Connecticut Department of

ENERGY &
ENVIRONMENTAL
PROTECTION

BUREAU OF AIR MANAGEMENT
NEW SOURCE REVIEW PERMIT
TO CONSTRUCT AND OPERATE A STATIONARY SOURCE

Issued pursuant to Title 22a of the Connecticut General Statutes (CGS) and Section 22a-174-3a of the Regulations of Connecticut State Agencies (RCSA).

Owner/Operator:	Montville Power LLC
Address:	74 Lathrop Road, Uncasville, CT 06382
Equipment Location:	74 Lathrop Road, Uncasville, CT 06382
Equipment Description:	Unit 5: 42 MW (net) biomass stoker fired; 82 MW (net) tangentially fossil fuel fired utility boiler
Collateral Conditions:	Part VII.B of this permit contains collateral conditions affecting the operation of two existing diesel generators, R107-0021 and R107-0022, Units 10 and 11.

Town-Permit Number:	107-0056
Premises Number:	5
Modification Issue Date:	May 20, 2013
Prior Permit Issue Date:	April 6, 2010
Expiration Date:	None

/s/ Anne Gobin fo
Daniel C. Esty
Commissioner

May 20, 2013
Date

PERMIT FOR FUEL BURNING EQUIPMENT

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The conditions on all pages of this permit and attached appendices shall be verified at all times except those noted as design specifications. Design specifications need not be verified on a continuous basis; however, if requested by the commissioner, demonstration of compliance shall be shown.

PART I. OPERATIONAL CONDITIONS

A. General Process Description

The 82 MW utility boiler, currently referred to as Unit 5, has been converted to combust biomass (clean wood) as a base load utility power plant with a net capacity of 42 MW. The boiler shall be able to transition to natural gas or distillate firing up to a net 82 MW for a period of time equivalent to an annual capacity factor of seven percent. The plant will utilize a stoker grate combustor (biomass firing) with regenerative selective catalytic reduction (RSCR) and Low NOx burners (fossil fuel firing) for NOx control, an electrostatic precipitator (ESP) and multi-cyclones for particulate matter control, an oxidation catalyst for CO, VOC and organic HAP control. The particulate emissions from electrically powered biomass fuel and ash handling systems were assessed and account for less than 3 tons/year. The ash and biomass handling is subject to management practices as described in this permit.

B. Fuel Restrictions

Natural gas and distillate oil will also be used for operations including but not limited to transient operation prior to the transition to biomass firing, biomass firing stabilization in the event of wet biomass, temperature control for the RSCR, and for shutdown of biomass firing. Natural gas and distillate oil firing shall not exceed an equivalent to a 7% annual capacity factor at maximum rated capacity for all modes of operation. All emissions associated with these fuels during transient operations shall be counted toward the annual emissions rates listed in Part V of this permit.

Primary Fuel

Biomass:
Allowable Biomass fuels are described in Table 1 of this permit. Any of these biomass fuels may be utilized 100% of any time of biomass operations.

Treated wood and regulated wood fuel as defined in the CGS 22a-209a(2) and CGS 22a-209a(4) shall not be combusted in this boiler.

1. Maximum wood biomass Consumption over any consecutive 12 month period: 521,000 tons/year, based on a design higher heating value (HHV) of 4,600 Btu/lb @50% moisture.

2. Maximum firing rate: 65.2 tons/hr

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PART I. OPERATIONAL CONDITIONS, continued

3. Maximum Heat Input (MMBtu/hr): 600 @ 50% moisture

4. Maximum Fuel Sulfur Content (% by weight, dry basis): 1 (biomass)

5. Nominal Electrical Generation (MW): 42 (net)

TABLE 1

Allowable Biomass Wood Types	Description
Land Clearing debris	Chipped trees, stumps, branches or brush as defined in RCSA 22a-208a-1
Recycled wood or clean wood	Recycled wood or clean wood means any wood or wood fuel which is derived from such products or processes as pallets skids, spools, packaging materials, bulky wood waste or scraps from newly built wood products, provided such wood is not treated wood. [CGS 22a-209a][RCSA 22a-208a-1]
Other Clean Wood	Other types if properly sized, clean, uncontaminated wood materials, such as sawdust, chips, bark, tree trimmings or other organic based materials

Auxiliary Fuels

The boiler shall be limited to a combined maximum annual heat input of 610,134 MMBtu/yr (7% annual capacity factor) for natural gas and distillate firing. The following equation establishes the maximum fuel usage.

