



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:	ReEnergy Sterling CT Limited Partnership
Address:	10 Exeter Drive, Sterling, CT 06377
Equipment Location:	Industrial Park, Sterling, CT 06377
Equipment Description:	Tire-Derived Fuel-Fired Incinerator/Boiler

Town-Permit Numbers:	176-0002
Premises Number:	0005
Prior Permit Issue Dates:	August 28, 1989 (Initial Permit) March 22, 1994 (Minor Modification) July 25, 2000 (Minor Modification) April 9, 2010 (Minor Modification) January 4, 2012 (Minor Modification)
Permit Issue Date:	August 14, 2012
Expiration Date:	None

/s/ Anne Gobin for  
Daniel C. Esty  
Commissioner

August 14, 2012  
Date

## PERMIT FOR INCINERATOR

### DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION BUREAU OF AIR MANAGEMENT

#### PART I. DESIGN SPECIFICATIONS

##### A. General Description

One of two Tire-Derived Fuel (TDF) -fired incinerators/boilers with three reciprocating grates each, rated at 181 MMBTU/hr each. The boilers fire propane and shredded or whole tires<sup>1</sup>, and co-fire biomass<sup>2</sup> with TDF. Air pollution control equipment includes a thermal de-NO<sub>x</sub> system with injected urea, a wet lime scrubber, and a fabric filter.

Approximately ten million tires per year are processed and incinerated by the incinerators/boilers combined. The recovered heat energy is used to generate approximately 26 megawatts of electricity.

##### B. Equipment Design Specifications

###### 1. Incinerator/Boiler

- a. Material Charged: Tire-Derived Fuel (TDF) or Biomass-TDF Blend
- b. Maximum Hourly Charge Rate: 12,320 lb/hr TDF
- c. Design Heat Input: 181 MMBTU/hr for tires, biomass and propane
- d. Maximum Steam Production (Unit Load): 145,000 lb/hr based on an 8-hour block arithmetic average

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<sup>1</sup> Shredded or whole tires meet EPA classification as non-waste fuel in a combustion unit in accordance with 40 CFR Part 241-Solid Wastes Used as Fuels or Ingredients in Combustion Units. The combustion units are classified as non-waste fuel boilers subject to 40 CFR Part 63, Subpart JJJJJJ.

Under RCSA Section 22a-174-38, a combustor that burns tires as its principal fuel is classified as Reciprocating grate waste tire fired incinerator/boiler.

<sup>2</sup> biomass shall be defined as any combination of the following:

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.

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#### PART I. DESIGN SPECIFICATIONS, continued

This equipment must be equipped with automatic controls for the regulation of combustion; for example, air distribution and combustion gas temperature controls

#### 2. Auxiliary Burner System

- a. Auxiliary Fuel: Propane
- b. Maximum Fuel Firing Rate (scf/hr): 19,200 total
- c. Maximum Gross Heat Input (MMBTU/hr): 48 total (24 MMBTU/hr per Burner)
- d. Number of Burners: 2

#### C. Control Equipment Design Specifications

##### 1. UREA INJECTION THERMAL de-NO<sub>x</sub> SYSTEM:

- a. Urea Delivery Pressure: 30-40 psig
- b. Urea Delivery Rate: 4-10 gallons/hr
- c. Number of Injectors: 5

##### 2. FABRIC FILTER:

- a. Total Filter Area: 194,979 ft<sup>2</sup> fiberglass (10 compartments)
- b. Number of Compartments: 8 in service, 2 spares
- c. Gas Flow Effluent: 160,780 ACFM @ 180 °F (total both units)
- d. Gross Air to Cloth Ratio: 1.0
- e. Operating Air to Cloth Ratio: 1.5

##### 3. WET LIME SCRUBBER:

- a. Inlet SO<sub>2</sub>: 1025 ppm maximum; 935 ppm @ 12% CO<sub>2</sub> average
- b. Inlet HCl: 36 ppm @ 12% CO<sub>2</sub>
- c. Lime Use: 844 lb/hour @ 14,681 BTU/lb
- d. Water Use: 61 gallons/minute @ 14681 BTU/lb
- e. Pressure Drop: 2 in. H<sub>2</sub>O

