



**STATE OF CONNECTICUT  
DEPARTMENT OF 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:	Wheelabrator Lisbon Inc.
Address:	425 South Burnham Highway Lisbon, Connecticut 06351
Equipment Location:	425 South Burnham Highway, Lisbon
Equipment Description:	Babcock & Wilcox/Von Roll Reciprocating Grate, Waterwall Furnace, Natural Circulation Boiler No. 2

Town/Permit Numbers:	093-0009
Premises Number:	0014
Prior Permit Issue Dates:	March 19, 1993 (Permit to Construct) September 27, 1996 (Permit to Operate)
Minor Modification Issue Date:	4/25/07
Expiration Date:	None

*for* Anne Mori  
Gina McCarthy  
Commissioner

April 25, 2007  
Date

**ORIGINAL**

PERMIT FOR MUNICIPAL WASTE COMBUSTOR

STATE OF CONNECTICUT, DEPARTMENT OF ENVIRONMENTAL PROTECTION  
BUREAU OF AIR MANAGEMENT

PART I. OPERATIONAL CONDITIONS

A. Operational Limits

1. Municipal Waste Combustor (MWC)

a. Allowable Fuels/Materials:

- i. Municipal solid waste (MSW), as defined and restricted under CGS 22a-207 et seq. and any applicable Bureau of Materials Management and Compliance Assurance permit.
- ii. Processed Demolition Wood (PDW), as defined and restricted under CGS 22a-208x(a)(2) and any applicable Bureau of Materials Management and Compliance Assurance permit.
- iii. Special Waste, as allowed by the Permittee's Special Waste Disposal Authorization Plan or upon prior authorization by the commissioner.

b. Maximum Charging Rate:

- i. MSW: 281.4 tons per day of MSW based on a design higher heating value of 5200 BTU/lb
- ii. Combination of MSW and PDW: 281.4 tons per day of a combination of MSW and PDW with up to 18 tons per day of PDW

*The maximum allowable daily charging rate of MSW and PDW is based upon the maximum allowable heat input rate to the MWC of 121.93 MMBTU/hr in accordance with the charts in Appendix G setting forth the maximum charging rate as a function of the heating values of MSW and PDW.*

- c. Maximum Unit Load (Steam Production): In no event shall the MWC unit load exceed 75,000 pounds per hour, based on a 4-hour block average.
- d. The Permittee shall comply with the operating practices for MWC unit load and particulate matter control device temperature as set forth in RCSA §22a-174-38(g).

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Town No.: 093      Premises No.: 0014      Permit No.: 0009      Stack No.: 001

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**PART I. OPERATIONAL CONDITIONS, continued**

- e. The auxiliary burner system shall have the capability of raising combustion gas temperatures to 1800°F for a combustion gas residence time of at least one second, except during periods of start-up, warm-up, shutdown, and malfunction. Such system shall be capable of maintaining a minimum combustion gas temperature of 1500°F after secondary air injections for at least one second. The combustion gas temperature when firing MSW and PDW, at all times, shall be at a minimum of 1800°F for a minimum of one second residence time, measured at the one second plane. Measurement of the superheater gas exit temperature based on a 4-hour block average is a surrogate for compliance with the furnace temperature.

2. Auxiliary Burner System

- a. Maximum Annual Fuel Consumption: 1,009,574 gallons of Propane

**B. Design Specifications**

1. Municipal Waste Combustor

- a. Design MSW Heat Input: 121.93 MMBTU per hour  
 b. Design Unit Load (Steam Production): 75,000 pounds per hour  
 c. Steam Temperature at Superheater Outlet (°F): 830  
 d. Steam Pressure at Superheater Outlet (psig): 900  
 e. This MWC shall be equipped with automatic controls for the regulation of combustion.

2. Auxiliary Burner System

- a. Number of Burners: two  
 b. Burner Manufacturer/Model No: Babcock & Wilcox  
 c. Fuel Type(s): Propane  
 d. Maximum Auxiliary Fuel Firing Rate (gals/hr): 177.5 each burner  
 e. Maximum Gross Heat Input (MMBTU/hr): 16.25 each burner

**C. Stack Parameters**

1. Minimum Stack Height (ft above grade): 266.25  
 2. Minimum Exhaust Gas Flow Rate at MRC (acfm): 52,602 @ 270°F  
 3. Typical Stack Exit Temperature, Range (°F): 250-350  
 4. Minimum Distance from Stack to Property Line (ft): 225

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**PART II. CONTROL EQUIPMENT REQUIREMENTS** (Applicable if -X- checked)  
(See Appendix E for Design Specifications)

- |  |   |
|--|---|
| <input type="checkbox"/> None                            | <input checked="" type="checkbox"/> SNCR System             |
| <input checked="" type="checkbox"/> Fabric Filter        | <input checked="" type="checkbox"/> Carbon Injection System |
| <input checked="" type="checkbox"/> Spray Dryer Absorber | <input type="checkbox"/> Other:                             |

- A.** The minimum number of compartments of the fabric filter to be in service at any point in time is three.
- B.** The Permittee shall properly maintain and operate the fabric filter (FF), the spray dryer absorber (SDA), the selective non-catalytic reduction (SNCR) system and the carbon injection system (PACIS) at all times in accordance with the requirements of RCSA §22a-174-7.
- C.** In the event of the malfunction of this MWC's air pollution control equipment that cannot be corrected within three hours, the Permittee shall immediately institute the MWC shutdown procedure in accordance with the O&M Plan. The Permittee will be allowed to operate this MWC during complete shutdown of the air pollution control equipment for a period not to exceed the burnout of the MWC's charge at the time of the shutdown of the air pollution control equipment. The Permittee shall not charge any MSW into this MWC following a shutdown of the air pollution control equipment until after the air pollution control equipment has been put back on-line.