$X^*(0.140\ \text{MMBtu/gal}) + Y^*(0.001\ \text{MMBtu/ft}^3) \leq 610{,}134\ \text{MMBtu}$

Where, X = gallons of ULS distillate oil fired over any consecutive 12 month period.
Y = ft^3 of natural gas fired over the same consecutive 12 month period.

Natural Gas

1. Maximum natural gas consumption over any consecutive 12 month period: 610.134 MMscf/yr based on a HHV of 1000 Btu/scf

2. Maximum firing rate: 995,000 scf/hr

3. Maximum Heat Input (MMBtu/hr): 995

4. Nominal Electrical Generation (MW): 82 (net)

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PART I. OPERATIONAL CONDITIONS, continued

Distillate Oil

1. Maximum distillate oil consumption over any consecutive 12 month period: 4.3581 MMgal based on a HHV of 140 MBtu/gal

2. Maximum firing rate: 7,107 gal/hr

3. Maximum Heat Input (MMBtu/hr): 995

4. Nominal Electrical Generation (MW): 82 (net)

5. Maximum Fuel Sulfur Content (% by weight, dry basis):0.0015

C. Stack Parameters

1. Minimum Stack Height (ft): 258

2. Minimum Exhaust Gas Flow Rate at maximum load (acfm): 214,696 (biomass); 253,360 (gas); 249,404 (oil)

3. Stack Exit Temperature (^{o}F): 327 (biomass); 409 (gas); 373 (oil)

4. Minimum Distance from Stack to Property Line (ft): 213

D. Definitions

1. "Steady-state" operation shall be defined as operation of the boiler when the rate of change in load (i.e. lbs of steam), with respect to time, is less than 5 percent per hour; except for such operation that occurs during periods of start-up, shutdown, malfunction, fuel switching, and equipment cleaning. Additionally, steady-state operation shall include all modes of operation during which the boiler load exceeds 50% of the manufacturer's specified maximum for the specific fuel.

2. "Transient" operation shall be defined as operation of the boiler when the rate of change in load, with respect to time, is greater than 5 percent per hour. Additionally, transient operation shall include and describe the operation of the boiler during all phases of start-up, shutdown, fuel switching, flame stabilization and equipment cleaning where the load is less than 50% of the manufacturer's specified maximum for the specific fuel.

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PART I. OPERATIONAL CONDITIONS, continued

3. "Malfunction" shall be defined as any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment or a process to operate in a normal or usual manner. Failures that were caused in part by poor maintenance or careless operation are not malfunctions.

E. Expected Control Efficiency

Type of control	Overall control efficiency*	Pollutants Controlled
Regenerative Selective Catalytic Reduction (RSCR)	70% biomass 30% gas/oil	NOx
Low NOx burners	30% gas/oil	NOx
Electrostatic Precipitator (ESP)	95%	Filterable PM/PM-10/PM-2.5
Oxidation Catalyst	70%	CO and VOC

***** Overall control efficiency is calculated based on assumed uncontrolled emission rates and required controlled emission rates.

PART II. CONTROL EQUIPMENT

A. Control Equipment Design Specifications

1. Regenerative Selective Catalytic Reduction:

☒ Ammonia –or- ☒ Urea

Make and Model: TBD
Injection Rate at Maximum Rated Capacity (TBD): TBD
Operating Temperature Range (^{o}F): 350-650^{0}F (typical)
Minimum Gas Flow Rate at Maximum Rated Capacity (acfm): TBD
Design Removal Efficiency (%): 70% (max)

2. Low NOx Burner

Make and Model: Riley Custom Burner Modifications
Design NOx Emission Rate (lb/MM BTU): 0.02

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PART II. CONTROL EQUIPMENT, continued