#### D. STACK PARAMETERS

1. Minimum Stack Height (above grade): 196 ft
2. Minimum Exhaust Gas Flow Rate: 80,390 ACFM each unit
3. Normal Stack Exit Temperature, Range: 140 °F - 180 °F
4. Minimum Distance from Stack to Property Line: 500 ft
5. Stack Diameter: 96.0 inches (Inside Diameter)

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**PART II. OPERATIONAL CONDITIONS**

**A. Operating Limits**

1. Incinerator/Boiler

a. Maximum Rated Capacity (Maximum Charging Rate/Heat Input Rate):

- i. 12,320 lb/hr TDF based on a design higher heating value of 14,681 BTU/lb of tire-derived fuel.
- ii. While firing the biomass-TDF blend, the biomass portion shall account for 25% or less on a weight basis (as received, moisture incorporated) of the total materials charged. Higher Percentage of biomass shall be allowed if the commissioner approves the test burn and stack test pursuant to Part VII of this permit.
- iii. 181,000,000 BTU/hr maximum total firing rate for tires, biomass and/or propane. The maximum allowable charging rate of tires and/or biomass will vary as a function of the heating value (BTU/lb) of tires and/or biomass.
- iv. Compliance with the maximum rated capacity (charging rate and heat input rate) shall be demonstrated by not exceeding a maximum steam production rate of 145,000 lb/hr, based on a 8-hour block arithmetic average.

b. Minimum Operating/Furnace (Firebox) Temperature: 1,800 °F

- i. The firebox shall be maintained at a minimum temperature of 1800°F at any time tires are in the firebox, based on a 1-hour block average.
  - ii. In the event that the auxiliary burner system and combustion control system do not maintain minimum temperature requirements, operation shall cease and not resume until remedial measures have been completed to the satisfaction of the Department. Such requirement does not apply during periods of start-up, shutdown, or malfunction as defined in Part VI of this permit and does not apply during periods of warm-up or any other time that the incinerator/boiler is operating only on propane.
- c. Incinerator Unit Load (Steam Production):  
Shall not exceed 110% of the maximum demonstrated unit load, based on a 4-hour block average, measured during the most recent performance test for dioxin/furan emissions for which compliance with the emissions limit was achieved.

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**PART II. OPERATIONAL CONDITIONS, continued**

- d. Particulate Matter Control Device Inlet Temperature:  
Shall not exceed 17°C (62.6°F), based on a 4-hour block average, above the maximum demonstrated particulate control device temperature measured during the most recent performance test for dioxin/furan emissions for which compliance with such emissions was achieved.

2. Auxiliary Burner System

- a. Maximum Annual Propane Usage: 138,000 MMBTU per boiler

**PART III. CONTINUOUS EMISSIONS MONITORING (CEM) REQUIREMENTS AND ASSOCIATED EMISSION LIMITS**

The Permittee shall comply with the CEM requirements as set forth in RCSA §22a-174-4.

- A.** All continuous emissions monitoring (CEM) activities, including, but not limited to, calibration tests, averaging times and relative accuracy testing shall be consistent with those specified in the Department's CEM document.
- B.** CEM and recording will be required of operating parameters of the combustion equipment and air pollution control equipment.
1. CEM is required for opacity, sulfur dioxide (SO<sub>2</sub>), nitrogen oxides as nitrogen dioxide (NO<sub>2</sub>), oxygen (O<sub>2</sub>), carbon monoxide (CO), and carbon dioxide (CO<sub>2</sub>).
  2. Continuous monitoring is required of steam load, total combined overfire and underfire air, temperatures in all combustion chambers as measured in the incinerator/boiler bank area, pressure drop across air pollution control devices, reagent stoichiometry, reagent applicant pressures and reagent flow rates.
  3. Provisions shall be made to confirm the required combustion temperature.
  4. This data must be recorded and maintained at the site for inspection at the Department's discretion. These records shall be required for all periods of operation and shall be maintained and made available for a period of five years.

