generation. Chipped/ground wood is expected to be the primary feedstock. The system is capable of accepting a wide range of clean, woody or agricultural based biomass materials. Natural gas firing as needed.

System components include:

- feedstock supply surge bin
- rotary gasifier, rated at 225 MMBtu/hr total heat input to produce synthesis gas for oxidation in the associated thermal oxidizer. Start-up with 5 MMBtu/hr natural gas
- low NO<sub>x</sub> thermal oxidizer with flue gas recirculation (FGR), for the generation of 1800-2000°F exhaust gases. Start-up with 20 MMBtu/hr natural gas
- Heat recovery steam generator (HRSG) and economizer downstream of the thermal oxidizer. The heat recovery steam generator is equipped with a 175 MMBtu/hr natural gas duct burner which can be used to generate steam when the biomass gasifier and thermal oxidizer are not operating.

**Flexible Group ID:** FGFACILITY

**POLLUTION CONTROL EQUIPMENT:** Low NO<sub>x</sub> thermal oxidizer with flue gas recirculation (FGR). Add-on emission control—wet electrostatic precipitator (WESP); selective catalytic reduction (SCR). Ash will be removed from the gasifier at two bottom discharge ash hoods to a totally enclosed conveyance system and from the gas stream using a cyclone which will also discharge to the totally enclosed conveyance system.

**I. EMISSION LIMITS**

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. Visible Emissions	10 percent opacity	Six minute average except one six minute average per hour of not more than 20 percent	EU-BIOSYS3	SC VI.2	R 336.1301, R 336.2810 40 CFR 52.21(j)
2. NO <sub>x</sub>	0.06 lb/MMBtu	continuous	EU-BIOSYS3	SC VI.1	40 CFR 60.44b R 336.2810 40 CFR 52.21(j)
3. NO <sub>x</sub>	13.5 pph	30-day rolling average	EU-BIOSYS3	SC VI.1	R 336.2810 40 CFR 52.21(j)
4. NO <sub>x</sub>	59.1 tpy	12-month rolling total	EU-BIOSYS3	SC VI.8	R 336.2810 40 CFR 52.21(j)
5. CO	0.033 lb/MMBtu	continuous	EU-BIOSYS3	SC VI.1	R 336.1205
6. CO	7.4 pph	30-day rolling average	EU-BIOSYS3	SC VI.1	R 336.1205
7. CO	32.5 tpy	12-month rolling total	EU-BIOSYS3	SC VI.8	R 336.1205
8. VOC	0.009 lb/MMBtu	Test Protocol*	EU-BIOSYS3	SC V.1	R 336.1205 R 336.1702(a)
9. VOC	1.9 pph	Test Protocol*	EU-BIOSYS3	SC V.1	R 336.1205 R 336.1702(a)
10. VOC	8.4 tpy	12-month rolling total	EU-BIOSYS3	SC V.8	R 336.1205 R 336.1702(a)
11. SO <sub>2</sub>	0.013 lb/MMBtu	Test Protocol*	EU-BIOSYS3	SC V.1	R 336.1205
12. SO <sub>2</sub>	2.9 pph	Test Protocol*	EU-BIOSYS3	SC V.1	R 336.1205

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
13. SO <sub>2</sub>	12.8 tpy	12-month rolling total	EU-BIOSYS3	SC VI.8	R 336.1205
14. PM	0.010 lb/MMBtu	Test Protocol*	EU-BIOSYS3	SC V.1	R 336.2810 40 CFR 52.21(j)
15. PM	2.3 pph	Test Protocol*	EU-BIOSYS3	SC V.1	R 336.2810 40 CFR 52.21(j)
16. PM	9.9 tpy	12-month rolling total	EU-BIOSYS3	SC VI.8	R 336.2810 40 CFR 52.21(j)
17. PM10	0.014 lb/MMBtu	Test Protocol*	EU-BIOSYS3	SC V.1	R 336.2810 40 CFR 52.21(j)
18. PM10	3.2 pph	Test Protocol*	EU-BIOSYS3	SC V.1	R 336.2810 40 CFR 52.21(j)
19. PM10	13.8 tpy	12-month rolling total	EU-BIOSYS3	SC VI.8	R 336.2810 40 CFR 52.21(j)
20. PM2.5	0.014 lb/MMBtu	Test Protocol*	EU-BIOSYS3	SC V.1	R 336.2810 40 CFR 52.21(j)
21. PM2.5	3.2 pph	Test Protocol*	EU-BIOSYS3	SC V.1	R 336.2810 40 CFR 52.21(j)
22. PM2.5	13.8 tpy	12-month rolling total	EU-BIOSYS3	SC VI.8	R 336.2810 40 CFR 52.21(j)
23. Ammonia	10 ppmv, dry	Test Protocol*	EU-BIOSYS3	SC V.1	R 336.1205 R 336.1224 R 336.1225
24. CO <sub>2</sub> e	208,100 tpy	12-month rolling total	EU-BIOSYS3	SC VI.8	R 336.1205

\*Test Protocol will specify averaging time

## II. MATERIAL LIMITS

Material	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. natural gas	25 MMBtu per hour heat input	startup and shutdown only	gasifier and the thermal oxidizer included in EU-BIOSYS3	recordkeeping	40 CFR 60.40Da(a)(1)
2. natural gas	175 MMBtu per hour heat input	at times when syngas is not available	duct burner included in EU-BIOSYS3	recordkeeping	40 CFR 60.40Da(a)(1)
3. synthesis gas produced by the gasifier	225 MMBtu per hour heat input	30-day rolling average	thermal oxidizer in EU-BIOSYS3	recordkeeping	R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d)

4. The permittee shall burn or process only natural gas fuel, biomass or bio-based solid fuel in the gasifier included in EU-BIOSYS3. Biomass or bio-based solid fuel means any biomass-based solid fuel that is not a solid waste. This includes, but is not limited to, wood residue; wood products (e.g., trees, tree stumps, tree limbs, bark, lumber, sawdust, sander dust, chips, scraps, slabs, millings, and shavings); animal manure, including litter and other bedding materials; vegetative agricultural and silvicultural materials, such as logging residues (slash), nut and grain hulls and chaff (e.g., almond, walnut, peanut, rice, and wheat), bagasse, orchard prunings, corn stalks, coffee bean hulls and grounds. This definition of biomass is not intended to suggest that these materials are or are not solid waste. **(R 336.1201(3), R 336.1205, R 336.1224, R 336.1225, R 336.1702, R 336.1901, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d), 40 CFR Part 63 Sec. 63.7575)**

5. The permittee shall not use feedstock which contains municipal solid waste, shingles, tire-derived fuel, construction/demolition wood, paints, stains, preservatives, adhesives, coatings, creosote, pentachlorophenol, or copper chromium arsenate in EU-BIOSYS3. **(R 336.1201(3), R 336.1205, R 336.1224, R 336.1225, R 336.1702, R 336.1901)**
6. The permittee shall not operate EU-BIOSYS1 unless a *Fuel Procurement and Monitoring Plan* (FPMP) has been submitted and approved prior to receipt of any biomass feedstock. The permittee shall operate EU-BIOSYS1 in compliance with the provisions of the FPMP approved by the AQD District Supervisor. The permittee shall utilize the FPMP at all times to ensure that only feedstock, as defined in SC II. 4 and II.5 is being processed in EU-BIOSYS3 and to prevent unacceptable waste from being processed in EU-BIOSYS3. The plan shall, at a minimum, specify the following:
  - a. A description of feedstock to be processed in EU-BIOSYS3.
  - b. Inspection and sorting procedures and protocol used to eliminate prohibited feedstock.
  - c. Procedures for rejecting and/or removing unacceptable feedstock.
  - d. Supplier qualification, processing and inspection procedures for each supplier of source separated feedstock.
  - e. Auditing procedures including records of feedstock specification, load identification, quality control of load and feedstock pile(s).
  - f. Odor minimization.