3. Electrostatic Precipitator (ESP)

Make and Model: TBD
Number of Fields: TBD
Minimum Gas Flow Rate at Maximum Rated Capacity (acfm): 139,000
Design Outlet Grain Loading (gr/dscf): TBD
Expected Design Removal Efficiency (%): 95 of filterable PM (99% with multicyclone)

4. Oxidation Catalyst

Make and Model: TBD
Pressure Drop (inches H_2O): TBD
Minimum Gas Flow Rate at Maximum Rated Capacity (acfm): TBD
Expected Design Removal Efficiency (%): 70%

5. Multicyclone

Make and Model: TBD
Pressure Drop (inches H_2O): TBD
Minimum Gas Flow Rate at Maximum Rated Capacity (acfm): TBD

B. Control Equipment Operational Conditions:

1. The Permittee shall develop an operating and maintenance plan (O&M) to include good operating and maintenance practices based on the manufacturer's specifications and written recommendations. Appropriate records shall be made to verify that there is proper operation, monitoring and maintenance of all pollution control devices including those associated with the fuel and ash handling systems. The fuel and ash handling system shall have sufficient enclosures, fabric filters as to minimize particulate emissions from these point sources. The plan shall detail the procedures for operation, inspection, maintenance, preventative measures for the fugitive GHG emissions (CH_4 from the natural gas pipeline components; SF_6 emission from the insulated electrical equipment), and corrective measures for all components of the combustor, including all associated pollution control equipment. The O&M plan must also include a corrective measures plan that specifies the procedures to be followed in the case of a malfunction to the pollution control devices. The corrective measures plan must include, at a minimum, the procedures used to determine and record the time and cause of the alarm as well as the corrective measures taken to correct the control device malfunction or minimize emissions as specified below:

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PART II. CONTROL EQUIPMENT, continued

i. the applicant must initiate the procedures used to determine the cause of the alarm within 30 minutes of the time the alarm first sounds; and

ii. must alleviate the cause of the alarm by taking the necessary corrective measure(s) which may include, but are not to be limited to, inspecting the device for any malfunctions that may cause an increase in emissions or shutting down the combustor.

2. The Permittee shall operate and maintain pollution control devices in accordance with the manufacturer's specifications and written recommendations at all times that the unit is emitting air pollutants. During such times of transient operation pollution control devices shall be operated according to the manufacturer's specifications and written recommendations. During start-up only fossil fuels will be used. The boiler can be operated without RSCR urea or ammonia injection during a start-up/shut-down when the RSCR is not within the manufacturer's specified operating temperature range. During boiler shutdown the Permittee shall not shut down the ESP particulate control while there is biomass fuel on the stoker grate.

PART III. CONTINUOUS EMISSION MONITORING REQUIREMENTS AND ASSOCIATED EMISSION LIMITS (Applicable if -X- Checked)

The Permittee shall comply with the CEM requirements as set forth in RCSA Section 22a-174-4. CEM or an acceptable alternative monitoring method shall be required for the following pollutant/operational parameters and enforced on the following basis firing biomass and fossil fuels – except that emissions limits for fossil fuels are as listed in Part V of this permit. CEM is required at all times that the boiler is emitting air pollutants.

Pollutant/Operational Parameter	Averaging Times	Emission Limit	Units
☒ Opacity	six-minute block	10%[1]	
☒ SOx	3 hour block	10.8	ppmvd @ 7% O_2
☒ NOx	24 hour block	36.2	ppmvd @ 7% O_2
☒ CO	8 hour block	99.1	ppmvd @ 7% O_2
☒ CO_2	1 hour		ppmvd @ 7% O_2
☒ O_2	1 hour block		
☒ Ammonia	24 hour block	18	ppmvd @ 7% O_2
☒ Unit Load	4 hour block		steam flow

[1] **Opacity limit is applicable for all fuels during steady-state operation.**

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PART III. CONTINUOUS EMISSION MONITORING REQUIREMENTS AND ASSOCIATED EMISSION LIMITS, continued Applicable if -X- Checked)

Pollutant/Operational Parameter	Averaging Times	Emission Limit	Units
☒ RSCR Temperature	1 hour block		
☒ Oxid. Cat. Temperature	1 hour block		
☒ T-R secondary voltage	Hourly		
☒ Heat Input	Hourly		Btu
☒ Gross Electrical Output	1 hour block		MW
☒ Biomass Feed Rate	Hourly		lbs

The Permittee shall meet the performance and quality assurance specifications for the operation of CEM equipment pursuant to RCSA Section 22a-174-4.