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**PART III. CONTINUOUS MONITORING REQUIREMENTS**

*(See Appendix A for General Requirements)*

Continuous emission monitoring (CEM)/continuous parameter monitoring shall be required for the following pollutant/operational parameters; and enforced on the following basis:

**Summary of Continuous Monitoring Requirements**

<u>Pollutant/ Operational Parameter</u>	<u>Averaging Times</u>	<u>Emission Limit</u>	<u>Units</u>
<input checked="" type="checkbox"/> Opacity	6-minute arithmetic average	10%	
<input checked="" type="checkbox"/> SO <sub>2</sub>	24-hour geometric average	66 <sup>1</sup>	ppmvd @7% O <sub>2</sub>
	3-hour rolling average	115 <sup>2</sup>	ppmvd @7% O <sub>2</sub>
<input checked="" type="checkbox"/> NOx	24-hour daily average	168	ppmvd @7% O <sub>2</sub>
<input checked="" type="checkbox"/> CO	4-hour block average	100	ppmvd @7% O <sub>2</sub>
<input checked="" type="checkbox"/> O <sub>2</sub>	1-hour average		ppmvd
<input checked="" type="checkbox"/> Unit Load	4-hour block average		pounds/hour
<input checked="" type="checkbox"/> FF Inlet Temp.	4-hour block average		°C or °F
<input checked="" type="checkbox"/> Activated Carbon Injection Rate	24-hour daily average		pounds/hour
<input checked="" type="checkbox"/> Furnace Temp.	4-hour block average		°F

<sup>1</sup> Based on a 24-hour geometric average, the SO<sub>2</sub> limit is 29 ppmvd @7% O<sub>2</sub> or achieve 80% reduction by weight or volume, whichever is less stringent, not to exceed 66 ppmvd @7% O<sub>2</sub>.

<sup>2</sup> Based on a 3-hour rolling average, the SO<sub>2</sub> limit is 50 ppmvd @7% O<sub>2</sub> or achieve 65% reduction by weight or volume, whichever is less stringent, not to exceed 115 ppmvd @7% O<sub>2</sub>.

- A.** The Permittee shall operate CEM systems to continuously monitor and record opacity, sulfur dioxide (SO<sub>2</sub>), nitrogen oxides (NOx), carbon monoxide (CO) and oxygen (O<sub>2</sub>).
- B.** The Permittee shall operate a steam flow meter to continuously monitor and record the MWC unit load (steam production). Averaging time is a 4-hour block average.
- C.** The Permittee shall continuously monitor and record the fabric filter inlet temperature. Averaging time is a 4-hour block average.
- D.** The Permittee shall continuously monitor and record the powdered activated carbon injection rate, as estimated from the screw feeder speed indicator. Averaging time is a 24-hour daily average.

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**PART III. CONTINUOUS MONITORING REQUIREMENTS, continued**

- E.** The Permittee shall continuously monitor and record the furnace temperature as measured at the superheater outlet. Averaging time is a 4-hour block average.
- F.** The Permittee shall install and use dedicated CEM analyzers. Each MWC flue exhaust shall have its own set of CEM analyzers and there shall be no shared analyzers.
- G.** The Permittee shall continuously monitor and record total combined overfire and underfire air, FF differential pressure and SNCR reagent flow rate. Averaging time is a 24-hour daily average for a minimum of 95% availability of MWC operating hours in a calendar year.
- H.** The Permittee shall review all recorded CEM data daily and shall notify the commissioner in writing, on forms prescribed by the commissioner, of any deviation from an emissions limitation, and shall identify the cause or likely cause of such deviation, all corrective actions and preventive measures taken with respect thereto, and the dates of such actions and measures as follows: (1) For any hazardous air pollutant, no later than 24 hours after such deviation commenced; and (2) For any other regulated air pollutant or parameter, no later than ten days after such deviation commenced. [RCSA §22a-174-33(p)(1)]
- I.** The Permittee shall ensure that the CEM systems meet all applicable performance specifications and quality assurance requirements of RCSA §22a-174-38(j) and RCSA §22a-174-4.
- J.** The Permittee shall monitor the superheater outlet temperature and the fabric filter inlet temperature using redundant thermocouples. Thermocouples shall be inspected semiannually and the signal transmitters shall be calibrated semiannually.
- K.** The Permittee shall report all CEM data to the commissioner on a quarterly basis using a one-hour average. Opacity shall be reported using a six-minute arithmetic average.