The permittee shall submit any amendments to the FPMP to the AQD District Supervisor for review and approval. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits. **(R 336.1205, R 336.1225)**

### **III. PROCESS/OPERATIONAL RESTRICTIONS**

1. The heat input capacity of the thermal oxidizer in EU-BIOSYS3 shall not exceed a maximum of 225 MMBtu per hour. **(R 336.1205, R 336.2802, 40 CFR 52.21)**
2. During startup of the gasifier and thermal oxidizer of EU-BIOSYS3, the permittee shall only combust natural gas. **(R 336.1205(1)(a), R 336.2810, 40 CFR 52.21(j))**
3. Startup operations for EU-BIOSYS3 shall not exceed 24 hours per startup event. Shutdown operations for EU-BIOSYS3 shall not exceed 8 hours per shutdown event. Startup is defined as the period of time from initiation of combustion firing until EU-BIOSYS3 reaches steady state operation, including all of the following operating parameters:
  - Gasifier is at operating temperature
  - Thermal oxidizer temperature is at a minimum temperature of 1600 degrees Fahrenheit
  - HRSG is operating per the manufacturer's specifications
  - Steam turbine is operating per the manufacturer's specifications

Cold startup is defined as a startup after 48 or more hours following the last fuel input to the thermal oxidizer. Shutdown is defined as that period of time from the initial lowering of the EU-BIOSYS3 output below a thermal oxidizer temperature of 1600 degrees Fahrenheit, until the point at which the combustion process has stopped. **(R 336.1912, R 336.2810, 40 CFR 52.21(j))**

4. The permittee shall not operate natural gas-fired duct burner EU-BIOSYS3 simultaneously with operation of the natural gas-fired duct burner in EU-BIOSYS2 or EU-BIOSYS1. **(R 336.1205, R 336.1901, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d), 40 CFR 60.40Da(a)(1))**
5. The permittee shall not operate EU-BIOSYS3 unless an acceptable plan that describes how emissions will be minimized during all startups, shutdowns and malfunctions, including the operation of any bypass/emergency relief stack, has been submitted to the AQD District Supervisor. The plan shall

incorporate procedures recommended by the equipment manufacturer as well as incorporating standard industry practices. **(R 336.1911, R 336.1912, R 336.2810, 40 CFR 52.21(j))**

6. The permittee shall not operate EU-BIOSYS3 unless a malfunction abatement plan (MAP) as described in Rule 911(2) has been submitted within 180 days of commencement of on-site construction, and is implemented and maintained. 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. If the AQD does not notify the permittee within 90 days of submittal, the MAP or amended MAP shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits. **(R 336.1225, R 336.1331, R 336.1702(a), R 336.1910, R 336.1911, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**
7. The permittee shall not operate FG-BIOSYS3 unless the program for continuous fugitive emissions control for all material handling operations, approved by the AQD District Supervisor, has been implemented and is maintained. **(R 336.1371, R 336.1372, R 336.1901)**

#### **IV. DESIGN/EQUIPMENT PARAMETERS**

1. The permittee shall not operate EU-BIOSYS3 unless the low NO<sub>x</sub> burners with flue gas recirculation, selective catalytic reduction system, and wet electrostatic precipitator are installed, maintained, and operated in a satisfactory manner. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1901, R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d), 40 CFR Part 60 Subparts A and Db, 40 CFR Part 63 Subparts A and JJJJJ)**
2. The permittee shall not operate, except for startup, the gasifier of EU-BIOSYS3 unless the thermal oxidizer is installed, maintained and operated in a satisfactory manner. Satisfactory operation of the thermal oxidizer includes maintaining a minimum temperature of 1600 °F and a minimum retention time of 1 second. **(R 336.1205, R 336.1224, R 336.1225, R 336.1702, R 336.2802, 40 CFR 52.21, R 336.1301, R 336.1331, R 336.1901, R 336.1910, R 336.1702(a))**
3. The permittee shall install, calibrate, maintain and operate in a satisfactory manner, a temperature monitoring device at the outlet of the thermal oxidizer to monitor and record the temperature, on a continuous basis, during operation of EU-BIOSYS3. **(R 336.1205, R 336.1224, R 336.1225, R 336.1702, R 336.1901, R 336.1910, R 336.2810, 40 CFR 52.21(j))**
4. The permittee shall install, calibrate, maintain and operate in a satisfactory manner, a device to monitor and record the NO<sub>x</sub>, and CO emissions and oxygen or carbon dioxide (O<sub>2</sub> or CO<sub>2</sub>) content of the exhaust gas from EU-BIOSYS3 on a continuous basis. The permittee shall operate the CEM system to meet the timelines, requirements and reporting detailed in Appendix A. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1602, R 336.1702, R 336.1901, R 336.2810, 40 CFR 52.21(j))**
5. The permittee shall install, calibrate, maintain and operate in a satisfactory manner, a device to monitor and record, the visible emissions from EU-BIOSYS3 on a continuous basis. The permittee shall operate the COM system to meet the timelines, requirements and reporting detailed in Appendix B and shall use the COM data for determining compliance with SC I.1 **(R 336.1205, R 336.1301, R 336.1331, R 336.1702, R 336.1901, R 336.2810, 40 CFR 52.21(j))**
6. The permittee shall install, calibrate, maintain and operate in a satisfactory manner, a device to monitor and record the inlet water flow rate, secondary voltage, and secondary current from the wet electrostatic precipitator for EU-BIOSYS3 on a continuous basis. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1901, R 336.1910, R 336.2810, 40 CFR 52.21(j))**

#### **V. TESTING/SAMPLING**

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

1. Within 60 days of achieving the maximum production rate, but not later than 180 days after commencement of initial startup, the permittee shall verify and quantify PM, PM<sub>10</sub>, PM<sub>2.5</sub>, VOC, SO<sub>2</sub>, and ammonia emission rates and oxygen (O<sub>2</sub>) content of the exhaust gas from EU-BIOSYS3 by testing at owner's expense, in accordance with Department requirements. No less than 60 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 336.1205, R 336.1224, R 336.1225, R 336.1702, R 336.2001, R 336.2003, R 336.2004, R 336.2810, 40 CFR 52.21(j))**