PART IV. MONITORING, RECORD KEEPING AND REPORTING REQUIREMENTS

A. Monitoring and Record Keeping

1. The Permittee shall use a non-resettable totalizing fuel metering device to continuously monitor natural gas and distillate fuel feed to this permitted source.

2. The Permittee shall monitor the ESP Transformer-Rectifier (TR) Set secondary voltage. The Permittee shall maintain these parameters within the ranges recommended by the manufacturer and/or determined by the performance test required in Part VI of this permit to achieve compliance with the particulate emission limits in this permit.

3. The Permittee shall keep records of daily and annual fuel consumption for all fuels. Annual fuel consumption shall be based on any consecutive 12 month time period and shall be determined by adding (for each fuel) the current month's fuel usage to that of the previous 11 months. The record keeping requirements for fossil fuel consumption shall also be sufficient to show compliance with the annual capacity factor limitation using the equation in Part I.B of this permit. The Permittee shall make these calculations within 30 days of the end of the previous month.

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PART IV. MONITORING, RECORD KEEPING AND REPORTING REQUIREMENTS, cont.

4. The Permittee shall keep records of the fuel certification for each delivery of fuel oil from the fuel supplier or a copy of the current contract with the fuel supplier supplying the fuel used by the equipment. The shipping receipt or contract shall include the date of delivery, the name of the fuel supplier and type of fuel delivered.

5. The Permittee shall keep records of the biomass fuel certification for each delivery of biomass fuel from the fuel supplier or a copy of the current contract with the fuel supplier supplying the biomass fuel used by the equipment. The Permittee shall keep records of each delivery of the biomass fuel and the weight of each delivery. These records, at a minimum, shall show that the allowable biomass fuel meets the specifications in Part I.B Table 1 of this permit.

6. The Permittee shall keep records of all performance tests conducted to determine compliance with the emissions limits in Part V of this permit.

7. The Permittee shall develop pollution control inspection procedures pursuant to the manufacturer’s recommendations. The Permittee shall keep records of all inspections to pollution control devices. These records shall include the date of inspection, any findings of pollution control failures and the time period for corrective action.

8. The Permittee shall keep records of hours of operation of all biomass fuel handling equipment.

9. The Permittee shall develop a written startup, shutdown, and malfunction plan and make this plan available at the Commissioner’s request.

10. The Permittee shall keep records of the duration of all transient operation and malfunction events.

11. The Permittee shall keep records of all tune-ups, repairs, replacement of parts and other maintenance.

12. The Permittee shall keep records for the pollutions control systems consisting of the date, time and duration of each alarm/warning, the time corrective action was initiated and completed, a brief description of the cause of the alarm, and the corrective action taken.

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PART IV. MONITORING, RECORD KEEPING AND REPORTING REQUIREMENTS, cont.

13. The Permittee shall measure and record the electrical output (MW) of this unit during all operating modes, such measurement shall be as required by ISO-NE Operating Procedure No. 18,as may be amended, "Metering and Telemetering Criteria".

14. The Permittee shall keep records to show that the unit will not emit more than 10 tons of any individual HAP or 25 tons of any combination of HAP, on an annual basis, listed in Section 112(b) of the Clean Air Act Amendments of 1990 at this premises

15. The Permittee shall make and keep records of estimated fugitive GHG emissions for CH_4 (natural gas pipeline components) and SF_6 (insulated electrical equipment). Records shall be sufficient to show methodology used to determine emission values.

16. The Permittee shall record each exceedance of an emission limit or operating parameter contained in this permit. Such records shall include the date and time of the exceedance, a description of the exceedance, and the duration of the exceedance. Such report shall contain copies of the exceedance records for the month, an explanation of the likely causes of the exceedances, and an explanation of remedial actions taken to correct the exceedance.