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**PART IV. ADDITIONAL MONITORING, RECORD KEEPING AND  
REPORTING REQUIREMENTS**

**A. Monitoring Requirements**

1. The Permittee shall determine the monthly quantity of MSW and PDW for the facility by summing the truck scale house weight data for the month minus the refuse pit inventory measured on the Sunday nearest to the end of the month and pro-rated for the full month.
2. The Permittee shall determine the quantity of Special Waste received by the facility in accordance with the special waste permit.
3. The Permittee shall use either fuel purchase receipts or a non-resettable totalizing fuel meter to monitor propane combusted by the auxiliary burner system.

**B. Record Keeping Requirements**

1. The Permittee shall make and keep records summarizing the monthly and consecutive 12 month quantity of MSW, PDW and Special Waste combusted for the facility. The consecutive 12 month quantity of MSW, PDW and Special Waste combusted shall be determined by adding the current month's MSW, PDW and Special Waste combusted to that of the previous 11 months. The Permittee shall make these calculations within 30 days of the end of each month.
2. The Permittee shall make and keep records of monthly and consecutive 12 month amount of propane combusted by the auxiliary burner system. The consecutive 12 month amount of propane combusted shall be determined by adding the current month's propane combusted to that of the previous 11 months. The Permittee shall make these calculations within 30 days of the end of each month.
3. The Permittee shall calculate and record calendar year PM, SO<sub>2</sub>, NO<sub>x</sub>, VOC/HC, CO, Pb, HCl and ammonia emissions in units of tons/year for this MWC. Such records shall include a sample calculation for each pollutant. The Permittee shall make these calculations within 30 days of the end of each calendar year.
4. The Permittee shall make and keep records of all required performance tests.

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**PART IV. ADDITIONAL MONITORING, RECORD KEEPING AND  
REPORTING REQUIREMENTS, continued**

5. The Permittee shall make and keep records of the date, the time of the shift, the name of the operator of that shift and the operator's certification. [RCSA §22a-174-38(h)(1)]
6. The Permittee shall make and keep records of the name of each person that has reviewed the operating manual, the date of initial review and the date of the annual review. [RCSA §22a-174-38(h)(5)]
7. The Permittee shall maintain records of information specified in RCSA §22a-174-38(k).
8. The Permittee shall make and keep records of the dates on which cleaning of the boiler tube heat transfer surfaces is performed.
9. The Permittee shall make and keep records of the dates and time periods of startup, shutdown, malfunction and warm-up.
10. The Permittee shall keep all records required by this permit on premises for a period of no less than five years and shall make such records available to the commissioner upon request.

**C. Reporting Requirements**

1. The Permittee shall submit reports to the commissioner of all required performance tests.
2. The Permittee shall submit a quarterly report to the commissioner within 30 days following the end of each calendar quarter. Each quarterly report shall include the information as set forth in RCSA §22a-174-38(1)(2) and the date, time and NOx and CO emission levels for each MWC that exceed the limitations in Part VI. D.1 and E.1 during periods of startup, shutdown and malfunction.
3. The Permittee shall submit an annual report to the commissioner no later than January 30 of each year following the calendar year in which the data were collected. Each annual report shall include the information as set forth in RCSA §22a-174-38(1)(3) and the following information:
  - a. The monthly and consecutive 12 month quantity of MSW, PDW and Special Waste combusted for the facility.

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**PART IV. ADDITIONAL MONITORING, RECORD KEEPING AND  
REPORTING REQUIREMENTS, continued**

- b. The monthly and consecutive 12 month amount of propane combusted by the auxiliary burners for each MWC.
  - c. The calendar year emissions for PM, SO<sub>2</sub>, NO<sub>x</sub>, VOC/HC, CO, Pb, HCl and ammonia in units of tons/year for each MWC.
  - d. The dates on which cleaning of the boiler tube heat transfer surfaces is performed for each MWC.
4. The Permittee shall provide written notification to the commissioner within 72 hours of the time at which the Permittee receives information regarding performance test results indicating that any particulate matter, opacity, cadmium, lead, mercury, dioxin/furan, hydrogen chloride or fugitive ash emission levels exceed the applicable pollutant emission limits or standards defined in RCSA §22a-174-38. [RCSA §22a-174-38(1)(6)]

**PART V. OPERATION AND MAINTENANCE REQUIREMENTS**

- A. The Permittee shall not cause or allow the plant to be operated at any time unless a certified chief operator or shift operator is physically present at the plant. [RCSA §22a-174-38(h)(1)] Operators shall be certified by the commissioner under RCSA §22a-231-1. [RCSA §22a-174-38(h)(2)] All chief operators and shift operators must satisfactorily complete an operator training course conducted by the commissioner as set forth in RCSA §22a-174-38(h)(3). Operators shall be trained in the operation and maintenance of both the fuel burning and pollution control equipment.
- B. The Permittee shall maintain an MWC Operating & Maintenance (O&M) Manual that shall be updated on a yearly basis. [RCSA §22a-174-38(h)(4)] The Permittee shall submit any revision to this manual which conflicts or may conflict with any condition of this permit to the commissioner for review and shall receive the commissioner's written approval prior to incorporating such revision in the O&M Manual.
- C. The Permittee shall establish a training program to review the O&M Manual with each person who has responsibilities affecting the operation of the plant. The training program shall be repeated on an annual basis for each person. [RCSA §22a-174-38(h)(5)]

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**PART VI. ALLOWABLE EMISSION LIMITS**

The Permittee shall not exceed the emission limits stated herein at any time.