#### **VI. MONITORING/RECORDKEEPING**

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

1. The permittee shall continuously monitor and record, in a satisfactory manner, the NO<sub>x</sub>, CO emissions and oxygen or carbon dioxide (O<sub>2</sub> or CO<sub>2</sub>) content of the exhaust gas from EU-BIOSYS3. The permittee shall operate each Continuous Emission Monitoring System (CEMS) to meet the timelines, requirements and reporting detailed in Appendix A and shall use the CEMS data for determining compliance with SC I.2, I.3, I.5, and I.6. **(R 336.1205, R 336.1224, R 336.1225, R 336.1702, R 336.1901, R 336.2810, 40 CFR 52.21(j), 40 CFR 60.48b)**
2. The permittee shall continuously monitor and record, in a satisfactory manner, the visible emissions from EU-BIOSYS3. The permittee shall operate the COM system to meet the timelines, requirements and reporting detailed in Appendix B and shall use the COM data for determining compliance with SC I.1. **(R 336.1205, R 336.1301, R 336.1331, R 336.1901, R 336.2810, 40 CFR 52.21(j))**
3. The permittee shall monitor and record, in a satisfactory manner, the temperature at the outlet of the thermal oxidizer, on a continuous basis, during operation of EU-BIOSYS3. Temperature data recording shall consist of measurements made at equally spaced intervals, not to exceed 15 minutes per interval. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1702(a), R 336.1901, R 336.2810, 40 CFR 52.21(j))**
4. The permittee shall keep, in a satisfactory manner, operating temperature records for the outlet of the thermal oxidizer of EU-BIOSYS3 as required by SC IV.3. The permittee shall keep all records and calculations on file at the facility and make them available to the Department upon request. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1702(a), R 336.1901, R 336.2810, 40 CFR 52.21(j))**
5. The permittee shall monitor and record, in a satisfactory manner, the inlet water flow rate, secondary voltage, and secondary current from the wet electrostatic precipitator for EU-BIOSYS3 on a continuous basis. **(R 336.1205, R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1901, R 336.1910, R 336.2810, 40 CFR 52.21(j))**
6. The permittee shall record the time and duration of each startup and shutdown of EU-BIOSYS3 as defined in SC III.3. 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, R 336.1910, R 336.1911, R 336.2810, 40 CFR 52.21(j))**
7. The permittee shall calculate in a satisfactory manner, the annual fugitive dust emissions, using the current U. S. EPA Compilation of Air Pollutant Emission Factors (AP-42) or other emission factors approved by the Department such as those used in the MAERS. **(R 336.1371, R 336.1372, R 336.1901)**
8. The permittee shall calculate and keep records of the annual emissions of NO<sub>x</sub>, CO, VOC, SO<sub>2</sub>, PM, PM<sub>10</sub>, PM<sub>2.5</sub>, and CO<sub>2e</sub> from EU-BIOSYS3, in tons per 12-month rolling time period, as required by SC I.4, I.7, I.10, I.13, I.16, I.19, I.22, and I.25. Calculations and record keeping shall begin the month in which regular operations of EU-BIOSYS3 commence. **(R 336.1205(1))**

**VII. REPORTING**

1. 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-BIOSYS3. **(R 336.1201(7)(a))**
  
2. Within 12 months 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 status of compliance of EU-BIOSYS3 with the terms and conditions of the Permit to Install. The notification shall include all of the following:
  - a) The results of all testing, monitoring, and recordkeeping performed to determine the actual emissions from EU-BIOSYS3 and to demonstrate compliance with the terms and conditions of the Permit to Install;
  
  - b) A schedule of compliance for EU-BIOSYS3 as described in Rule 119(a); and
  
  - c) A statement, signed by the person owning or operating EU-BIOSYS3 that, based on information and belief formed after reasonable inquiry, the statements and information in the notification are true, accurate, and complete. **(R 336.1216(1), R 336.1201(7)(b))**

**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:

<b>Stack &amp; Vent ID</b>	<b>Maximum Exhaust Diameter (inches)</b>	<b>Minimum Height Above Ground (feet)</b>	<b>Underlying Applicable Requirements</b>
1.SV-STACK3	96	150	40 CFR 52.21(c) and (d), R 336.2803, R 336.2804

**IX. OTHER REQUIREMENTS**

1. The permittee shall comply with all provisions of the federal National Emission Standards for Hazardous Air Pollutants as specified in 40 CFR Part 63 Subparts A and JJJJJJ as they apply to EU-BIOSYS3. **(40 CFR Part 63, Subparts A and JJJJJJ)**
  
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-BIOSYS3. **(40 CFR Part 60 Subparts A & Db)**

**Footnotes:**

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

**The following conditions apply to: FG-BIOFEEDRECEIVE**

**DESCRIPTION:** Deliveries by truck of biomass feedstock requiring additional processing for use in the gasifiers. This flexible group consists of three emission units, EU-BioFeed1, EU-BioFeed2, and EU-BioFeed3. Note: pre-processed feedstock such as sawdust and baled biomass materials will be delivered directly to the inside of the Processing Building, EU-BioFeed6.

EU-BioFeed 1: Truck Biomass Receiving Bin – Dumper #1 Conventional hydraulic tipping equipment for non-self-unloading trucks, discharging into a receiving hopper. 150 tons per hour design capacity.

EU-BioFeed 2: Truck Biomass Receiving Bin - Dumper #2 Conventional hydraulic tipping equipment for non-self-unloading trucks, discharging into a receiving hopper. 150 tons per hour design capacity.

EU-BioFeed 3: Self - Unloading Truck Dump - Self-unloading trucks, with live bottom and shuffle floor construction and end-dumping will discharge biomass feedstock into a pile adjacent to the EU-BioFeed 1 and EU-BioFeed 2 receiving hoppers. 150 tons per hour design capacity.

Feedstock requiring processing will be chipped or ground to an appropriate size and delivered to the Midland Power Station by truck. The expected delivery rate is up to 85 trucks per day, 40 tons of biomass feedstock per truck, with a maximum of 10 trucks in any single hour.

**POLLUTION CONTROL EQUIPMENT:** Enclosed truck unloading area. Biomass moisture inherently reduces dust emissions.

**I. EMISSION LIMITS**

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Visible Emissions	5 percent opacity	Test Protocol*	FG-BIOFEEDRECEIVE	SC VI.2	R 336.1301, R 336.2803, R 336.2804, R 336.2810, 40 CFR 52.21 (c) & (d) & (j)
* Test protocol will specify averaging time.					

**II. MATERIAL LIMITS**

1. The permittee shall not process more than 3,400 tons of solid feedstock per calendar day through FG-BIOFEEDRECEIVE. (R 336.1205(1)(a), R 336.2803, R 336.2804, R 336.2810, 40 CFR 52.21(c), (d) & (j))

**III. PROCESS/OPERATIONAL RESTRICTIONS**

1. The permittee shall not operate FG-BIOFEEDRECEIVE unless all unloading activities take place within an enclosed truck unload area. (R 336.1205, R 336.1224, R 336.1225, R 336.1331, R 336.1901, R 336.2802, 40 CFR 52.21)
2. The permittee shall not operate FG-BIOFEEDRECEIVE unless the program for continuous fugitive emissions control for all material handling operations, approved by the AQD District Supervisor, has been implemented and is maintained. (R 336.1371, R 336.1901)

**IV. DESIGN/EQUIPMENT PARAMETERS NA**

**V. TESTING/SAMPLING NA**

**VI. MONITORING/RECORDKEEPING**

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

1. The permittee shall perform and document non-certified visible emissions observations as required in Emission Limit SC I.1 on a daily basis when FG-BIOFEEDRECEIVE is operating. If during the observation there are any visible emissions detected from an emission point, an EPA Method 22 certified visible emissions observation shall be conducted for a minimum of 15 minutes to determine the actual opacity from that emission point. Records of the non-certified visible emissions observations, EPA Method 9 observations that are performed, the reason for any visible emissions observed and any corrective actions taken shall be kept on file and in a format acceptable to the AQD. **(R 336.1901, R 336.1910, R 336.1911, R 336.2803, R 336.2804, R 336.2810, 40 CFR 52.21 (c), (d) & (j))**
2. The permittee shall keep, in a satisfactory manner, daily records of the number of tons of solid feedstock handled through FG-BIOFEEDRECEIVE as required by Material Limit SC No. II.1. **(R 336.1205(1)(a), R 336.2803, R 336.2804, R 336.2810, 40 CFR 52.21(c), (d) & (j))**

**VII. REPORTING**

1. Within 30 days after completion of the installation, construction, reconstruction, relocation, or modification of FG-BIOFEEDRECEIVE 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 FG-BIOFEEDRECEIVE. **(R 336.1201(7)(a))**

**VIII. STACK/VENT RESTRICTIONS NA**

**IX. OTHER REQUIREMENTS NA**

**Footnotes:**

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

**The following conditions apply to: FG-FUGDUST**

**DESCRIPTION:** Storage and transfer of biomass feedstock within the facility using mobile equipment in storage areas and over roads.