The Permittee shall keep all records required by this permit on site for a period of no less than five years and shall submit such records to the commissioner upon request. An electronic version of any of the required records is acceptable provided it is made readable to the commissioner.

C. Reporting

1. The Permittee shall notify the commissioner in writing each calendar quarter of any malfunction of the boiler or the air pollution control system that resulted in an exceedance of any of the specified emission limits. Reporting of malfunctions for the CEM system shall be in accordance with RCSA 22a-174-4. The Permittee shall submit such notification within thirty days following the end of each calendar quarter. The notification shall include the following:

   i. Description of the malfunction, date and time, the duration and a description of the circumstances surrounding the cause or likely cause of such malfunction and;

   ii. Description of all corrective actions and preventative measures taken and/or planned with respect to such malfunction.

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PART IV. MONITORING, RECORD KEEPING AND REPORTING REQUIREMENTS, cont.

2. The Permittee shall submit sufficient documentation to the Department at least 60-days prior to commencement of commercial operation that the energy efficiency measures found in Part VII.D.1 of this permit have been incorporated into the unit.

PART V. ALLOWABLE EMISSION LIMITS

A. Start-up, Shut-down and Malfunction

1. The Permittee shall develop start-up and shut-down emission rates for each specific fuel as required in Part VII.C of this permit over the first calendar year of commercial operation or 1,000 hours of operations, whichever occurs later. Until such time, the steady state (lb/hr) emission limits listed in Part V of this permit shall be used for permit compliance demonstration during start-up (SU) and shut-down (SD) operation of the boiler. During all SU/SD operation of the boiler the (lb/MMBtu) and (ppm) limits shall not apply.

2. Start-up, shut-down and malfunction shall not exceed 4 hours for each occurrence.

B. The Permittee shall not cause or allow the emissions from this stationary source to exceed the emissions limits stated herein at steady state operation.

Primary Fuel: Biomass **Criteria Pollutants**	**lb/hr**	**lbs/MMBtu**	**Pollutants monitored by CEMS (ppmvd @7% O_2)[2]**
PM-10/2.5 (total)[3]	15.6	0.026	
SOx	15		10.8
NOx	36		36.2
VOC	6.0	0.01	
CO	60.0		99.1
Pb	2.88E-2	4.8E-5	

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Auxiliary Fuel **Distillate Oil:**	**lb/hr**	**lbs/MMBtu**	**Pollutants monitored by CEMS (ppmvd @3% O_2)**
PM-10/2.5 (total)[3]	23.4	0.024	
SOx	1.7		1.0
NOx	59.7		46.9
VOC	1.4	0.0014	
CO	35.5		46.2

Auxiliary Fuel **Natural Gas:**		**lbs/MMBtu**	**Pollutants monitored by CEMS (ppmvd @3% O_2)**
PM-10/2.5 (total)[3]	7.6	0.0076	
SOx	0.6		0.4
NOx	59.7		49.4
VOC	5.5	0.0055	
CO	83.6		113.7
Other Pollutants			
Ammonia (all fuels)			18

[2] **Equivalent mass emission rate based on wood F-factor of 9,240 dscf/MMBtu. [40CFR Part 60, Appendix A, Table 19-2]**

[3] **PM-10/2.5 (total) is the sum of the filterable and condensable fractions of particulate matter.**

C. Annual Emission Limits:

The Permittee shall not cause or allow this equipment to exceed the annual emission limits stated herein at any time.

Criteria Pollutants	**tpy**
PM-10/2.5 (total)	69.4
SOx	60.4
NOx	161.9
VOC	25.6
CO	265.0

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PART V. ALLOWABLE EMISSION LIMITS, continued

D. Hazardous Air Pollutants (HAPs)

The Permittee shall not cause or allow emission from this equipment to exceed the maximum allowable stack concentration (MASC) for any pollutant listed in RCSA §22a-174-29.

E. Opacity

Opacity during steady state operating modes shall not exceed 10% for any six-minute block average.