**TABLE 1  
Summary of Mass Emission Limits**

Criteria <u>Pollutants</u>	mg/dscm <u>@7% O<sub>2</sub></u>	ppmvd <u>@7% O<sub>2</sub></u>	<u>tpy</u>
PM	23		11.0
SO <sub>2</sub>		66 <sup>1</sup>	42.45
SO <sub>2</sub>		115 <sup>2</sup>	
NOx		168 <sup>3</sup>	148.35
CO		100 <sup>4</sup>	25.0
VOC/HC		16	5.1
Lead (Pb)			0.211

<sup>1</sup> Based on a 24-hour geometric average, the SO<sub>2</sub> limit is 29 ppmvd @7% O<sub>2</sub> or achieve 80% reduction by weight or volume, whichever is less stringent, not to exceed 66 ppmvd @7% O<sub>2</sub>.

<sup>2</sup> Based on a 3-hour rolling average, the SO<sub>2</sub> limit is 50 ppmvd @7% O<sub>2</sub> or achieve 65% reduction by weight or volume, whichever is less stringent, not to exceed 115 ppmvd @7% O<sub>2</sub>.

<sup>3</sup> Based on a 24-hour daily average.

<sup>4</sup> Based on a 4-hour block average.

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**PART VI. ALLOWABLE EMISSION LIMITS, continued**

**TABLE 2  
Summary of Additional Pollutant Limits**

Pollutant	mg/dscm	ppmvd	Facility
	@7% O <sub>2</sub>	@7% O <sub>2</sub>	tpy
MWC Acid Gases <sup>1</sup>			89.0
Ammonia		18.0	
Sulfuric Acid		4.1	
HCl		36.2 <sup>2</sup>	
Cadmium (Cd)	0.040		
Lead (Pb)	0.44		
Mercury (Hg)	0.028 <sup>3</sup>		
	ng/dscm		
	@7% O <sub>2</sub>		
Dioxin/Furans			
(a) Total Mass	30.0		
(b) Toxic Equivalents	0.46		

<sup>1</sup> MWC Acid Gases are the sum of SO<sub>2</sub> and HCl emissions for permits 093-0008 & 9.

<sup>2</sup> The HCl limit is 25 ppmvd @7% O<sub>2</sub> or achieve 95% reduction by weight or volume, whichever is less stringent, not to exceed 36.2 ppmvd @7% O<sub>2</sub>.

<sup>3</sup> Or achieve 85% reduction by weight, whichever is less stringent.

The emission limits set forth in RCSA §22a-174-38(c), as listed in Tables 1 and 2 above, shall apply at all times except during periods of startup, shutdown, or malfunction as set forth in RCSA §22a-174-38(c)(11).

**TABLE 3  
Summary of Shutdown Limits**

Pollutants	mg/dscm	ppmvd	Averaging Times
	@7% O <sub>2</sub>	@7% O <sub>2</sub>	
PM	43.5		Average of 3 1-hour minimum test runs
SO <sub>2</sub>		32 <sup>1</sup>	24-hour geometric average
NOx		300	24 hour daily average
HCl		26.4 <sup>2</sup>	Average of 3 1-hour minimum test runs

<sup>1</sup> And if SDA control efficiency falls below 75% by weight or volume.

<sup>2</sup> And if SDA control efficiency falls below 90% by weight or volume.

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**PART VI. ALLOWABLE EMISSION LIMITS, continued**

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

1. PM, hydrogen chloride, cadmium, lead, mercury, dioxin/furan and ammonia: Annual Performance Test. Reference Part VII.
2. SO<sub>2</sub>, NO<sub>x</sub>, CO: Continuous Emission Monitoring. Reference Part III.
3. VOC, H<sub>2</sub>SO<sub>4</sub> and Other HAPs: 2003 Performance Test or other performance test(s) if conducted.

**A. Particulate Matter (PM):**

1. The Permittee shall not cause or allow emission of particulate matter in excess of 23 milligrams per dry standard cubic meter of exhaust gas corrected to seven percent oxygen. Compliance with this emission limit shall be determined based on an annual performance test, performed as set forth in RCSA §22a-174-38(i). [RCSA §22a-174-38(c)(3)] The emission limits set forth in RCSA §22a-174-38(c) shall apply at all times except during periods of startup, shutdown, or malfunction as set forth in RCSA §22a-174-38(c)(11).
2. This MWC shall not emit greater than 11.0 tons of particulate matter per calendar year.
3. Shutdown Limit: In the event that the PM emission rate exceeds 43.5 milligrams per dry standard cubic meter of exhaust gas corrected to seven percent oxygen, as determined through stack testing compliance data, and the cause can not be corrected within 24 hours, the Permittee shall immediately institute the furnace shutdown procedure in accordance with the approved O&M Manual (incorporated by reference into this permit). The furnace will be permitted to restart only after the Permittee demonstrates to the commissioner's satisfaction that sufficient corrective action has been taken. Within three days after restarting operation under this circumstance, the Permittee shall demonstrate in writing to the commissioner's satisfaction that it is in compliance with the PM emission limit. The commissioner shall determine the need and scope of further testing to the extent necessary to document compliance, and the Permittee shall conduct such testing as the commissioner determines is necessary to document compliance.