EU-BioFeed 4: Truck Traffic on Roads and Mobile Equipment Operations - vehicle traffic on paved facility roads. Expected material handling capacity is 400 tons per hour.

EU-BioFeed 5: Emergency Outdoor Storage Pile - Outdoor emergency biomass pile. Size is up to an estimated 16,000 cubic feet. The outdoor auxiliary manual reclaim storage pile will be up to approximately 30 feet high with a storage capacity sufficient for eight to ten days of operation. Reclaim of any material on the emergency outdoor pile will be via mobile equipment such as front end loaders, loading an enclosed conveyor and transfer to the Processing Building (EU-BioFeed 6).

**POLLUTION CONTROL EQUIPMENT:** Biomass moisture inherently reduces dust emissions. Storage pile dust suppression systems and program for continuous fugitive emissions control for all material handling operations.

**I. EMISSION LIMITS**

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Visible Emissions	5 percent opacity	Test Protocol*	FG-FUGDUST	SC VI.2	R 336.1301, R 336.2803, R 336.2804, R 336.2810, 40 CFR 52.21 (c) & (d) & (j)
* Test protocol will specify averaging time.					

**II. MATERIAL LIMITS**

1. The permittee shall not process more than 400 tons of solid feedstock per hour through FG-FUGDUST. (R 336.1205(1)(a), R 336.2803, R 336.2804, R 336.2810, 40 CFR 52.21(c), (d) & (j))

**III. PROCESS/OPERATIONAL RESTRICTIONS**

1. The permittee shall not operate FG-FUGDUST unless the program for continuous fugitive emissions control for all material handling operations, approved by the AQD District Supervisor, has been implemented and is maintained. The permittee shall not operate any portion of FG-FUGDUST unless the storage pile dust suppression systems are installed, maintained and operated in a satisfactory manner, and/or in accordance with a malfunction abatement plan approved by the AQD District Supervisor. (R 336.1371, R 336.1901, R 336.1910, R 336.1911, R 336.2803, R 336.2804, R 336.2810, 40 CFR 52.21 (c), (d) & (j))

**IV. DESIGN/EQUIPMENT PARAMETERS** NA

**V. TESTING/SAMPLING** NA

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

**VI. MONITORING/RECORDKEEPING**

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

1. The permittee shall perform and document non-certified visible emissions observations as required in Emission Limit SC I.1 on a daily basis when FG-FUGDUST is operating. If during the observation there are any visible emissions detected from an emission point, an EPA Method 9 certified visible emissions

observation shall be conducted for a minimum of 15 minutes to determine the actual opacity from that emission point. Records of the non-certified visible emissions observations, EPA Method 9D observations that are performed, the reason for any visible emissions observed and any corrective actions taken shall be kept on file and in a format acceptable to the AQD. **(R 336.1901, R 336.1910, R 336.1911, R 336.2803, R 336.2804, R 336.2810, 40 CFR 52.21 (c), (d) & (j))**

2. The permittee shall keep, in a satisfactory manner, daily records of the number of tons of solid feedstock handled through FG-FUGDUST as required by Material Limit SC No. II.1. **(R 336.1205(1)(a), R 336.2803, R 336.2804, R 336.2810, 40 CFR 52.21(c), (d) & (j))**

## **VII. REPORTING**

1. Within 30 days after completion of the installation, construction, reconstruction, relocation, or modification of FG-FUGDUST 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 FG-BIOFEEDRECEIVE. **(R 336.1201(7)(a))**

## **VIII. STACK/VENT RESTRICTIONS NA**

## **IX. OTHER REQUIREMENTS NA**

### **Footnotes:**

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

**The following conditions apply to: EU-BioFeed 6**

**DESCRIPTION:** EU-BioFeed 6: Truck delivery inside the Processing Building of pre-sized feedstock such as sawdust and baled biomass feedstock. Transfer of biomass feedstock in enclosed conveyors from receiving and reclaim points (EU-BioFeed 1, EU-BioFeed 2, EU-BioFeed 3, and EU-BioFeed 5) into the Processing Building. Feedstock processing includes magnetic removal of ferrous metal, screening to three inch size, and size reduction of feedstock larger than three inches.

Total design throughput is 80 tons of feedstock per hour. The facility is designed to gasify approximately 1,350 tons of biomass feedstock per day, based on a feedstock heating value of 6,000 Btu/lb. Actual feedstock usage depends on many factors including feedstock moisture content and heat and energy demand rates.

**POLLUTION CONTROL EQUIPMENT:** Dust within the Processing Building will be controlled with a 27,500 cfm baghouse. Covered conveyors, processing within buildings, dust suppression systems and program for continuous fugitive emissions control for all material handling operations.

**Flexible Group ID:** FGFACILITY

**I. EMISSION LIMITS**

<b>Pollutant</b>	<b>Limit</b>	<b>Time Period/ Operating Scenario</b>	<b>Equipment</b>	<b>Monitoring/ Testing Method</b>	<b>Underlying Applicable Requirements</b>
1. Visible Emissions	5 percent opacity	Test Protocol*	EU-BioFeed 6	SC VI.2	R 336.1301, R 336.2803, R 336.2804, R 336.2810, 40 CFR 52.21 (c) & (d) & (j)
2. PM10	0.001 gr/dscf	Test Protocol*	EU-BioFeed 6	GC 13	R 336.2803, R 336.2804, R 336.2810, 40 CFR 52.21 (c) & (d) & (j)
3. PM2.5	0.001 gr/dscf	Test Protocol*	EU-BioFeed 6	GC 13	R 336.2803, R 336.2804, R 336.2810, 40 CFR 52.21 (c) & (d) & (j)

\* Test protocol will specify averaging time.

**II. MATERIAL LIMITS**

1. The permittee shall not process more than 80 tons of solid feedstock per hour through EU-BioFeed 6. (R 336.1205(1)(a), R 336.2803, R 336.2804, R 336.2810, 40 CFR 52.21(c), (d) & (j))

**III. PROCESS/OPERATIONAL RESTRICTIONS**

1. The permittee shall not operate EU-BioFeed 6 unless the program for continuous fugitive emissions control for all material handling operations, approved by the AQD District Supervisor, has been implemented and is maintained. The permittee shall not operate any portion of EU-BioFeed 6 unless the covered conveyors, and fabric filter collector systems are installed, maintained and operated in a satisfactory manner, and/or in accordance with a malfunction abatement plan approved by the AQD District Supervisor. (R 336.1371, R 336.1901, R 336.1910, R 336.1911, R 336.2803, R 336.2804, R 336.2810, 40 CFR 52.21 (c), (d) & (j))