F. Demonstration of Compliance

Demonstration of compliance with the above emission limits shall be met by calculating the emission rates using emission factors from the following sources:

1. CEM/COMS data for SOx, NOx, CO, Opacity and ammonia

2. Predictive emissions monitoring for VOC as defined in Part VI.D of this permit.

3. Initial and recurring stack testing for all other pollutants

The above statement shall not preclude the commissioner from requiring other means (e.g. stack testing) to demonstrate compliance with the above emission limits, as allowed by state or federal statute, law or regulation.

PART VI. STACK EMISSION TEST REQUIREMENTS (Applicable if -X- Checked)

A. Stack testing shall be performed in accordance with the latest Emission Test Guidelines available on the DEP website:

http://www.ct.gov/deep/lib/deep/air/compliance_monitoring/emission_test/emission_test_guidelines.pdf

Stack emission testing shall be required for the following pollutants for biomass firing:

☒ PM 10/PM 2.5 ☒ SOx ☒ NOx ☒ CO ☒ VOC

☒ Hazardous Air Pollutants: Hydrogen Chloride; NH_3

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PART VI. STACK EMISSION TEST REQUIREMENTS, continued

☒ Initial Performance testing shall include the baseline operating parameters (i.e. flow rate, pressure drop, temperature and listed as TBD, subject to modification) of all control equipment listed in Part II of this permit along with a determination of the methodology to be used to monitor heat input to the unit while firing biomass.

B. The Permittee shall conduct initial stack testing within 180 days of the commencement of commercial operations. Test results must be submitted within 45 days after testing.

Testing being conducted pursuant to 40 CFR Part 60, the test report is to be submitted within 180 days after the initial startup date or within 60 days after reaching maximum production rate. [40 CFR §60.8(a)]

C. After the initial compliance stack test required in Part VI.A of this permit, testing shall be performed at least once every five years from the date of the initial compliance stack test required in Part VI.A of this permit for all pollutants listed in Part V.A with the following exceptions:

1. After the initial stack test, stack testing may not be required for pollutants requiring CEMs/COMS (NO_x, SO_x, CO, Opacity, and NH_3). The commissioner retains the right to require stack testing of any pollutant at any time to demonstrate compliance.

D. Compliance with Volatile Organic Compounds (VOC) emission limits in Part V shall be determined by correlating the VOC emissions to the Carbon Monoxide (CO) emissions using the results of a diagnostic stack test and tracked using the CO CEMS.

E. The Permittee shall test the boiler during transient loads to show compliance with Part VII.C of this permit.

NOTE: Stack testing shall be conducted at or above ninety percent (90%) of maximum rated capacity for the specific fuel. If the source does not achieve ninety percent maximum rated capacity during the stack test, the Permittee shall apply for a minor modification of this permit to address the actual maximum rated capacity achieved in practice. The Commissioner may require stack testing for natural gas and distillate firing at any time to demonstrate compliance with the above emission limits. The Commissioner may require the Permittee to stack test at typical operating loads for recurring tests if necessary.

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PART VI. STACK EMISSION TEST REQUIREMENTS, continued

All stack emissions tests shall be conducted in accordance with the requirements of Section 22a-174-5 of the RCSA. The Commissioner may attach additional requirements to the requirements of Section 22a-174-5 in order to demonstrate continual compliance with the requirements of this permit.

PART VII. SPECIAL REQUIREMENTS

A. The Permittee shall possess, at least, 195 tons of emissions reductions of NOx to offset the quantity of NOx emitted from this source to comply with RCSA Subsection 22a-174-3a(l). Such a quantity is sufficient to offset the emissions from the source listed at a ratio of 1.2 tons of reduction for every 1 ton of NOx emissions allowed under this permit. There are 24.2 tons of internal emissions reductions (offsets) allowed from the actual NOx emissions from this boiler prior to the modification based on calendar years 2007 and 2008. After the internal offsets are considered, **the Permittee shall possess 171 tons of external emissions reduction credits.** Such offsets have been obtained from the following source: Devon Power LLC (Serial # CTNOx0304-105-14-171). The offsets were approved by the Department on March 30, 2010. The Permittee shall maintain sole ownership and possession of these external emission reduction credits for the duration of this permit and any subsequent changes to the permit.