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#### PART III. CONTINUOUS EMISSIONS MONITORING (CEM) REQUIREMENTS AND ASSOCIATED EMISSION LIMITS, continued

5. All CEM monitoring and recording shall meet United States Environmental Protection (U.S. EPA) performance specifications (40 CFR Part 52, Appendix E).
6. The Permittee is and will be required to review all recorded data daily and report to the Department within 10 working days any exceedance of an emissions limit or apparent deviation from any condition of this permit.
7. Records shall be kept of total monthly emissions for carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>) and nitrogen oxides (NO<sub>x</sub>). In addition, a rolling annual total emissions rate for these pollutants shall be available which shall be calculated as the emissions for the current month plus the emissions from the previous 11 months.
8. The averaging times for the above-mentioned pollutants and operating parameters are specified as follows in Table 1, below:

Table 1				
	Pollutant/ Operational Emission Parameter	Averaging Times	Emission Limit	Units
<input checked="" type="checkbox"/>	Opacity	6-minute arithmetic average	10	%
<input checked="" type="checkbox"/>	Sulfur Dioxide (SO <sub>2</sub> )	24- hour geometric average of the hourly arithmetic averages	0.109	lb/MMBTU
			19.68	lb/hr
<input checked="" type="checkbox"/>	NO <sub>x</sub> (as NO <sub>2</sub> )	24-hour block average	0.12	lb/MMBTU
<input checked="" type="checkbox"/>	Carbon Monoxide (CO)	4-hour block average	0.167	lb/MMBTU
<input checked="" type="checkbox"/>	Oxygen (O <sub>2</sub> )	1-hour block average	None	%
<input checked="" type="checkbox"/>	Flow Rates, Combustion Temperatures	1 hour average		ACM/sec
	Pressure Drops			psi, inches Mercury/Water
<input checked="" type="checkbox"/>	Carbon Dioxide (CO <sub>2</sub> )	1-hour block average	None	%
<input checked="" type="checkbox"/>	Firebox Temperature	1-hour block average	1800 (min)	°F
<input checked="" type="checkbox"/>	Maximum Charge Rate/ Heat Input Rate (via Steam Prod. Rate)	8-hour block average	145,000	lb/hr
<input checked="" type="checkbox"/>	Unit Load	4-hour block average	see Part II A.1.c	lb/hr

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**PART III. CONTINUOUS EMISSIONS MONITORING (CEM) REQUIREMENTS AND  
ASSOCIATED EMISSION LIMITS, continued**

9. The resulting averaged emissions rates shall be used to determine compliance with this permit.
10. The emissions from all the permitted fuel burning sources at the facility shall be included in the emissions calculations as required in this permit. The Permittee shall inform the Department of these rolling annual emissions rates for any month during which the calculated results exceed the permitted emissions and operating hours.
- C.** Acceptable CEM equipment for VOC, PM-10 and H<sub>2</sub>SO<sub>4</sub>, but not limited to these pollutants, may not be commercially available at this time.
1. At the Department's discretion, CEM equipment for VOC, PM<sub>10</sub> and H<sub>2</sub>SO<sub>4</sub> shall be installed, maintained and operated when such CEM equipment acceptable to the Department is available.
2. Upon receipt of written notice from the Department that this CEM equipment is required, the Permittee shall install, maintain, and operate the equipment as specified by the Department. All CEM monitoring and recording shall meet United States Environmental Protection (U.S. EPA) performance specifications (40 CFR Part 52, Appendix E).
- D.** The Permittee shall comply with the Quality Assurance Plan approved by the Department, which proposed equipment specifications, calibration and operating procedures necessary to monitor these parameters to permit the optimum operation and maintenance of this equipment and to provide a continuous indication of compliance.
- E.** Continuous monitors and recorders shall be installed, calibrated, tested and operated to measure and record the emissions and parameters found in this permit from this unit. Monitors must comply with the U.S. EPA performance and siting specifications (40 CFR Part 60, Appendix B as may be amended from time to time).

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

##### A. Monitoring Requirements

1. The Permittee shall either use fuel purchase receipts or use a non-resettable totalizing fuel metering device to continuously monitor fuel feed to this permitted source.