**IV. DESIGN/EQUIPMENT PARAMETERS** NA

**V. TESTING/SAMPLING** NA

#### **VI. MONITORING/RECORDKEEPING**

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

1. The permittee shall perform and document non-certified visible emissions observations as required in Emission Limit SC I.1 on a daily basis when EU-BioFeed 6 is operating. If during the observation there are any visible emissions detected from an emission point, an EPA Method 9 certified visible emissions observation shall be conducted for a minimum of 15 minutes to determine the actual opacity from that emission point. Records of the non-certified visible emissions observations, EPA Method 9 observations that are performed, the reason for any visible emissions observed and any corrective actions taken shall be kept on file and in a format acceptable to the AQD. **(R 336.1901, R 336.1910, R 336.1911, R 336.2803, R 336.2804, R 336.2810, 40 CFR 52.21 (c), (d) & (j))**
2. The permittee shall keep, in a satisfactory manner, daily records of the number of tons of solid feedstock handled through EU-BioFeed 6 as required by Material Limit SC No. II.1. **(R 336.1205(1)(a), R 336.2803, R 336.2804, R 336.2810, 40 CFR 52.21(c), (d) & (j))**
3. The permittee shall not operate EU-BioFeed 6 unless the fabric filter dust collector is installed, maintained, and operated in a satisfactory manner. Satisfactory operation of the fabric filter dust collector requires a pressure drop range between 2 and 10 inches of water column. **(R 336.1910)**

#### **VII. REPORTING**

1. Within 30 days after completion of the installation, construction, reconstruction, relocation, or modification of EU-BioFeed 6 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-BioFeed 6. **(R 336.1201(7)(a))**

#### **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:

<b>Stack &amp; Vent ID</b>	<b>Maximum Exhaust Diameter (inches)</b>	<b>Minimum Height Above Ground (feet)</b>	<b>Underlying Applicable Requirements</b>
1.SV-BioFeed 6	36	50	R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d)

#### **IX. OTHER REQUIREMENTS NA**

#### **Footnotes:**

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

**The following conditions apply to: EU-BioFeed 7**

**DESCRIPTION:** EU-BioFeed 7: Transfer of feedstock from the Processing Building (EU-BioFeed 6) in an enclosed conveyor to the Biomass Barn for storage before transfer to the Gasification Building (EU-BioFeed 8). Various conveyors and reclaimers systems will be used to move the feedstock within the Biomass Barn.

Total design throughput is 80 tons of feedstock per hour. The facility is designed to gasify approximately 1,350 tons of biomass feedstock per day, based on a feedstock heating value of 6,000 Btu/lb. Actual feedstock usage depends on many factors including feedstock moisture content and heat and energy demand rates.

**POLLUTION CONTROL EQUIPMENT:** Dust within the Biomass Barn will be controlled with a 9,400 cfm baghouse. Covered conveyors, processing within buildings, dust suppression systems and program for continuous fugitive emissions control for all material handling operations.

**Flexible Group ID:** FGFACILITY

**I. EMISSION LIMITS**

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Visible Emissions	5 percent opacity	Test Protocol*	EU-BioFeed 7	SC VI.2	R 336.1301, R 336.2803, R 336.2804, R 336.2810, 40 CFR 52.21 (c) & (d) & (j)
2. PM10	0.001 gr/dscf	Test Protocol*	EU-BioFeed 7	GC 13	R 336.2803, R 336.2804, R 336.2810, 40 CFR 52.21 (c) & (d) & (j)
3. PM2.5	0.001 gr/dscf	Test Protocol*	EU-BioFeed 7	GC 13	R 336.2803, R 336.2804, R 336.2810, 40 CFR 52.21 (c) & (d) & (j)
* Test protocol will specify averaging time.					

**II. MATERIAL LIMITS**

1. The permittee shall not process more than 80 tons of solid feedstock per hour through EU-BioFeed 7. (R 336.1205(1)(a), R 336.2803, R 336.2804, R 336.2810, 40 CFR 52.21(c), (d) & (j))

**III. PROCESS/OPERATIONAL RESTRICTIONS**

1. The permittee shall not operate EU-BioFeed 7 unless the program for continuous fugitive emissions control for all material handling operations, approved by the AQD District Supervisor, has been implemented and is maintained. The permittee shall not operate any portion of EU-BioFeed 7 unless the covered conveyors and fabric filter collector systems are installed, maintained and operated in a satisfactory manner, and/or in accordance with a malfunction abatement plan approved by the AQD District Supervisor. (R 336.1371, R 336.1901, R 336.1910, R 336.1911, R 336.2803, R 336.2804, R 336.2810, 40 CFR 52.21 (c), (d) & (j))

**IV. DESIGN/EQUIPMENT PARAMETERS NA**

**V. TESTING/SAMPLING NA**

#### **VI. MONITORING/RECORDKEEPING**

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

1. The permittee shall perform and document non-certified visible emissions observations as required in Emission Limit SC I.1 on a daily basis when EU-BioFeed 7 is operating. If during the observation there are any visible emissions detected from an emission point, an EPA Method 9 certified visible emissions observation shall be conducted for a minimum of 15 minutes to determine the actual opacity from that emission point. Records of the non-certified visible emissions observations, EPA Method 9 observations that are performed, the reason for any visible emissions observed and any corrective actions taken shall be kept on file and in a format acceptable to the AQD. **(R 336.1901, R 336.1910, R 336.1911, R 336.2803, R 336.2804, R 336.2810, 40 CFR 52.21 (c), (d) & (j))**
2. The permittee shall keep, in a satisfactory manner, daily records of the number of tons of solid feedstock handled through EU-BioFeed 7 as required by Material Limit SC No. II.1. **(R 336.1205(1)(a), R 336.2803, R 336.2804, R 336.2810, 40 CFR 52.21(c), (d) & (j))**
3. The permittee shall not operate EU-BioFeed 7 unless the fabric filter dust collector is installed, maintained, and operated in a satisfactory manner. Satisfactory operation of the fabric filter dust collector requires a pressure drop range between 2 and 10 inches of water column. **(R 336.1910)**

#### **VII. REPORTING**

1. Within 30 days after completion of the installation, construction, reconstruction, relocation, or modification of EU-BioFeed 7 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-BioFeed 7. **(R 336.1201(7)(a))**

#### **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:

<b>Stack &amp; Vent ID</b>	<b>Maximum Exhaust Diameter (inches)</b>	<b>Minimum Height Above Ground (feet)</b>	<b>Underlying Applicable Requirements</b>
1.SV-BioFeed 7	24	50	R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d)

#### **IX. OTHER REQUIREMENTS** NA

#### **Footnotes:**

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

**The following conditions apply to: EU-BioFeed 8**

**DESCRIPTION:** EU-BioFeed 8: Transfer of feedstock from the Biomass Barn (EU-BioFeed 7) in enclosed conveyors to the Gasification Building. Within the building, fixed tripper conveyors with chutes will move the feedstock to the three live bottom surge bins, one above each of the three gasifiers. Feedstock transfer from each bin through an airlock feed system to each gasifier. The demand signal from the gasifier will control the feed rate from the corresponding surge bin.

Total design throughput is 80 tons of feedstock per hour. The facility is designed to gasify approximately 1,350 tons of biomass feedstock per day, based on a feedstock heating value of 6,000 Btu/lb. Actual feedstock usage depends on many factors including feedstock moisture content and heat and energy demand rates.

**POLLUTION CONTROL EQUIPMENT:** Dust within the Gasification Building will be controlled with a 25,500 cfm baghouse. Covered conveyors, processing within buildings, dust suppression systems and program for continuous fugitive emissions control for all material handling operations.