B. The Permittee shall not operate the existing 2.5 MW diesel generators, R107-0021 and R107-0022, for more than 30 hours/day combined when firing Unit 5 on biomass. The Permittee shall make and keep records sufficient to demonstrate compliance with this operating limitation.

C. For one calendar year from the date of commencement of commercial operation, the Permittee shall track steady state and transient emissions of CO, Opacity, SOx, NOx, VOC and PM-2.5/10 during operation of the boiler. Emissions of SOx, NOx, Opacity and CO shall be tracked by means of the required continuous emissions monitoring systems, in accordance with 40 CFR Part 75. Emissions of VOC and PM-10 shall be correlated to fuel flow, boiler output or the combination thereof during the initial stack tests performed in accordance with Part VI of this permit.

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PART VII. SPECIAL REQUIREMENTS, continued

Within sixty (60) days of the end of one (1) calendar year or 1,000 hours of commercial operations of the boiler, whichever occurs later, the Permittee shall submit a report of observed steady state and transient emissions and of any operating parameters observed in order to estimate transient emissions. Together with submission of the report, the permittee shall apply for a permit modification to incorporate a table of emission limits for transient operation along with the TBD parameters listed in Part II.A of this permit. Transient emission limits will be established and incorporated into the permit for any pollutant for which transient operation shows a deviation from the steady state emission limits in Part V of this permit.

The Permittee may be required to obtain additional NOx offsets and complete additional ambient air quality analysis to show that the NAAQS and PSD increments have not been violated. All transient emissions shall be counted toward the annual emissions limits in Part V of this permit.

D. Greenhouse Gas Requirements:

1. The Permittee shall incorporate the following energy efficiency measures:

   i. Replacement of the existing continuous fin economizer with a bare-tube in-line economizer.

   ii. Removal of a portion of the existing low temperature superheater (LTSH).

   iii. Conversion of the existing air soot blower system to a steam soot blowing system, and;

   iv. Replacement of the air heater baskets with units designed for biomass firing.

2. The Permittee shall not exceed a maximum allowable heat rate for the unit while firing biomass of 15,564 Btu/kW-hr (gross) with a rolling 12-month averaging period.

   i. The Permittee shall determine an appropriate methodology to monitor heat input to the unit while firing biomass during the initial stack test and submit a report of the findings within 30 days after completion of the initial stack test.

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PART VII. SPECIAL REQUIREMENTS, continued

ii. The Permittee shall monitor and record heat input to the unit while firing biomass as determined by the initial stack test.

iii. Gross electrical output will be the sum of the hourly data as metered by the station.

3. The Permittee shall calculate the total allowable heat rate to determine plant efficiency by the following equation:

η = [(percent biomass heat input) x (15,564 btu/kW-hr (gross))] + [(percent natural gas input) x (12,448 Btu/kW-hr)(gross)] + [(percent ULSD heat input) x 12,304 Btu/kW-hr (gross)]

Note: The heat rates for each fuel represent an actual measure of plant efficiency for that mode of operation and are to be considered an enforceable permit condition.

4. The Permittee shall not exceed an annual CO_2e emission limit of 590,109 tons/year from the following:

i. CO_2 emissions from fuel combustion shall be determined by CEMS data.

ii. CH_4 and N_2O emission from fuel combustion shall be determined using the default emissions factors found in 40 CFR Part 98.

iii. Estimated Fugitive Emissions of SF_6 from the insulated electrical equipment.

iv. Estimated fugitive emissions of CH_4 from the natural gas pipeline and components for this unit.

5. The Permittee shall track and evaluate the heat rate, overall efficiency and CO_2e emissions over the first year of commercial operation for all modes of operation and evaluate the need to revise the operating limits, design/operational variables and averaging periods at that time. The Permittee shall submit a written report to the Commissioner of this analysis within 60-days after the first year of commercial operation.