##### B. Record Keeping

1. The Permittee shall maintain daily, monthly and annual records summarizing:
  - a. Incinerator operating hours;
  - b. CEM data (see Part III of this permit);
  - c. Emissions from all the fuel burning equipment;
  - d. Fuel consumption rate;
  - e. Date of biomass-TDF blend burned;
  - f. Type and source of biomass burned;
  - g. Composition in weight percent of the biomass-TDF blend, and
  - h. Any other records required in Part III of this permit.
2. The Permittee shall keep daily, monthly and annual records of charging rate (in lb) and heat input rate of biomass and TDF (in MMBtu).
3. The Permittee shall make and keep records of percentage of biomass on a daily, monthly and annual heat input basis.
4. Annual operating hours, incinerator-charging rate, heat input rate and fuel consumption shall be based on any consecutive 12 month time period and shall be calculated by adding the current month's operating hours, incinerator charging rate, heat input rate and fuel consumed to that of the previous 11 months. The Permittee shall make this calculation within 30 days of the previous month.
5. The Permittee shall keep all records required by this permit for a period of no less than five years and shall submit such records to the commissioner upon request.

##### C. Reporting

1. The Permittee shall comply with any reporting requirements in Part III of this permit.

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**PART V. OPERATION AND MAINTENANCE REQUIREMENTS**

- A.** Start-up and shutdown of the unit is defined in Part VI of this permit.
- B.** An operator with training or experience acceptable to the Department pursuant to RCSA §22a-209-6 "Solid Waste Management Regulations", must be on site at all times.
- C.** Operating and maintenance manuals, previously approved by the Department, shall be filed on site for the equipment covered by this permit. The operator must be trained in the operation and maintenance of both the fuel burning and pollution control equipment by the system supplier.
- D.** An Operating, Inspection and Maintenance Plan, previously approved by the Department, must be filed on site. This plan shall apply to all equipment covered by this permit and shall include, but not be limited to, consideration of: start-up and shutdown of the unit, maintenance of spare parts inventories, preventative maintenance schedules, procedures and protocols for unscheduled outages, methodologies acceptable to the Department for demonstrating continuous compliance with applicable emissions limitations, provisions for equipment replacement and measures to be taken to protect pollution control equipment in the event of any control equipment failure or shutdown, staffing, training, and a division of responsibility for services to be provided by the Permittee, equipment suppliers, and subcontractors.
- E.** The mass and BTU content of the fuel tires and biomass (as well as the parameters of tires to be analyzed and the method for so analyzing) shall be determined as specified in the Operating, Inspection and Maintenance Plan provided under Part V.D of this permit, as approved by the Department.
- F.** The Permittee shall conduct initial tune-up of the boiler in accordance with 40 CFR §63.11214 once the boiler becomes subject to biomass subcategory (as defined in 40 CFR §63.11237). After the initial tune-up, each subsequent tune-up shall be conducted biennially. All such tune-ups shall be in compliance with 40 CFR §63.11223.
- G.** An Emergency Episode Standby Plan, approved by the Department, shall be filed on site.
- H.** The Permittee shall operate and maintain this equipment in accordance with the manufacturer's specifications and written recommendations.
- I.** The Permittee shall properly operate the control equipment at all times that the incinerator is in operation and emitting air pollutants.

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#### PART VI. ALLOWABLE EMISSIONS LIMITATIONS

- A.** The following emissions limitations apply to the operation of the incinerator/boiler when burning propane or tires, alone or in combination or co-fired with biomass, at all times including during periods of start-up, shutdown, and malfunction.
1. The start-up period commences when the facility begins the combustion of tires including continuous, semi-continuous, or batch feeding of tires and/or biomass to the incinerator/boiler for purposes of energy production, or providing heat to the combustion system in preparation for tire disposal or energy production. The use of tires and/or biomass solely to provide thermal protection of grate or hearth during start-up period shall not be considered to be continuous or steady state burning.
  2. The shutdown period commences when the feeding of tires and/or biomass to the incinerator/boiler is terminated as a result of a shutdown or malfunction. Each start-up and shutdown period shall be achieved as soon as practical and in no case shall exceed 180 minutes. The Permittee shall at all times during start-up, shutdown, or during maintenance minimize emissions from the incinerator/boiler.
  3. Malfunction means any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner. Failures that are raised in part or in whole by poor maintenance or careless operations are not malfunctions.
  4. The short-term limits in lb/MMBTU, ppmvd, grains/dscf,  $\mu\text{g}/\text{ACM}$ , %  $\text{O}_2$  and combustion temperature shall not apply during periods of start-up, shutdown, or malfunction but the lb/hr limits shall apply at all times. The short-term limits in lb/MMBTU shall take effect only during steady state, continuous burn operations.
- B.** The following emissions shall not be exceeded at any time:
1. Particulate Matter
    - a. TSP/PM<sub>10</sub>/PM<sub>2.5</sub> (PM): PM emissions shall not exceed a maximum 0.010 grains per dry standard cubic feet (gr/dscf) corrected to 12%  $\text{CO}_2$  (23.14 mg/dscm corrected to 12%  $\text{CO}_2$ ) and 3.617 lb/hr. In the event that the PM emissions from this equipment exceed the emissions limit, the Permittee shall immediately initiate corrective action to re-attain compliance with this limit.