**Flexible Group ID:** FGFACILITY

**I. EMISSION LIMITS**

<b>Pollutant</b>	<b>Limit</b>	<b>Time Period/ Operating Scenario</b>	<b>Equipment</b>	<b>Monitoring/ Testing Method</b>	<b>Underlying Applicable Requirements</b>
1. Visible Emissions	5 percent opacity	Test Protocol*	EU-BioFeed 8	SC VI.2	R 336.1301, R 336.2803, R 336.2804, R 336.2810, 40 CFR 52.21 (c) & (d) & (j)
2. PM10	0.001 gr/dscf	Test Protocol*	EU-BioFeed 8	GC 13	R 336.2803, R 336.2804, R 336.2810, 40 CFR 52.21 (c) & (d) & (j)
3. PM2.5	0.001 gr/dscf	Test Protocol*	EU-BioFeed 8	GC 13	R 336.2803, R 336.2804, R 336.2810, 40 CFR 52.21 (c) & (d) & (j)
* Test protocol will specify averaging time.					

**II. MATERIAL LIMITS**

1. The permittee shall not process more than 80 tons of solid feedstock per hour through EU-BioFeed 8. **(R 336.1205(1)(a), R 336.2803, R 336.2804, R 336.2810, 40 CFR 52.21(c), (d) & (j))**

**III. PROCESS/OPERATIONAL RESTRICTIONS**

1. The permittee shall not operate EU-BioFeed 8 unless the program for continuous fugitive emissions control for all material handling operations, approved by the AQD District Supervisor, has been implemented and is maintained. The permittee shall not operate any portion of EU-BioFeed 8 unless the covered conveyors and fabric filter collector systems are installed, maintained and operated in a satisfactory manner, and/or in accordance with a malfunction abatement plan approved by the AQD District Supervisor. **(R 336.1371, R 336.1901, R 336.1910, R 336.1911, R 336.2803, R 336.2804, R 336.2810, 40 CFR 52.21 (c), (d) & (j))**

**IV. DESIGN/EQUIPMENT PARAMETERS NA**

**V. TESTING/SAMPLING NA**

**VI. MONITORING/RECORDKEEPING**

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

1. The permittee shall perform and document non-certified visible emissions observations as required in Emission Limit SC I.1 on a daily basis when EU-BioFeed 8 is operating. If during the observation there are any visible emissions detected from an emission point, an EPA Method 9 certified visible emissions observation shall be conducted for a minimum of 15 minutes to determine the actual opacity from that emission point. Records of the non-certified visible emissions observations, EPA Method 9 observations that are performed, the reason for any visible emissions observed and any corrective actions taken shall be kept on file and in a format acceptable to the AQD. **(R 336.1901, R 336.1910, R 336.1911, R 336.2803, R 336.2804, R 336.2810, 40 CFR 52.21 (c), (d) & (j))**
2. The permittee shall keep, in a satisfactory manner, daily records of the number of tons of solid feedstock handled through EU-BioFeed 8 as required by Material Limit SC No. II.1. **(R 336.1205(1)(a), R 336.2803, R 336.2804, R 336.2810, 40 CFR 52.21(c), (d) & (j))**
3. The permittee shall not operate EU-BioFeed 8 unless the fabric filter dust collector is installed, maintained, and operated in a satisfactory manner. Satisfactory operation of the fabric filter dust collector requires a pressure drop range between 2 and 10 inches of water column. **(R 336.1910)**

**VII. REPORTING**

1. Within 30 days after completion of the installation, construction, reconstruction, relocation, or modification of EU-BioFeed 8 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 FG-BioFeed 8. **(R 336.1201(7)(a))**

**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:

<b>Stack &amp; Vent ID</b>	<b>Maximum Exhaust Diameter (inches)</b>	<b>Minimum Height Above Ground (feet)</b>	<b>Underlying Applicable Requirements</b>
1.SV-BioFeed 8	36	50	R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d)

**IX. OTHER REQUIREMENTS NA**

**Footnotes:**

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

**The following conditions apply to: EU-ASHSYSTEM**

**DESCRIPTION:** Ash will be removed from the gasifier at two bottom discharge ash hoods to a totally enclosed conveyance system and from the gas stream using a cyclone particulate collector which will also discharge to the totally enclosed conveyance system. Ash removed from the gasifier and cyclone will be transported via a totally enclosed conveyance system to a drag chain conveyor. Water sprays will be installed over the drag chain conveyor to wet the ash prior to its being deposited in an enclosed truck. Due to the total enclosure of the conveyance from the gasifier to the drag chain conveyor, the emissions from this system will be insignificant. The water sprays will suppress any potential dust generated by moving the ash from the drag chain conveyor to the enclosed truck. Carryover of fly ash from the gasifier and cyclone will be minimal. Trace amounts of ash will deposit in the oxidizer and the heat recovery steam generator (HRSG). The ash will be removed periodically via cleaning (either by vacuuming or manual cleaning). The materials will be deposited into a sealed drum or bin for disposal. This removal process will be infrequent and all ash will be sealed to prevent emissions of particulate matter. The maximum amount of ash handled from each biomass gasifier/oxidation system is estimated to be 1,000 pounds per hour.

**Flexible Group ID:** FGFACILITY

**POLLUTION CONTROL EQUIPMENT:** water sprays on the chain conveyor plus enclosed handling and storage

**I. EMISSION LIMITS**

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. Visible Emissions	5 percent opacity	Test Protocol*	Emissions from the transfer points in EU-ASHSYSTEM	SC VI.1	R 336.1301, R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d)
* Test protocol will specify averaging time.					

**II. MATERIAL LIMITS**

1. The permittee shall not process more than 36 tons of ash per calendar day in EU-ASHSYSTEM. **(R 336.1205(1)(a), R 336.2803, R 336.2804, 40 CFR 52.21 (c), (d) & (j))**

**III. PROCESS/OPERATIONAL RESTRICTIONS**

1. The permittee shall not operate EU-ASHSYSTEM unless a program for continuous fugitive emissions control for all material handling operations, approved by the AQD District Supervisor, has been implemented and is maintained. **(R 336.1371, R 336.1901)**
2. The permittee shall not operate any portion of EU-ASHSYSTEM unless the associated totally enclosed conveyors and water sprays on open conveyors are installed, maintained and operated in a satisfactory manner. Satisfactory manner includes operating and maintaining each control device in accordance with a malfunction abatement plan (MAP), approvable by the AQD District Supervisor. **(R 336.1901, R 336.1910, R 336.1911, R 336.2803, R 336.2804, R 336.2810, 40 CFR 52.21 (c), (d) & (j))**

**IV. DESIGN/EQUIPMENT PARAMETERS NA**

**V. TESTING/SAMPLING NA**

**VI. MONITORING/RECORDKEEPING**

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

1. The permittee shall perform and document non-certified visible emissions observations as required in Emission Limit SC I.1 on a daily basis when EU-ASHSYSTEM is operating. If during the observation there are any visible emissions detected from an emission point, an EPA Method 9 certified visible emissions observation shall be conducted for a minimum of 15 minutes to determine the actual opacity from that emission point. Records of the non-certified visible emissions observations, EPA Method 9 observations that are performed, the reason for any visible emissions observed and any corrective actions taken shall be kept on file and in a format acceptable to the AQD. **(R 336.1901, R 336.1910, R 336.1911, R 336.2803, R 336.2804, R 336.2810, 40 CFR 52.21 (c), (d) & (j))**
2. The permittee shall keep, in a satisfactory manner, daily records of the weight in tons of ash processed through EU-ASHSYSTEM as required by SC No. II.1. **(R 336.1205(1)(a), R 336.2803, R 336.2804, 40 CFR 52.21(c), (d) & (j))**

**VII. REPORTING**

1. Within 30 days after completion of the installation, construction, reconstruction, relocation, or modification of EU-ASHSYSTEM 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-ASHSYSTEM. **(R 336.1201(7)(a))**

**VIII. STACK/VENT RESTRICTIONS NA**

**IX. OTHER REQUIREMENTS NA**

**Footnotes:**

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

**The following conditions apply to: EU-AMMONIASYSTEM**

**DESCRIPTION:** Aqueous ammonia handling and storage. Liquid aqueous ammonia for use in the SCR NOx emission control system will be delivered by truck. The aqueous ammonia will be stored in one outdoor 30,000-gallon tank with loading emissions limited by a vapor balance system.