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**PART VI. ALLOWABLE EMISSION LIMITS, continued**

- B. Opacity:** The Permittee shall not cause or allow visible emissions in excess of 10% opacity. [RCSA §22a-174-38(c)(1)] Continuous compliance with the opacity emission limit shall be based on a six-minute arithmetic average. [RCSA §22a-174-38(c)(5)] The emission limits set forth in RCSA §22a-174-38(c) shall apply at all times except during periods of startup, shutdown, or malfunction as set forth in RCSA §22a-174-38(c)(11).
- C. Sulfur Dioxide (SO<sub>2</sub>):**
1. The Permittee shall not cause or allow emission of sulfur dioxide in excess of 29 ppmvd corrected to seven percent oxygen, or achieve 80% reduction by weight or volume measured as required by RCSA §22a-174-38(c)(7), whichever is less stringent [RCSA §22a-174-38(c)(1)], not to exceed 66 ppmvd corrected to seven percent oxygen. Continuous compliance with the sulfur dioxide limit shall be based on a 24-hour geometric average of the hourly arithmetic average emission concentrations using CEM system outlet data if compliance is based on an emission concentration, or CEM system inlet and outlet data if compliance is based on a percent reduction. [RCSA §22a-174-38(c)(4)] The emission limits set forth in RCSA §22a-174-38(c) shall apply at all times except during periods of startup, shutdown, or malfunction as set forth in RCSA §22a-174-38(c)(11).
  2. The Permittee shall not cause or allow emission of sulfur dioxide in excess of 50 ppmvd corrected to seven percent oxygen, or achieve 65% reduction by weight or volume measured as required by RCSA §22a-174-38(c)(7), whichever is less stringent, not to exceed 115 ppmvd corrected to seven percent oxygen, based on a 3-hour rolling average.
  3. This MWC shall not emit greater than 42.45 tons of sulfur dioxide per calendar year.

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**PERMIT FOR MUNICIPAL WASTE COMBUSTOR**

**STATE OF CONNECTICUT, DEPARTMENT OF ENVIRONMENTAL PROTECTION  
BUREAU OF AIR MANAGEMENT**

**PART VI. ALLOWABLE EMISSION LIMITS, continued**

4. Shutdown Limit: In the event that the SDA control efficiency for SO<sub>2</sub> falls below 75% by weight or volume measured as required by RCSA §22a-174-38(c)(7) and the SO<sub>2</sub> emission rate exceeds 32 ppmvd corrected to seven percent oxygen, based on a 24-hour geometric average, as determined through CEM compliance data, and the cause can not be corrected within 24 hours, the Permittee shall immediately institute the furnace shutdown procedure in accordance with the O&M Manual. The furnace will be permitted to restart only after the Permittee demonstrated to the commissioner's satisfaction that sufficient corrective action has been taken. Within three days after restarting operation under this circumstance, the Permittee shall demonstrate, in writing to the commissioner, that it is in compliance with the SO<sub>2</sub> permit conditions. The commissioner shall determine the need and scope of further testing to the extent necessary to document compliance, and the Permittee shall conduct such testing as the commissioner determines is necessary to document compliance.

**D. Nitrogen Oxides (NOx):**

1. The Permittee shall not cause or allow emission of nitrogen oxides in excess of 168 ppmvd corrected to seven percent oxygen. Continuous compliance with the nitrogen oxides emission limit shall be based on a 24-hour daily average. [RCSA §22a-174-38(c)(9)] The emission limits set forth in RCSA §22a-174-38(c) shall apply at all times except during periods of startup, shutdown, or malfunction as set forth in RCSA §22a-174-38(c)(11).
2. Startup, Shutdown, Malfunction or Warm-up Limit: Nitrogen oxides emissions shall not exceed 300 ppmvd corrected to seven percent oxygen based on a 24-hour daily average. This emission limit shall apply only during the warm-up period when no municipal solid waste is being combusted and only propane is being combusted, and during periods of start-up, shutdown, and malfunction. The warm-up period shall be limited to 8 hours per occurrence. Compliance with this limit shall be determined through CEM compliance data.
3. This MWC shall not emit greater than 148.35 tons of nitrogen oxides per calendar year.