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PART VII. SPECIAL REQUIREMENTS, continued

D. Noise

The Permittee shall operate this facility at all times in a manner so as not to violate or contribute significantly to the violation of any applicable state noise control regulations, as set forth in RCSA Sections 22a-69-1 through 22a-69-7.4.

E. The Permittee shall comply with all applicable sections of the following New Source Performance Standard(s) at all times.

40 CFR Part 60, Subparts: A and Db

Copies of the Code of Federal Regulations (CFR) are available online at the U.S. Government Printing Office website.

F. The Permittee shall comply with all applicable requirements of the Federal Acid Rain Program codified in Title 40 CFR Parts 72-78, inclusive, by the deadlines set forth within the aforementioned regulation.

G. Unless directed otherwise by the Commissioner, if construction does not commence within eighteen (18) months from the date of issuance of this permit, the Permittee shall submit a written updated review of all prior BACT determinations for this unit. The Permittee shall submit this review to the Commissioner within 30 days of the end of such 18 month period.

H. The Permittee shall notify the commissioner, in writing, of the commencement of construction, any lapse in construction lasting for more than eighteen (18) months after actual construction has begun, completion of construction and commencement of commercial operation of this source. Such written notifications shall be submitted no later than 30 days after the subject event. Commencement of commercial operations shall mean the date when the unit is released to ISO-New England for dispatch.

PART VIII. ADDITIONAL TERMS AND CONDITIONS

A. This permit does not relieve the Permittee of the responsibility to conduct, maintain and operate the regulated activity in compliance with all applicable requirements of any federal, municipal or other state agency. Nothing in this permit shall relieve the Permittee of other obligations under applicable federal, state and local law.

B. Any representative of the DEEP may enter the Permittee's site in

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accordance with constitutional limitations at all reasonable times without prior notice, for the purposes of inspecting, monitoring and enforcing the terms and conditions of this permit and applicable state law.

C. This permit may be revoked, suspended, modified or transferred in accordance with applicable law.

D. This permit is subject to and in no way derogates from any present or future property rights or other rights or powers of the State of Connecticut and conveys no property rights in real estate or material, nor any exclusive privileges, and is further subject to any and all public and private rights and to any federal, state or local laws or regulations pertinent to the facility or regulated activity affected thereby. This permit shall neither create nor affect any rights of persons or municipalities who are not parties to this permit.

E. Any document, including any notice, which is required to be submitted to the commissioner under this permit shall be signed by a duly authorized representative of the Permittee and by the person who is responsible for actually preparing such document, each of whom shall certify in writing as follows:

"I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that any false statement made in the submitted information may be punishable as a criminal offense under section 22a-175 of the Connecticut General Statutes, under section 53a-157b of the Connecticut General Statutes, and in accordance with any applicable statute."

F. Nothing in this permit shall affect the commissioner's authority to institute any proceeding or take any other action to prevent or abate violations of law, prevent or abate pollution, recover costs and natural resource damages, and to impose penalties for violations of law, including but not limited to violations of this or any other permit issued to the Permittee by the commissioner.

G. Within 15 days of the date the Permittee becomes aware of a change in any information submitted to the commissioner under this permit, or that any such information was inaccurate or misleading or that any relevant information was omitted, the Permittee shall submit the correct or omitted information to the commissioner.

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PART VIII. ADDITIONAL TERMS AND CONDITIONS, continued

H. The date of submission to the commissioner of any document required by this permit shall be the date such document is received by the commissioner. The date of any notice by the commissioner under this permit, including but not limited to notice of approval or disapproval of any document or other action, shall be the date such notice is personally delivered or the date three days after it is mailed by the commissioner, whichever is earlier. Except as otherwise specified in this permit, the word "day" means calendar day. Any document or action which is required by this permit to be submitted or performed by a date which falls on a Saturday, Sunday or legal holiday shall be submitted or performed by the next business day thereafter.

I. Any document required to be submitted to the commissioner under this permit shall, unless otherwise specified in writing by the commissioner, be directed to: Office of Director; Engineering & Enforcement Division; Bureau of Air Management; Department of Energy and Environmental Protection; 79 Elm Street, 5th Floor; Hartford, Connecticut 06106-5127.