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**PART VI. ALLOWABLE EMISSIONS LIMITATIONS, continued**

This equipment must however cease operation if its PM emissions, as determined above, are 0.020 gr/dscf corrected to 12% CO<sub>2</sub> or greater. It will be permitted to restart only after the Department has been convinced that corrective action has been taken. Upon restarting operation under this circumstance, compliance with the PM emissions limit shall be demonstrated to the Department's satisfaction consistent with this permit. In the event that PM emissions exceed 0.010 gr/dscf corrected to 12% CO<sub>2</sub> an engineering evaluation shall be performed by an independent consulting firm identifying a solution to this non-compliance condition. The results of this evaluation shall be submitted to the Department within 60 days with an Intent-to-Test (ITT) for a retest plan.

- b. Opacity: Visible emissions shall not exceed a maximum of 10% during any 6-minute block average as measured by 40 CFR Part 60, Appendix A, Reference Method 9. During each period of start-up, shutdown, or malfunction, the opacity limit shall not be exceeded during more than five 6-minute arithmetic average measurements.
2. Organic Substances
- a. Volatile Organic Compound (VOC): VOC emissions shall not exceed 0.03 lb/MMBTU or 41 ppmvd corrected to 12% CO<sub>2</sub>, reported as methane (CH<sub>4</sub>), in stack exhaust, whichever is more stringent.
  - b. Flue gas: Flue gas shall contain a minimum of 3.0% O<sub>2</sub>, measured before any air pollution control device.
3. Acid Gases
- a. Hydrogen Chloride (HCl): Acid gas control equipment shall be designed to achieve a minimum of 95% HCl control efficiency or 29 ppmvd corrected to 12% CO<sub>2</sub>, whichever is least stringent. In the event that HCl emissions from the facility do not attain 95% control efficiency, or 29 ppmvd corrected to 12% CO<sub>2</sub>, whichever is less stringent, the Permittee shall take corrective action to increase the control efficiency of the equipment to 95%. Within 90 days after the discovery that the equipment is not achieving the 95% design control efficiency, if compliance has not yet been achieved, the Permittee shall submit a plan to the Department for approval, completed by an independent engineering firm, outlining the steps that have been and will be taken to achieve the design control efficiency of the equipment.

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**PART VI. ALLOWABLE EMISSIONS LIMITATIONS, continued**

The plan must commit to a timetable setting forth the schedule for implementing the steps detailed by the independent engineering firm.

- b. SO<sub>2</sub>: Emissions of SO<sub>2</sub> shall not exceed a maximum rate of 0.109 lb/MMBTU heat input on tires, combusted either alone or co-fired with biomass, or 51 ppmvd corrected to 12% CO<sub>2</sub>, whichever is more stringent.

Hourly emissions of SO<sub>2</sub> shall not exceed a maximum of 19.68 lb/hr measured as a 24-hour geometric mean on tires, combusted either alone or co-fired with biomass.

- c. Sulfuric acid (H<sub>2</sub>SO<sub>4</sub>): Sulfuric acid emissions shall not exceed a maximum of 0.028 lb/MMBTU heat input.
4. Nitrogen Oxides
- a. Emissions of nitrogen oxides (NO<sub>x</sub>) shall not exceed a maximum of 0.12 lb/MMBTU heat input on tires, combusted either alone or co-fired with biomass, expressed as nitrogen dioxide (NO<sub>2</sub>) or 79 ppmvd corrected to 12% CO<sub>2</sub> whichever is more stringent.

5. Carbon Monoxide

- a. Emissions of carbon monoxide shall not exceed a maximum of 0.167 lb/MMBTU heat input on tires, combusted either alone or co-fired with biomass or 180 ppmvd corrected to 12% CO<sub>2</sub> whichever is more stringent.