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Firm Name: Wheelabrator Lisbon Inc.  
 Equipment Location: 425 South Burnham Highway, Lisbon, CT 06351  
 Equipment Description: Babcock & Wilcox/Von Roll Reciprocating Grate,  
Waterwall Furnace, Natural Circulation Boiler No. 2

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**PART VI. ALLOWABLE EMISSION LIMITS, continued**

4. Shutdown Limit: In the event that the NOx emission rate exceeds 300 ppmvd corrected to seven percent oxygen, based on a 24-hour daily average, as determined through CEM compliance data, and the cause can not be corrected within 24 hours, the Permittee shall immediately institute the furnace shutdown procedure in accordance with the O&M Manual. The furnace will be permitted to restart only after the Permittee demonstrates to the commissioner's satisfaction that sufficient corrective action has been taken. Within three days after restarting operation, the Permittee shall demonstrate, in writing to the commissioner, that it is in compliance with the NOx permit conditions. The commissioner shall determine the need and scope of further testing to the extent necessary to document compliance, and the Permittee shall conduct such testing as the commissioner determines is necessary to document compliance.

**E. Carbon Monoxide (CO):**

1. The Permittee shall not cause or allow emission of carbon monoxide in excess of 100 ppmvd corrected to seven percent oxygen. Continuous compliance with the carbon monoxide emission limit shall be based on a 4-hour block average. [RCSA §22a-174-38(c)(10)] The emission limits set forth in RCSA §22a-174-38(c) shall apply at all times except during periods of startup, shutdown, or malfunction as set forth in RCSA §22a-174-38(c)(11).
2. Startup, Shutdown, Malfunction or Warm-up Limit: Carbon monoxide emissions shall not exceed 8201 ppmvd corrected to seven percent oxygen based on a 1-hour average, and 2261 ppmvd corrected to seven percent oxygen based on an 8-hour block average. These emission limits shall apply only during the warm-up period when no municipal solid waste is being combusted and only propane is being combusted, and during periods of start-up, shutdown, and malfunction. The warm-up period shall be limited to 8 hours per occurrence. Compliance with these limits shall be determined through CEM compliance data.
3. This MWC shall not emit greater than 25.0 tons of carbon monoxide per calendar year.

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Town No.: 093

Premises No.: 0014

Permit No.: 0009

Stack No.: 001

**ORIGINAL**

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**PART VI. ALLOWABLE EMISSION LIMITS, continued**

**F. Volatile Organic Compounds (VOC) and Hydrocarbons (HC):**

1. The Permittee shall not cause or allow emission of greater than 16 ppmvd of volatile organic compounds (expressed as methane) corrected to seven percent oxygen.
2. This MWC shall not emit greater than 5.1 tons of volatile organic compounds per calendar year.

**G. Hydrogen Chloride (HCl):**

1. The Permittee shall not cause or allow emission of hydrogen chloride in excess of 25 ppmvd corrected to seven percent oxygen, or achieve 95% reduction by weight or volume measured as required by RCSA §22a-174-38(c)(7), whichever is less stringent [RCSA §22a-174-38(c)(1)], not to exceed 36.2 ppmvd corrected to seven percent oxygen. Compliance with this emission limit shall be determined based on an annual performance test, performed as set forth in RCSA §22a-174-38(i). [RCSA §22a-174-38(c)(3)] The emission limits set forth in RCSA §22a-174-38(c) shall apply at all times except during periods of startup, shutdown, or malfunction as set forth in RCSA §22a-174-38(c)(11).
2. Shutdown Limit: In the event that the SDA control efficiency for HCl falls below 90% by weight or volume measured as required by RCSA §22a-174-38(c)(7) and the HCl emission rate exceeds 26.4 ppmvd corrected to seven percent oxygen, as determined through stack testing compliance data, and the cause can not be corrected within 24 hours, the Permittee shall immediately institute the furnace shutdown procedure in accordance with the O&M Manual. The furnace will be permitted to restart only after the Permittee demonstrated to the commissioner's satisfaction that sufficient corrective action has been taken. Within three days after restarting operation under this circumstance, the Permittee shall demonstrate, in writing to the commissioner, that it is in compliance with the HCl permit conditions. The commissioner shall determine the need and scope of further testing to the extent necessary to document compliance, and the Permittee shall conduct such testing as the commissioner determined is necessary to document compliance.

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**PART VI. ALLOWABLE EMISSION LIMITS, continued**

- H. Cadmium (Cd):** The Permittee shall not cause or allow emission of cadmium in excess of 0.040 milligrams per dry standard cubic meter of exhaust gas corrected to seven percent oxygen. [RCSA §22a-174-38(c)(1)] Compliance with this emission limit shall be determined based on an annual performance test, performed as set forth in RCSA §22a-174-38(i). [RCSA §22a-174-38(c)(3)] The emission limits set forth in RCSA §22a-174-38(c) shall apply at all times except during periods of startup, shutdown, or malfunction as set forth in RCSA §22a-174-38(c)(11).
- I. Lead (Pb):**
1. The Permittee shall not cause or allow emission of lead in excess of 0.44 milligrams per dry standard cubic meter of exhaust gas corrected to seven percent oxygen. [RCSA §22a-174-38(c)(1)] Compliance with this emission limit shall be determined based on an annual performance test, performed as set forth in RCSA §22a-174-38(i). [RCSA §22a-174-38(c)(3)] The emission limits set forth in RCSA §22a-174-38(c) shall apply at all times except during periods of startup, shutdown, or malfunction as set forth in RCSA §22a-174-38(c)(11).
  2. This MWC shall not emit greater than 0.211 tons of lead per calendar year.
- J. Mercury (Hg):** The Permittee shall not cause or allow emission of mercury in excess of 0.028 milligrams per dry standard cubic meter of exhaust gas corrected to seven percent oxygen, or achieve 85% reduction by weight measured as required by RCSA §22a-174-38(c)(7), whichever is less stringent. [RCSA §22a-174-38(c)(1)] Compliance with this emission limit shall be determined based on an annual performance test, performed as set forth in RCSA §22a-174-38(i). [RCSA §22a-174-38(c)(3)] The emission limits set forth in RCSA §22a-174-38(c) shall apply at all times except during periods of startup, shutdown, or malfunction as set forth in RCSA §22a-174-38(c)(11).