**Flexible Group ID:** FGFACILITY

**POLLUTION CONTROL EQUIPMENT:** Storage tank loading emissions limited by a vapor balance system.

**I. EMISSION LIMITS** NA

**II. MATERIAL LIMITS** NA

**III. PROCESS/OPERATIONAL RESTRICTIONS**

1. Vapor return lines shall be employed whenever necessary to ensure an accidental release from pressure relief valves will not occur during ammonia transfer operations. **(R 336.1224 R 336.1225, R 336.1901)**

**IV. DESIGN/EQUIPMENT PARAMETERS**

1. Any vapor or liquid line, exclusive of couplings, requiring venting after ammonia transfer shall be vented through a water trap of 55 gallons minimum size. Safety water shall not be used for this purpose. **(R 336.1225, R 336.1901)**

**V. TESTING/SAMPLING** NA

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

**VI. MONITORING/RECORDKEEPING**

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

1. The permittee shall keep records of the date, time, and amount of each delivery of aqueous ammonia to the facility. The permittee shall keep the records on file at the facility, in a format acceptable to the AQD District Supervisor, and make them available to the Department upon request. **(R 336.1201(3), R 336.1901)**

**VII. REPORTING** NA

**VIII. STACK/VENT RESTRICTIONS** NA

**IX. OTHER REQUIREMENTS** NA

**Footnotes:**

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

**The following conditions apply to: EU-COOLINGTOWER**

**DESCRIPTION:** Cooling Tower—three cells, counter-flow mechanical draft

**Flexible Group ID:** FGFACILITY

**POLLUTION CONTROL EQUIPMENT:** drift eliminators

**I. EMISSION LIMIT(S)** NA

**II. MATERIAL LIMIT(S)** NA

**III. PROCESS/OPERATIONAL RESTRICTIONS**

1. Within 180 days after start-up of EU-BIOSYS1, EU-BIOSYS2, OR EU-BIOSYS3, the permittee shall submit, to the AQD District Supervisor, an inspection and maintenance program for EU-COOLINGTOWER. The permittee shall comply with the submitted program until the AQD District Supervisor approves the program or approves an amended program. Thereafter, the permittee shall comply with the approved program. At any time, the permittee may submit a modified program to the AQD District Supervisor for review and approval. **(R 336.2810, 40 CFR 52.21(j))**

**IV. DESIGN/EQUIPMENT PARAMETERS**

1. The permittee shall equip and maintain each cooling tower in FGCOOLINGTWR with drift eliminators with a vendor-certified maximum drift rate of 0.0005 percent or less of the cooling tower recirculating water flow. **(R 336.2810, 40 CFR 52.21(j))**

**V. TESTING/SAMPLING**

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

1. Within 180 days after start-up of EU-BIOSYS1, EU-BIOSYS2, OR EU-BIOSYS3, and every seven years thereafter, the permittee shall determine drift loss from EU-COOLINGTOWER by testing, at owner's expense, in accordance with Department requirements. The permittee shall use the 1994 version of the Cooling Technology Institute's Acceptable Test Code (ATC) 140, unless the AQD approves use of an alternate method. No less than 60 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. Determination of drift loss 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 336.2810, 40 CFR 52.21(j))**

**VI. MONITORING/RECORDKEEPING**

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

1. For EU-COOLINGTOWER, the permittee shall maintain a record, for the life of the cooling tower, of the vendor's certification required in SC IV.1. **(R 336.2810, 40 CFR 52.21(j))**
2. The permittee shall monitor the following for EU-COOLINGTOWER:
  - a. On a weekly basis, parameters needed to determine the total dissolved solids content of the circulating water.

- b. On a monthly basis, parameters needed to determine the water recirculation rate. **(R 336.2810, 40 CFR 52.21(j))**
3. The permittee shall calculate the PM, PM10, and PM2.5 emission rates from EU-COOLINGTOWER monthly, for the preceding 12-month rolling time period, using a method acceptable to the AQD District Supervisor. **(R 336.2810, 40 CFR 52.21(j))**
4. The permittee shall keep, for EU-COOLINGTOWER, a record of the date the two most recent drift loss determinations were conducted. **(R 336.2810, 40 CFR 52.21(j))**

#### **VII. REPORTING**

1. The permittee shall submit a complete report of the performance test results to the AQD within 60 days following the last date of the test. **(R 336.2001, R 336.2002, R 336.2003)**
2. Within 30 days after completion of the installation, construction, reconstruction, relocation, or modification of EU-COOLINGTOWER 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-COOLINGTOWER. **(R 336.1201(7)(a))**

#### **VIII. STACK/VENT RESTRICTION(S) NA**

#### **IX. OTHER REQUIREMENT(S) NA**

#### **Footnotes:**

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

**The following conditions apply to: EU-GenEngine**

**DESCRIPTION:** A 1,200 kilowatts (kW) emergency engine manufactured after 2009.

**Flexible Group ID:** FGFACILITY

**POLLUTION CONTROL EQUIPMENT:** NA

**I. EMISSION LIMITS**

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. NOx	0.5 g/hp-hr	Test Protocol*	EU-GenEngine	SC VI.2	R 336.2810, 40 CFR 52.21(j) 40 CFR 60.4231
2. VOC	1.0 g/hp-hr	Test Protocol*	EU-GenEngine	SC VI.2	40 CFR 60.4231
3. CO	4.0 g/hp-hr	Test Protocol*	EU-GenEngine	SC VI.2	40 CFR 60.4231
4. PM10	9.99 E-03 lb/MMBtu	Test Protocol*	EU-GenEngine	GC 13	R 336.2810, 40 CFR 52.21(j)
5. PM2.5	9.99 E-03 lb/MMBtu	Test Protocol*	EU-GenEngine	GC 13	R 336.2810, 40 CFR 52.21(j)

\* Test protocol will specify averaging time.