For determining compliance with the applicable carbon monoxide emissions limit, if a loss of boiler water level control or combustion air control is determined to be a malfunction, the duration of the malfunction period shall be limited to 15 hours per occurrence.

6. Carbon Dioxide Equivalents

Carbon dioxide equivalents (CO<sub>2</sub>e) emissions shall not exceed a maximum of 243,453 tpy.

7. MWC/Incinerator Limits Pursuant to RCSA §22a-174-38

The Permittee shall not exceed the emissions limits in Table 2 at any time.

- a. Cadmium: Emissions for cadmium shall not exceed 2.67 µg/ACM (0.0060 mg/dscm corrected to 12% CO<sub>2</sub>).

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**PART VI. ALLOWABLE EMISSIONS LIMITATIONS, continued**

- b. Lead: Emissions of lead shall not exceed 20.81 µg/ACM (0.0470 mg/dscm corrected to 12% CO<sub>2</sub>).
  - c. Mercury: Emissions for mercury shall not exceed 1.70 µg/ACM (0.0038 mg/dscm corrected to 12% CO<sub>2</sub>).
  - d. Dioxin: Emissions for dioxin shall not exceed 55.7 µg/ACM (0.1257 ng/dscm corrected to 12% CO<sub>2</sub>).
  - e. Dioxin/Furan: Emissions shall not exceed 30 ng/dscm @ 12% CO<sub>2</sub>.
8. Hazardous Air Pollutants
- a. The Permittee shall 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.
9. State Hazardous Air Pollutants

STATE ONLY REQUIREMENT: This unit shall not cause an exceedance of the Maximum Allowable Stack Concentration (MASC) for any hazardous air pollutant (HAP) listed in RCSA §22a-174-29.

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#### PART VI. ALLOWABLE EMISSIONS LIMITATIONS, continued

##### 10. Emissions Limits - Summarized

Emissions shall not exceed the limits in Table 2 at any time.

Table 2					
Pollutant	lb/hr <sup>[1]</sup>	lb/MMBTU <sup>[2]</sup>	Concentration <sup>[2],[3]</sup> @ 12% CO <sub>2</sub>	ppmvd <sup>[1],[2]</sup> @12% CO <sub>2</sub>	Total tpy <sup>[4]</sup>
TSP, PM <sub>10</sub> , PM <sub>2.5</sub> <sup>[6]</sup>	3.617 <sup>[5]</sup>	0.020	23.14 mg/dscm (0.010 grains/dscf)	---	28.20
SO <sub>x</sub> (as SO <sub>2</sub> )	19.68	0.109	---	51	109.27
NO <sub>x</sub> (as NO <sub>2</sub> )	21.99	0.12	---	79	124.95
VOC	6.25 <sup>[5]</sup>	0.030	---	41	30.32
CO	30.20	0.167	---	180	185.53
CO <sub>2</sub> e <sup>[7]</sup>	---	---	---	---	243,453
Pb	---	---	0.0470 mg/dscm (20.81 µg/ACM)	---	---
Cadmium	---	---	0.0060 mg/dscm (2.67 µg/ACM)	---	---
Mercury	---	---	0.0038 mg/dscm (1.70 µg/ACM)	---	---
Dioxin	---	---	0.1257 ng/dscm (55.7 pg/ACM)	---	---
Dioxin/Furan	---	---	30 ng/dscm	---	---
HCl	---	---	---	29	---
H <sub>2</sub> SO <sub>4</sub>	---	0.028	---	---	---
Ammonia	10.21 <sup>[5]</sup>	---	---	50	39.85

<sup>[1]</sup> & <sup>[2]</sup> Maximum allowable emissions limits for all combinations of propane, tires and biomass per incinerator.

<sup>[2]</sup> These limits apply only during steady state, continuous burn operations.

<sup>[3]</sup> & <sup>[4]</sup> Concentration and tpy limits are based on two incinerators combined (P176-0001 & -0002).

<sup>[5]</sup> TSP, PM, VOC & Ammonia-lb/hr limits should be multiplied by 2 incinerators (P176-0001 & -0002) to compare against stack test results from both incinerators combined. [stack No.01]

<sup>[6]</sup> TSP & PM emissions limits are based on EPA Method 5/filterable test data.