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**PART VI. ALLOWABLE EMISSION LIMITS, continued**

**K. Dioxins and Furans:**

1. The Permittee shall not cause or allow emission of dioxins and furans in excess of 30 nanograms of per dry standard cubic meter of exhaust gas total mass corrected to seven percent oxygen. [RCSA §22a-174-38(c)(1)] Compliance with this emission limit shall be determined based on an annual performance test, performed as set forth in RCSA §22a-174-38(i). [RCSA §22a-174-38(c)(3)] The emission limits set forth in RCSA §22a-174-38(c) shall apply at all times except during periods of startup, shutdown, or malfunction as set forth in RCSA §22a-174-38(c)(11).
2. The Permittee shall not cause or allow emission of greater than 0.46 ng/dscm corrected to seven percent oxygen (dry basis) of toxic equivalents (2,3,7,8-tetrachlorodibenzo-p-dioxins). [RCSA §22a-174-1 and EPA/625/3-87/012, March 1987]

**L. Sulfuric Acid:** The Permittee shall not cause or allow sulfuric acid emissions of greater than 4.1 ppmvd corrected to seven percent oxygen.

**M. MWC Acid Gases:** Both MWCS (permits 093-0008 & 093-0009) combined shall not emit greater than 89.0 tons per calendar year of MWC Acid Gases. MWC Acid Gases are the sum of SO<sub>2</sub> and HCl emissions.

**N. Ammonia:** The Permittee shall not cause or allow emission of ammonia in excess of 18 ppmvd corrected to seven percent oxygen. 40 CFR Part 60, Appendix A, Reference Method 26A or other method approved by the commissioner shall be used for determining compliance with the ammonia emission limit. The compliance determination for ammonia shall be based on an arithmetic average determined using all data generated in three test runs. The minimum sample time shall be one hour per each test run.

**O. State Designated Hazardous Air Pollutants:** The Permittee shall not cause or allow an exceedance of the Maximum Allowable Stack Concentration (MASC) for any hazardous air pollutant listed in RCSA §22a-174-29.

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**PART VII. STACK EMISSION TEST REQUIREMENTS**

*(See Appendix B for General Requirements)*

- A. The Permittee shall conduct an annual performance test for this MWC for dioxin/furan, particulate matter, hydrogen chloride, cadmium, lead, mercury and fugitive ash as set forth in RCSA §22a-174-38(i). The annual performance test for dioxin/furan shall be conducted as set forth in RCSA §22a-174-38(i)(3). The Permittee shall conduct an annual performance test for ammonia using EPA Method 26A or other method approved by the commissioner. All performance tests shall be conducted under representative full load operating conditions.
- B. The Permittee shall submit the Intent-to-Test (ITT) package to the Stack Test Group of the Bureau of Air Management at least 90 days before the proposed source test date. The Permittee shall provide written notification to the commissioner three business days prior to conducting any performance test. The Permittee shall submit an acceptable test report to the commissioner within 60 days of the completion of the performance test.
- C. The Permittee shall comply with all applicable notification, testing, and record keeping provisions of 40 CFR Part 60 Appendix A and Ea and RCSA §22a-174-38.
- D. Pursuant to RCSA §§22a-174-5(e) and 22a-174-29(e), the commissioner may require the Permittee to conduct additional performance testing of any pollutant, possibly on an annual basis, based on CEM data, emission test results, and any other information that the commissioner deems appropriate.

**PART VIII. PREMISES REQUIREMENTS**

- A. (State Only Enforceable Requirement) The Permittee shall comply with the state odor regulations, as set forth in RCSA §22a-174-23.
- B. (State Only Enforceable Requirement) The Permittee shall comply with the state noise control regulations, as set forth in RCSA §§22a-69-1 through 22a-69-7.4.