**II. MATERIAL LIMITS**

1. The permittee shall burn only pipeline quality natural gas in EU-GenEngine. **(R 336.1205(1)(a), 40 CFR 60.4230)**

**III. PROCESS/OPERATIONAL RESTRICTIONS**

1. Except as allowed in SC III.2. the permittee shall operate EU-GenEngine only as an emergency stationary internal combustion engine as defined in 40 CFR 60.4248. **(40 CFR 60.4248, 40 CFR 60.4243(d), R 336.1205(1)(a) & (b), R 336.1225, R 336.1702(a), R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d))**
2. The permittee may operate EU-GenEngine for no more than 100 hours per 12-month rolling time period as determined at the end of each calendar month for the purpose of necessary maintenance checks and readiness testing, provided that the tests are recommended by Federal, State, or local government, the manufacturer, the vendor, or the insurance company associated with the engine. Permittee may petition the Department for approval of additional hours to be used for maintenance checks and readiness testing. 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 internal combustion engines beyond 100 hours per year. **(40 CFR 60.4243(d))**
3. The permittee shall install, maintain, and operate EU-GenEngine according to the manufacturer's emission-related written instructions, over the entire life of the engine. In addition, the permittee may only change those settings that are permitted by the manufacturer. The permittee shall also meet the applicable requirements of 40 CFR Part 1068. **((R 336.1205(1)(a) & (3), R 336.1225, R 336.1911, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d), 40 CFR 60.4234, 40 CFR 60.4243(a))**

#### **IV. DESIGN/EQUIPMENT PARAMETERS**

1. EU-GenEngine shall be certified to meet the applicable emission standard of 40 CFR 60.4233. The permittee shall install and configure the engine according to the manufacturer's specifications. **(40 CFR 60.4243(b))**
2. The permittee shall equip and maintain EU-GenEngine with a non-resettable hours meter to track the operating hours. **(R 336.1205(1)(a) & (3), R 336.1225, 40 CFR 60.4237)**
3. The nameplate capacity of EU-GenEngine shall not exceed 1,200 kW, as certified by the equipment manufacturer. **(R 336.1205(1)(a) & (3), 60.4230(a)(4)(iv))**

#### **V. TESTING/SAMPLING**

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

#### **VI. MONITORING/RECORDKEEPING**

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

1. The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor by the end of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. **(R 336.1205(1)(a) & (3), R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d))**
2. The permittee shall keep, in a satisfactory manner, a record of testing required in SC V.1 or manufacturer certification documentation indicating that EU-GenEngine meets the applicable emission limitations contained in the federal Standards of Performance for New Stationary Sources 40 CFR Part 60 Subpart JJJJ. The permittee shall keep all records on file and make them available to the Department upon request. **(40 CFR 60.4245(a))**
3. The permittee shall monitor and record the hours of operation of EU-GenEngine during emergencies and non-emergencies, on a monthly and 12-month rolling time period basis, in a manner acceptable to the District Supervisor, Air Quality Division. The permittee shall record the time of operation of EU-GenEngine and the reason it was in operation during that time. **(R 336.1205(1)(a) & (3), 40 CFR 60.4243(d))**

#### **VII. REPORTING**

1. 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-GenEngine. **(R 336.1201(7)(a))**

#### **VIII. STACK/VENT RESTRICTIONS NA**

#### **IX. OTHER REQUIREMENTS**

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 JJJJ, as they apply to EU-GenEngine. **(40 CFR Part 60 Subparts A & JJJJ)**

2. The permittee shall comply with all applicable provisions of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR, Part 63, Subpart A and Subpart ZZZZ, for Stationary Reciprocating Internal Combustion Engines by initial startup. **(40 CFR 63.6595, 40 CFR, Part 63, Subparts A and ZZZZ)**

**Footnotes:**

<sup>1</sup>This 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.

<b>Flexible Group ID</b>	<b>Flexible Group Description</b>	<b>Associated Emission Unit IDs</b>
FGFACILITY	All process equipment source-wide including equipment covered by other permits, grand-fathered equipment and exempt equipment. This includes all emission units in this permit to install and in all permits for the facility identified by State Registration Number A4043	All grand-fathered equipment and exempt equipment. and emission units in this permit to install and in all permits for the facility identified by State Registration Number A4043

**The following conditions apply Source-Wide to: FGFACILITY**

**POLLUTION CONTROL EQUIPMENT:** several process-specific methods used at the facility

**I. EMISSION LIMITS**

<b>Pollutant</b>	<b>Limit</b>	<b>Time Period / Operating Scenario</b>	<b>Equipment</b>	<b>Testing / Monitoring Method</b>	<b>Underlying Applicable Requirements</b>
1. Each Individual HAP	Less than 9.9 tpy*	12-month rolling time period as determined at the end of each calendar month	FGFACILITY	SC VI.2	R 336.1205(3)
2. Aggregate HAPs	Less than 24.9 tpy *	12-month rolling time period as determined at the end of each calendar month	FGFACILITY	SC VI.2	R 336.1205(3)
* Beginning on initial startup, 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** NA

**III. PROCESS/OPERATIONAL RESTRICTIONS** NA

1. The permittee shall not operate FGFACILITY unless an acceptable program for continuous fugitive emissions control for all material handling operations, has been submitted to the AQD District Supervisor. The plan shall incorporate procedures including the applicable control methods listed in Rule 372 of the Michigan Air Pollution Control Rules. **(R 336.1371, R 336.1372, R 336.1901)**

**IV. DESIGN/EQUIPMENT PARAMETERS** NA

**V. TESTING/SAMPLING** NA

**VI. MONITORING/RECORDKEEPING**

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

1. All required calculations shall be completed in a format acceptable to the AQD District Supervisor and made available by the end of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. **(R 336.1201)**
2. The stationary source shall keep the following information on a monthly basis for FGFACILITY:
  - a) Individual and aggregate HAP emission calculations determining the monthly emission rate of each in tons per calendar month.
  - b) 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. 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.

If stack test results for FGFACILITY exist for any of the aforementioned pollutants, those stack test results may be used to estimate pollutant emissions subject to the approval of the AQD. All records shall be kept on file and made available to the Department upon request. **(R 336.1205(3))**

**VII. REPORTING NA**

**VIII. STACK/VENT RESTRICTIONS NA**

**IX. OTHER REQUIREMENTS**

1. The permittee shall submit to the AQD District Supervisor, for review and approval, a program for continuous fugitive emissions control during construction of the facility. The permittee shall not commence physical on-site construction unless the plan, approved by the AQD District Supervisor, is implemented and maintained. **(R 336.1205, R 336.1371, R 336.1901)**

**Footnotes:**

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

**APPENDIX A**  
**NOx and CO Monitoring**  
**Continuous Emission Monitoring System (CEMS) Requirements**

1. Within 30 calendar days after commencement of trial operation, 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 CEMS.
2. Within 150 calendar days after commencement of trial operation, the permittee shall submit two copies of a complete test plan for the CEMS to the AQD for approval.
3. Within 180 calendar days after commencement of trial operation, the permittee shall complete the installation and testing of the CEMS.
4. Within 60 days of completion of testing, the permittee shall submit to the AQD two copies of the final report demonstrating the CEMS complies with the requirements of Performance Specification (PS) 2, PS 3, and PS 4.
5. The span value shall be 2.0 times the lowest emission standard or as specified in the federal regulations.
6. The CEMS shall be installed, calibrated, maintained, and operated in accordance with the procedures set forth in 40 CFR 60.13 and PS 2, PS 3, and PS 4 of Appendix B to 40 CFR Part 60.
7. Each calendar quarter, the permittee shall perform the Quality Assurance Procedures of the CEMS 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 CEMS downtime and corrective action.
  - b) A report of the total operating time of the EU-BIOSYS1, EU-BIOSYS2, or EU-BIOSYS3, during the reporting period.
  - c) A report of any periods that the CEMS exceeds the instrument range.
  - d) If no exceedances or CEMS 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**  
**Continuous Opacity Monitoring System (COMS) Requirements**

1. Within 30 calendar days after commencement of trial operation, 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 commencement of trial operation, 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 commencement of trial operation, 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. 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. Within 30 days after the completion of the audit, the results of the annual audit shall be submitted to the AQD.
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 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 10 percent opacity. 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-BIOSYS1, EU-BIOSYS2, or EU-BIOSYS3, during the reporting period.
  - d) If no exceedances or COMS downtime occurred during the reporting period, the permittee shall report that fact.

All monitoring data is shall be kept on file for a period of at least five (5) years and made available to the AQD upon request.