<sup>[7]</sup> CO<sub>2</sub>e or Carbon Dioxide Equivalent emissions means an amount of CO<sub>2</sub> emitted with the same global warming potential as of another greenhouse gas, and is calculated using the equation found in 40 CFR §98.2. The calculated emissions (in Metric Tons-MT) shall be converted to Tons (US) to compare against the allowable emissions limit. [1 MT = 1.10231 Tons (US)]

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**PART VII. STACK TESTING REQUIREMENTS**

All emissions testing at this facility must have prior approval of the Department and must follow all Department-approved methods and procedures pursuant to RCSA §22a-174-5 and 40 CFR Part 60. The Permittee shall comply with the testing schedule as administered by the Department's Stack Test and Compliance Operations.

Pursuant to the Regulations, the Permittee must complete and submit to the Department an ITT form acceptable to the commissioner at least 90 days prior to the stack test. This ITT must address all applicable air pollutants, as defined in RCSA §22a-174-1, for which emissions limitations have been established in this permit or any other air pollutant reasonably required by the Department.

These pollutants may include, but not necessarily be limited to: particulates, sulfur dioxide, nitrogen oxides, mercury, volatile organic compounds, carbon monoxide, lead, sulfuric acid, hydrogen chloride, dioxins, and furans. All methods and procedures must be consistent with the requirements of the Department. The ITT must also specify all operational and control equipment parameters which will be measured, monitored and recorded during emissions testing.

Stack emission testing shall be performed in accordance with the Emission Test Guidelines available on the DEEP website:

[http://www.ct.gov/dep/cwp/view.asp?a=2684&q=322076&depNav\\_GID=1619](http://www.ct.gov/dep/cwp/view.asp?a=2684&q=322076&depNav_GID=1619)

- A.** The Permittee shall perform stack testing for dioxin/furan, particulate matter, hydrogen chloride, cadmium, lead, and mercury on an annual basis no more than 12 calendar months following the previous or initial performance test [RCSA §22a-174-38(i)(2)].
- B.** The Permittee shall perform stack testing for carbon monoxide pursuant to 40 CFR Part 63 Subpart JJJJJJ unless EPA promulgates proposed amendments to Subpart JJJJJJ or approves a petition under 40 CFR §63.8(f) for an alternative monitoring method.
- C.** Compliance testing may not be required for pollutants requiring CEM (NO<sub>x</sub>, SO<sub>x</sub>, CO<sub>2</sub>, Opacity, combustion temperature, O<sub>2</sub>, and fuel feed rate). The Department reserves the right to require stack testing of any pollutant at any time to demonstrate compliance [RCSA §22a-174-5(e)].
- D.** Should the Permittee demonstrate for two consecutive years that the dioxin/furan emissions levels from all units at the premises are less than 30 ng/dscm total mass, then the Permittee shall only be required to conduct performance testing for dioxin/furan on one unit at the premises.

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**PART VII. STACK TESTING REQUIREMENTS, continued**

**E.** The Permittee shall rotate performance testing among units no more than twelve months following the previous performance test in a fixed sequence so that each unit is tested at the same frequency [RCSA §22a-174-38(i)(3)].

**F.** Test Burning

The Permittee may conduct test burns of tire-derived fuel blended with biomass, where the biomass portion shall account for more than 25%, as approved by the commissioner in accordance with Chapter 446d of the General Statutes (Solid Waste Management), on weight basis of the total materials charged, provided that the Permittee complies with the following conditions:

1. Such test burns shall not be initiated until the commissioner authorizes the permittee in writing to burn higher percentages of biomass in accordance with Chapter 446d of the General Statutes (Solid Waste Management). Such authorization may be included in the Approval of a Demonstration Project pursuant to CGS §22a-208a(j), or other modified permit or authorization in accordance with Chapter 446d of the General Statutes.
2. The Permittee shall submit copy of all such approvals from the Bureau of Materials Management and Compliance Assurance, Waste Engineering and Enforcement Division to Bureau of Air Management Engineering and Enforcement Division at least 30 days prior to initiating a test burn with higher percentages of biomass.
3. Such test burns shall not exceed 60 operating days<sup>3</sup> and shall be completed within 180 days from the initial test burn. Any higher percentage of biomass combustion in the boiler is a test burn.
4. At least 30 days prior to delivery of such fuel to the facility, the Permittee shall provide written notice to the Department that includes the proposed proportions of biomass to be combusted with tire-derived fuel and any changes in the operating parameters that may be necessary.
5. At least 15 days prior to an initial test burn, the Permittee shall provide written notice to Bureau of Air Management Field Enforcement Section that includes the exact date of initial combustion of the higher percentage of biomass in the boilers.