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**PART VIII. PREMISES REQUIREMENTS, continued**

- C. The Permittee shall institute and comply with the following conditions at all times:
1. Vehicular traffic areas shall be paved and adequately swept at the plant site.
  2. Ensure that all trucks when loaded with municipal solid waste or any material likely to become airborne are covered at all times while outside the tipping building.
  3. Transfer, storage and transportation at and from the plant site, of materials collected from the furnace grates and air pollution control equipment shall be transferred in a covered container or other method equally effective in preventing the material from becoming airborne during storage and transfer.
  4. The Permittee shall implement a clean up program on the plant site whereby any refuse, MSW or other materials will be collected.
- D. Except during periods of maintenance and repair of ash conveying systems, the visible emissions to the atmosphere from the conveyance or transfer of combustion ash shall be limited to five percent of the observation period (i.e., nine minutes per three hour period), as set forth in RCSA §22a-174-38(i)(4)(I). During periods of maintenance and repair of the ash conveyance systems all reasonable measures to control emissions from this MWC shall be implemented. [RCSA §22a-174-38(f)]

**PART IX. ENFORCEMENT CONSIDERATIONS**

- A. CEM data, stack testing data and the results of any monitoring and testing of source parameters and emission rates shall, unless otherwise specified in this permit, be used to determine compliance with this permit.
- B. Certain pollutants have both emission limits and shutdown limits. An exceedance of either an emission limit (except during periods of startup, shutdown, or malfunction) or a shutdown limit is considered a violation of a permit condition and will subject the Permittee to enforcement action. If a shutdown limit is exceeded, the Permittee must cease operation of the MWC and will be subject to enforcement action. The existence of a shutdown limit shall not preclude an EPA or DEP enforcement action seeking injunctive relief, including shutdown of the facility, for a violation of an emission limit.

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**PART IX. ENFORCEMENT CONSIDERATIONS, continued**

- C. Pursuant to CGS §22a-6b, the Permittee is hereby advised of its liability for assessment of civil penalties for any violation of this permit.
- D. Notwithstanding any other provision of this permit, for the purpose of determining compliance or establishing whether a Permittee has violated or is in violation of any permit condition, nothing in this permit shall preclude the use, including the exclusive use, of any credible evidence or information.
- E. Because it is possible that under certain operating conditions of the SNCR system that ammonium salts (e.g., ammonium chloride and ammonium sulfate) may be formed which may not be effectively controlled by the fabric filter, operation of the SNCR system shall not be considered in emission limit violations for PM and PM-10.

**PART X. SPECIAL REQUIREMENTS**

- A. The Permittee shall comply with all applicable sections of the following New Source Performance Standard(s) at all times. (Applicable if checked)  
  
40 CFR Part 60, Subpart  A  Ea  
(See Appendix C for detailed requirements)

**PART XI. 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 DEP 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.
- C. This permit may be revoked, suspended, modified or transferred in accordance with applicable law.

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

- 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 XI. 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 Environmental Protection; 79 Elm Street, 5th Floor; Hartford, Connecticut 06106-5127.

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Appendices attached (Applicable if -X- checked):

- A. Continuous Emission Monitoring Requirements
- B. Stack Emission Test Requirements
- C. New Source Performance Standards
- D. National Emission Standards for Hazardous Air Pollutants
- E. Control Equipment Design Specifications
- F. Residence Time/Temperature Calculation Procedure
- G. Chart 1: maximum MSW feed rate as a function of the MSW heating value  
Chart 2: maximum MSW & PDW feed rate as a function of the MSW heating value

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**APPENDIX E**  
**Control Equipment Design Specifications**

Air Pollution Control Equipment (applicable if -X- checked).

The Permittee shall comply with the procedures for malfunction of control equipment as set forth in RCSA §22a-174-7.

- Fabric Filter:** 4 compartments @ 5390 ft<sup>2</sup> each - a minimum of 3 compartments must be in service at all times (i.e., one compartment may be taken off-line due to malfunctions or maintenance purposes only)

Make and Model: WAPC Pulse Jet Size FA1715TA Model 156 Series 6P  
Air/Cloth Ratio: 3.66:1 at 64,224 acfm with 3 compartments in service  
Bag Material: felt polyester, glass fiber/membrane or equivalent  
Cleaning Method: Automatic  
Pressure Drop Across Each Compartment (inches H<sub>2</sub>O): 4-12  
Pressure Drop Across fabric filter (inches H<sub>2</sub>O): 4-12  
Design Removal Efficiency (%): 99% +

- SPRAY DRYER ABSORBER (SDA):**

Make and Model: WAPC Spray Dryer Absorber  
Control Reagent: Lime slurry  
Lime Usage: 200-600 lb/hr  
Water Usage: 300-1200 gal/hr  
Inlet Gas Temperature: 375-525°F  
Pressure Drop Across SDA (inches H<sub>2</sub>O): 0.7-4.5  
Design Removal Efficiency (%): N/A

- SELECTIVE NONCATALYTIC REDUCTION (SNCR) SYSTEM:**

Make and Model: WAPC NOxOUT®  
Control Reagent: Urea Solution  
Reagent Injection Rate: 2-15 gal/hr  
Temperature Range: 1200-2000°F  
Furnace Mixing Time: minimum 0.5 seconds  
NH<sub>3</sub>/NO<sub>x</sub> Molar Ratio: 0.49 - 0.86  
Design Removal Efficiency (%): 35

- POWDERED ACTIVATED CARBON INJECTION SYSTEM:**

Make and Model: Norit Americas Inc Porta-PAC™  
Control Reagent: Powdered Activated Carbon  
Reagent Injection Rate: 0-25 lb/hr  
Design Removal Efficiency (%): N/A

WAPC= Wheelabrator Air Pollution Control

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