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<sup>3</sup> An operating day is any day during which any biomass in excess of 25% is combusted for more than 4 hours during a test burn.

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6. At least 30 days prior to the test burn stack test, the Permittee shall submit an Emissions Test Protocol including an Intent to Test Form to the Department to demonstrate compliance with the allowable emission limitations contained in Part VI of this permit. The Permittee may provide a request with justification to the Department for reducing the scope pollutants to be tested.
7. During the test burn the Permittee shall comply with all the operating conditions in Part II and allowable emission limits in Part VI of this permit.
8. The Permittee shall keep records of the following:
  - a. Time and date of when the test burns are conducted;
  - b. Hours of test burns per day;
  - c. Type and source of higher percentage of biomass burned; and
  - d. Composition in weight percent of the biomass-TDF blend.
9. Within 60 days following completion of the test burn stack test, the Permittee shall submit a report to the Department for its review and approval demonstrating that the biomass blend complies with all allowable emission limits in Part VI of this permit.
10. Once the Department approves the report that demonstrates that the higher percentage of biomass blend complies with all allowable emission limits in Part VI of this permit, as long as the Department has also authorized the combustion of such higher percentages of biomass-in accordance with CGS Chapter 446d (Solid Waste Management) the Permittee may continue operating with higher percentage of TDF-biomass blend in the boilers.

**PART VIII. EQUIPMENT MALFUNCTION**

- A.** Except as otherwise provided in this part, the facility will only be allowed to operate during emergency shutdown of air pollution control equipment during periods including, but not limited to, system upsets and air pollution control equipment malfunctions for a period not to exceed the burn out of the unit's charge at the time of the shutdown. No tires or biomass may be charged into a unit following a shutdown until after the air pollution controls have been put back on line.
- B.** In the event of a malfunction of this unit's acidgas control system this unit's incinerator/boiler shall be shutdown in accordance with this part of the permit. During any period that the scrubber is malfunctioning the SO<sub>2</sub> emissions from this source shall not exceed 1.10 lb/MMBTU heat input.

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**PART VIII. EQUIPMENT MALFUNCTION, continued**

- C.** The Quality Assurance Plan required under Part III of this permit shall be sufficient to outline the abatement action to be implemented by the Permittee in the event that required CEM equipment indicates anticipated exceedances of applicable standards or decreases in the efficiency of system performance.

**PART IX. SPECIAL REQUIREMENTS**

- A.** The Permittee shall comply with all applicable sections of the following New Source Performance Standards at all times.

Title 40 CFR Part 60, Subparts A, Db, and E

- B.** The Permittee shall comply with all applicable sections of the following National Emission Standards for Hazardous Air Pollutants at all times.

Title 40 CFR Part 63, Subparts JJJJJJ and A

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

- C.** The Permittee shall submit all the related documents from EPA to the Department once EPA approves a petition under 40 CFR §63.8(f) for an alternative monitoring method for CO.
- D.** STATE ONLY REQUIREMENT: 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 §§22a-69-1 through 22a-69-7.4.
- E.** STATE ONLY REQUIREMENT: The Permittee shall operate in compliance with the regulations for the control of odor, as set forth in RCSA §22a-174-23.

**PART X. 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 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.

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**PART X. ADDITIONAL TERMS AND CONDITIONS, continued**

- 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.** 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.
- F.** 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."
- 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 X. 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.

**PART XI. PREMISES REQUIREMENTS**

- A.** Sufficient weather-sheltered storage capacity for residual particulates, bottom ash dry scrubber residue shall be provided on site.
- B.** All vehicular traffic areas of the plant site shall be asphalt paved.
- C.** Transfer, storage, and transportation at an from the plant site, of materials collected from the incinerator/boiler grates and the air pollution control equipment must be done in a covered container or other method equally effective in preventing the materials from becoming airborne during storage and transfer.
- D.** A program must be developed and maintained to assure that the public does not have uncontrolled access to any portion of this premise. On-site modeling of this source has not been performed.

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